

Organ Procurement and Extrajudicial Execution in China: *A Review of the Evidence* 



# Organ Procurement and Extrajudicial Execution in China: A Review of the Evidence

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Victims of Communism Memorial Foundation is an educational, research, and human rights nonprofit devoted to commemorating the more than 100 million victims of communism around the world and to pursuing the freedom of those still living under totalitarian regimes.

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### **EXECUTIVE SUMMARY**

The Victims of Communism Memorial Foundation (VOC) has conducted a detailed examination of the allegations of extrajudicial killing for the harvesting of organs by the Chinese Communist Party and the evidence underlying these allegations. The report was produced by VOC China Studies Research Fellow Matthew P. Robertson, a doctoral researcher whose work using statistical forensics to demonstrate the falsification of Chinese organ donor registry data was recently published in the leading journal of medical ethics, *BMC Medical Ethics*.

The report contributes to the literature and policy discussion on coercive organ transplant practices in China in several ways: it presents new primary documentary research and original datasets, integrates established scholarship on China's death penalty system, and situates previously published works on organ harvesting within a careful discussion of counterfactual scenarios and scientific inference. It also serves as a roadmap to the debate about and evidence of extrajudicial killing for organs in China, while also critically engaging with how that evidence has been interpreted and received. The report challenges international complacency on the topic by examining the signs of ongoing organ trafficking, highlighting the falsification of *official* datasets, and analyzing the evidence that Uyghur Muslims may be the latest victims of this form of state predation.

In examining the extraordinary growth of organ transplantation and rapid availability of organs in China, the report asks one overarching question: What is the most plausible explanation for the source of the organs? The report examines the evidence of blood-testing and medical examinations of Falun Gong practitioners and Uyghurs in custody, and finds that extrajudicial organ sourcing from these populations is the most plausible and parsimonious explanation. As such, readers should adopt it as empirically adequate until either a better explanation or reliable data inconsistent with the hypothesis emerges.

#### Data sources

VOC researchers created a new dataset on the growth of China's transplant system, based on nearly 800 data points from over 300 hospitals, showing the rapid growth of China's organ transplantation system just after 2000. As part of the report, Robertson examined several hundred original, primary sources on organ transplantation practices in China. These included archival documents, internal speeches and Communist Party circulars, clinical papers, internal

circulation books, transplantation handbooks and textbooks, and hundreds of live and archived versions of transplant hospital websites. This report's appendices (available online) also contain the first attempt to create a comprehensive picture of the official claims of organ transplant volume, revealing a number of discrepancies and apparent attempts at retroactively manipulating transplant volume downward.

#### Background

China's organ transplantation system began a period of rapid expansion starting in the year 2000. Over the four-year period from 2000 to 2004, according to Dr. Huang Jiefu (a key architect of China's transplantation system), China more than tripled the number of hospitals performing transplants. This resulted in transplant volume growth in kidney transplants of 510%, in liver transplants of 1,820%, in heart transplants of 1,100%, and in lung transplants of 2,450%.

In original research, Robertson tabulated the transplant infrastructure of a convenience sample of 10 transplant hospitals of varying sizes, locations, and bureaucratic affiliation, using highly conservative variable inputs. This led to an estimate of nearly 14,000 transplants annually in just 10 hospitals. There are 173 authorized transplant facilities in China.

In a Data Supplement to the report expanding on the question of transplant volume, VOC proposes a defensible bare minimum estimate over most of the period under study of 30,000 transplants annually. This figure arises independently from three different methods of calculation. The figure is not intended to estimate actual transplant volume, but as a device to emphasize that even a highly conservative and artificial attempt to establish a bare minimum value results in one that is triple the size of China's official public stance, and which cannot be explained by the official narrative.

The CCP's official narrative of its organ sourcing practices has been subject to several revisions. Until 2005, the official position was that organs came only from volunteers, and that claims of China harvesting organs from prisoners were "vicious slander." Subsequently, the official position was revised to claim that organs were coming from judicially executed prisoners — *i.e.*, those who had been convicted of capital crimes and sentenced to death. This remained the official explanation proffered for China's organ transplant sourcing until 2015, and it remains the received wisdom among many in the West to this day, despite

death penalty reforms that began steadily reducing executions in 2000, and which led to a further and rapid reduction in 2007. From 2015 onward, PRC officials have claimed that hospital-based citizen donors have replaced capital prisoners as the sole source of deceased donor organs for transplant.

#### Results

The central argument of this report can be summarized as follows:

- Starting in 2000, the PRC rapidly constructed a worldclass organ transplantation system that began performing tens of thousands of transplants annually.
- Initially, PRC officials claimed that all organs were from voluntary civilian donors. When this claim became untenable, they stated that organs were in fact from death row prisoners.
- The claim that the majority of organs could have come from death row prisoners is contradicted by the well-established decline in death row executions from 2000 onwards.
- 4. A close examination of PRC transplant activity indicates that Chinese hospitals have been performing at least several times more transplants than even the largest estimates of death-row prisoners are able to account for. Given this, the provisional conclusion is that some other organ source, apart from death-row prisoners, must have been utilized.
- 5. The number of liver transplants performed on an emergency basis (*i.e.*, within 24–72 hours of the recipient's presentation at hospital with liver failure) or on demand basis (within days or weeks) expanded significantly post-2000. This is an extremely strong indication of a blood-typed pool of living donors able to be executed on demand.
- 6. If death row prisoners were not the source of the majority of transplants, the only remaining plausible explanation for a substantial portion of the organ sourceing since 2000 is prisoners of conscience.
- 7. Evidence pointing to this source includes the coincidence of the anti-Falun Gong campaign (July 1999) with the rapid growth of China's transplant industry six months later, widely reported blood tests and physical examinations consistent with those required for organ procurement, telephone admissions by Chinese doctors, threats of organ harvesting by prison and labor camp guards, and participation in the anti-Falun Gong campaign by Chinese transplant surgeons.

- 8. Since 2015, due to international pressure China's organ transplantation system has claimed to source organs from voluntary donors only. Forensic analysis of the relevant data shows that it has been falsified. This appears to be a deliberate attempt to deceive the international medical community as to the current source of organs in China. Given that transplants continue both at scale and on demand, it appears that a secondary concealed organ source is now also being exploited.
- 9. During the same period, the Chinese Communist Party has embarked upon a large-scale campaign against Uyghur Muslims. Part of this campaign has included blood-testing, DNA typing, and the reported shipment of Uyghurs from Xinjiang to the Chinese interior by rail. Former Uyghur detainees now in exile have reported blood tests and physical examinations consistent with those necessary to establish organ health.
- 10. The coincidence of the mass internment in Xinjiang, ongoing rapid organ availability in Chinese hospitals, and blood and physical tests consistent with assessing organ health, is readily explicable by the exploitation of Uyghurs for their organs.

#### Conclusion

At this stage, only the Chinese authorities are in a position to put these allegations to rest. Instead of doing so, they have co-opted international medical elites, responded with propaganda to those making the allegations, and engaged in an elaborate scheme of data falsification, creating a Potemkin voluntary donation system while continuing to offer organs on demand to paying clients. World governments have not publicly challenged China as to the source of its organs, and international medical and human rights organizations have also failed to raise public concerns as to the scale of the PRC transplant system and the real source of organs.

The Victims of Communism Memorial Foundation publishes this research in the hope it will bring attention to and careful consideration of these longstanding allegations, and that it may at last precipitate not only a shift in the terms of debate on this issue but long-overdue US and international governmental investigation and action.

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## INTRODUCTION

"We must ask ourselves, 'Where is the evidence?', not 'Where is the lack of evidence so that I can fit in any hypothesis that I like?" — Coryn Bailer-Jones<sup>1</sup>

"How often have I said to you that when you have eliminated the impossible, whatever remains, however improbable, must be the truth?"— Sherlock Holmes<sup>2</sup>

eginning in the year 2000, the People's Republic of China began a singular feat of medical advancement and mobilization, constructing one of the largest systems of organ transplantation in the world in a matter of years. Unlike other countries, however, China did this without the use of voluntary deceased donors as an organ source.

China's organ-sourcing practices have been controversial since the inception of the field. Yet for the most part, key global constituencies — including medical associations, human rights organizations, scholars, major media organizations, and the relevant executive agencies of most Western governments — have not devoted resources to a close examination of the case. Without commitment of resources, the public stance defaults to a largely uncritical adoption of the Chinese Communist Party's official explanation as to the source of organs. This explanation has changed three times. Pre-2006, the official stance was that the source of organs was primarily voluntary donors. From 2006 to 2015, China claimed the source of organs had been death-row prisoners all along. Post-2015, China has claimed the source of organs to be solely voluntary, non-prisoner deceased donors.

A review of the evidence, however, indicates that the official explanations of organ sourcing in China require re-examination. China's organ transplantation machine has rapidly accelerated since 2000, yet the country's death penalty cases have declined. This contradiction demands an explanation. Recent evidence further belies China's claim that organ transplant system reform is underway; it indicates Chinese medical administrators systematically falsified their voluntary deceased donation numbers from 2010 onwards.<sup>3</sup>

These contradictions between the facts and China's claims about its human organ transplantation program are the focus of this report. The paper makes three arguments. First, China's official explanation (since 2006) of voluntary donors as the main source of organs fails to account for phenomena observed in the development of its transplantation industry

since 2000. Second, an undisclosed population has therefore been China's main source of organs for two decades. Third, this undisclosed source is political prisoners. Given recent evidence of ongoing organ trafficking in China, the evidence and argumentation in this report are not only relevant: they are urgent.

A report of this limited scope, on such a complex and fraught topic — where many of the substantive facts on which the synthetic claims are based, require further primary research and analysis — could not pretend to be exhaustive. It should be taken as a roadmap to the argumentation and evidence readily available, as an account of the varied responses to the evidence, and as a critical engagement with those responses. The report also includes a significant volume of new evidence from officially published Chinese primary materials.

#### 1.1.

#### Why this report was written and for whom

China's organ transplantation system can be a polarizing topic. The state of the field in research and knowledge about it broadly falls into two camps. On one side are international medical bodies (e.g., The Transplantation Society, the Declaration of Istanbul Custodian Group, the World Health Organization) who seek to engage with China via official channels; who generally endorse statements from China about reform to its transplant system; and who stand by the post-2015 claim of China no longer using organs from executed prisoners. These actors, both as institutions and as individuals, have not traditionally evinced an interest in the study of China's organ transplantation industry per se. They have not sought to ascertain the industry's actual scale, transplant volume, nor the ties among China's healthcare system, security apparatus, and military-medical complex. On the most contentious question of all — whether organ-sourcing practices in the PRC have involved widespread extrajudicial, not merely judicial, executions - these institutions have been particularly incurious. Their focus has been limited to assisting Chinese officials deemed trustworthy in the construction of an ethical organ allocation infrastructure, which was to replace the use of death-row prisoners after 2015.4

On the other side is a collection of independent investigators, activists, scholars, and non-governmental organizations (e.g.,

Doctors Against Forced Organ Harvesting, the International Coalition to End Transplant Abuse in China, the China Organ Harvest Research Center) who have tended to focus more closely on whether human rights abuses, or even crimes against humanity, have been committed in the acquisition of organs, and who have considered, as a secondary matter, questions of China's integration into the international transplantation community. The focus of this camp has been the identities of those from whom organs have been harvested in particular, whether death-row prisoners have been the sole population, or prisoners-of-conscience and other non-deathrow prisoners have also been targeted. Their skepticism has led them to exercise greater scrutiny over the Chinese authorities' claims of reform. Rather than finding new means of cooperation and inclusion between China and the wider transplant world, much of this camp believes sanctions and moratoria are far more suitable responses. The author of this report belongs to this latter group.

The most fundamental divergence between the two groups relates to the matter that this report focuses on: to what extent organ sourcing in China has extended beyond voluntary donors and death-row prisoners and has included prisoners-of-conscience via extrajudicial killing. The transplantation establishment has declined to directly address this question or to devote resources to a scientific investigation of it; the investigators and NGOs, on the other hand, have focused on it almost exclusively.

Notably absent from the debate so far has been the institutional human rights community. The reasons for this absence likely relate to competing priorities, the complexity of the topic, the resources required to develop in-house expertise and conduct empirical research, and an apparent tendency by the major human rights organizations to systematically overlook issues related to Falun Gong (a persecuted Chinese spiritual practice, closely linked to allegations of organ harvesting since 2006). Whatever the explanation, the absence of attention extends to the coverage of China-based correspondents at mainstream Western publications, as well as to academic China studies, likely for the same broad set of reasons.

This state of affairs has meant that Western governments have been confronted by two sharply divergent sets of messaging and have been unequipped and unprepared to adjudicate between them. It is possible that even if trusted human rights groups had endorsed these allegations years ago, indecision still may have triumphed given previously optimistic relations between Beijing and the West. For whatever reason, the

matter has remained almost as it first arrived before foreign affairs officials in 2006: an explosive claim that they lacked the patience, interest, or resources to verify.

Fourteen years have passed since the initial claims surfaced; more than two decades have passed since the alleged abuses began. The volume of quality evidence and the sophistication with which it can be analyzed has grown significantly. With the mass internment of Uyghur Muslims in Xinjiang, the disappearances of unknown numbers, widespread biometric data collection, reports of secret nighttime railway transportation of Uyghur prisoners, and fast-track organ lanes in Xinjiang airports, it is time for an honest assessment of the full array of evidence.<sup>7</sup>

This report, apart from presenting the arguments and evidence that organ harvesting of non-death-row prisoners has taken place on a considerable scale, also aims to engage the concerns, doubts, and counterarguments raised about such claims. Unfortunately, such reservations tend to be expressed in private and have not yet been given a thorough written exposition with reasoned, systematic argumentation and evidence. This report aims to "steel man" such arguments, giving them their strongest presentation, before responding to them. Obviously those who disbelieve the allegations cannot be expected to prove a negative (i.e., that the abuses have not taken place) — but given the evidence, and the inferences that any reasonable observer must draw from them, the burden of response should now be far greater. This report also provides suggestions for key observers to relate to the evidence and allegations, beyond the unhelpful binary of benign neglect or enthusiastic endorsement.

The report was written for anyone in the fields of policymaking, public health, human rights, and social science who has noted and wondered about the allegations of coercive organ procurement in China, and is interested in a careful, fair, and evidence-based discussion of those allegations.

## CHINA'S ORGAN TRANSPLANTATION SYSTEM PRE-2000

he Communist Party's civilian hospitals, military, and paramilitary forces have been involved in organ transplantation since the advent of the field in China. The first line of the first publication of basic transplant research performed in China, published in 1958, reflects the politics of the era: "Our teaching and research group has responded to the Party's call to 'stir up a technological revolution' and the comrades have rushed headlong with enthusiasm into organ transplant research." The results — two heart transplants of dogs — were modest, with one apparent failure and one animal surviving for 60 hours.<sup>8</sup> Other early publications were translations from Soviet medical journals about transplanting the legs and kidneys of dogs.<sup>9</sup>

The first reported human organ transplant in China took place in March 1960. It was performed by Wu Jieping, a Communist Party member and transplant surgeon who became one of China's most prominent doctors, a member of the healthcare group for senior Party officials, and a personal physician to Zhou Enlai. Little information is available about this surgery, suggesting that patient survival time was minimal. The first successful kidney transplant took place in 1972 at the First Affiliated Hospital of Sun Yat-sen University, led by Professor Mei Hua.

Almost from the outset, organ procurement has taken place alongside political abuses. The earliest reported instance occurred in 1970, with the live organ harvesting of Li Lian, an 18-year-old former Red Guard commander, sentenced to death for questioning the political theories of Lin Biao, then second-in-command after Party leader Mao Zedong.<sup>12</sup> The most well-known early case of organ harvesting for political retribution took place on April 30, 1978, when the young political prisoner Zhong Haiyuan had her kidneys extracted on the execution ground while she was still alive.<sup>13</sup>

If some of these early cases were partly political theater, the therapeutic and commercial aspects of coercive organ procurement took precedence by the 1990s. The Uyghur former surgeon Enver Tohti, now based in London, says that he was forced to remove the liver from a prisoner who had been shot, but who had not yet died, in 1995 in Xinjiang. The victim had long hair, rather than the shaved head of a death-row convict, indicating to Tohti that the victim may have been a non-death-row prisoner and potentially a political prisoner. <sup>14</sup>

According to interviews by author Ethan Gutmann, the first confirmed cases of political prisoners having their organs coercively harvested took place in Ürümqi in 1997, following a massacre known as the Ghulja Incident.<sup>15</sup> Such accounts indicate that organ transplantation in China has gone handin-hand with abuses against political enemies and prisoners.

The ties between the organ transplant system and the official system of healthcare for senior Party and military leaders are extensive and persistent. These include personnel ties and institutional affiliations (i.e., transplant surgeons hold chairmanships on Party healthcare committees, and hospitals that look after the health of Party cadres are on the cutting edge of transplant medicine). The health care demands of Party elites may have been a factor in the prioritization of the development of transplantation as a clinical therapy, given that it is the only cure for many forms of end-stage organ failure.16 Political authorities also exercise extensive control over the healthcare apparatus in China.<sup>17</sup> For instance, 90% of the doctors in the transplant department of Renji Hospital, Shanghai Jiao Tong University Medical College, were Party members in 2011;<sup>18</sup> hospitals often report hosting Party cells that engage in propaganda and mobilization work;19 internal Party circulars as early as the late 1980s and into the mid-2000s make clear that Party cadres are reimbursed for the cost of organ transplants.<sup>20</sup>

It was not until the 1980s that, with the availability of immunosuppressant drugs like cyclosporine, organ transplantation became a more common procedure.<sup>21</sup> This led to a steady growth in the industry through the 1980s and 1990s, with its well-documented reliance on the sole available organ source at the time, death-row prisoners.

But it was at the turn of the century that the system began its rapid expansion.

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## CHINA'S ORGAN TRANSPLANTATION SYSTEM POST-2000

eginnng in 2000, China's organ transplantation sector exploded in activity. Thousands of transplant surgeons were trained, and hundreds of hospitals — up to 1,000, according to Chinese media<sup>22</sup> — began offering routine transplants. The military-medical complex became heavily involved in transplant activity and research; the state began subsidizing a nascent immunosuppressant industry. Transplant waiting times went from many months to just weeks, days, and sometimes hours. Organ transplantation went from a specialized therapy catering primarily to Party cadres to a routine treatment available country-wide. Moreover, the availability of the type of organ expanded beyond almost exclusively kidneys through the 1980s and 1990s to include a significant increase in livers, hearts, lungs, and pancreata beginning in 2000.

Comprehensive quantification of China's transplant sector is a task that would require the systematic analysis of tens of thousands of Chinese medical publications, thousands of hospital website archives (many relevant websites have simply been taken down and not archived, making the sample limited), dozens of books, government procurement and funding documents, and extensive interviews with a corps of transplant surgeons who have no interest in a frank discussion with outsiders about their work. Even then, such an analysis would still capture only information that Chinese authorities have voluntarily released. Given the secrecy with which the transplant sector operates, and the nature of the relationship between hospitals and the security apparatus which has been almost the sole supplier of organ sources — a purely open source analysis could still not be expected to provide a comprehensive picture.

Nevertheless, short of precise quantification, it is possible to sketch out the scale of China's transplant industry and its growth through publicly available official Chinese medical papers, patent applications, surgeon biographies, media reports, and more.

Published reports exploiting such sources — most notably the Kilgour-Gutmann-Matas organ harvesting report of June 2016 (hereafter KGM Report),<sup>23</sup> the most voluminous to date, as well as the work produced by the World Organization to Investigate the Persecution of Falun Gong (WOIPFG) — demonstrate through example after example that Chinese hospitals

significantly expanded their transplant wards, transplant bed counts, staff numbers, and surgery volume post-2000. Though neither report uses a systematic method for quantifying transplant data from public sources at the level of every individual hospital, each brings forward many hundreds of illustrative cases covering almost every transplant hospital in the country, and many related aspects of China's transplant industry.

Evidence from Chinese-language sources makes clear that the two key shifts in the Chinese transplant sector beginning in the year 2000 were volume and waiting times (a proxy for availability): tens of thousands of transplants were being performed annually, with many transplants available on an on-demand basis. Yet this coincided with a gradual, and then sudden, drop in judicial executions across the same period.<sup>24</sup> These two obviously conflicting trends raise questions about the source of the organs.

### 3.1. Growth trajectories

The current report does not attempt to estimate national transplant volume in China. Short of that task, however, a great deal can be learned, with a high degree of confidence, about the nature of China's organ transplantation system. One insight gained from a non-quantitative study is the matter of trajectory: Did China's organ transplant system see a rapid expansion beginning around the year 2000, and is such growth consistent with where Chinese officials said the organs were coming from?

Indicators of surging transplant volume in the post-2000 period come from remarks made by senior surgeons themselves. He Xiaoshun, the vice president of a major Chinese hospital and a leading surgeon with numerous ties to the state, told Chinese media: "The year 2000 was a watershed for the organ transplant industry in China.... The number of liver transplants in 2000 reached 10 times that of 1999; in 2005, the number tripled further."<sup>25</sup>

A team of liver transplant surgeons at a major military hospital in southwest China likened the proliferation of hospitals performing liver transplants post-2000 to "rising abruptly like spring bamboo after the rain."<sup>26</sup>

In 2006, Chen Zhonghua, another leading transplant surgeon and director of the organ transplant research institute at Tongji Hospital in Wuhan, told an official legal publication that "currently the number of organ transplants taking place in China is too great, and there's a lot of foreign and domestic pressure to come out with regulations."

Similarly, Huang Jiefu, a key architect of China's organ transplantation system, in 2006 noted that at least 500 hospitals were performing liver transplants in China (compared to only around 100 in the United States, the report said)<sup>28</sup> and added: "The number of hospitals carrying out liver, kidney, and heart transplants in China is not too few, but too many."<sup>29</sup>

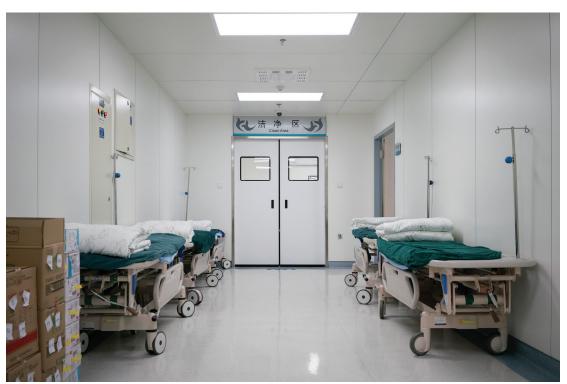
The deputy director of the transplant unit of the Tianjin First Central Hospital, Zheng Hong, explained that organ transplantation in China "got going rather late, dispenses treatment unevenly, has developed in an unbalanced manner, and came together overnight."<sup>30</sup>

A multitude of factors may explain this growth:

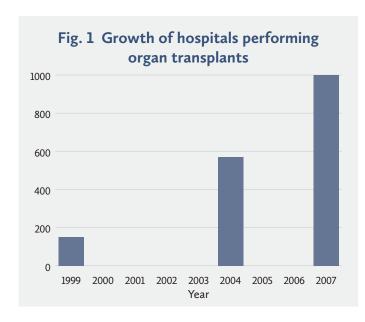
An extraordinarily lax regulatory framework around organ transplantation, with the first legislation in the field

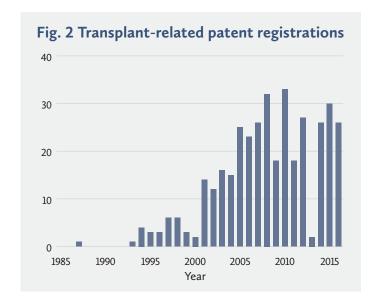
becoming effective as late as 2007, after being announced in 2006 (just one week after the first allegations of the use of Falun Gong prisoners-of-conscience as an organ source).<sup>31</sup> Prior to the 2007 legislation, the only known official document on the topic was a secret circular of temporary regulations issued by the Ministry of Public Security and other agencies in 1984 authorizing the use of death-row prisoners as an organ source.<sup>32</sup> Huang Jiefu has claimed no knowledge of this document.<sup>33</sup>

The incentivization of hospitals to expand transplant capacity by linking their official ranking with their excellence in performing organ transplants. A firm criterion for evaluating hospitals for 3A status (the highest), for instance, was the completion of over five organ transplants.<sup>34</sup> As Huang Jiefu himself explained, "Some hospitals thought that if they did organ transplants, it would represent that their medical techniques had achieved a certain level, and that it bestowed glory on them, so the result was single-minded pursuit of organ transplant volume."<sup>35</sup> The linkage of hospital grade to transplant skill grew with time. Minimum transplant capacity and surgical requirements increased only in 2006, with the centralization of control and management.<sup>36</sup>



A corridor in the surgery department of the Beijing Friendship Hospital, January 2017. (Giulia Marchi/The Washington Post/Getty Images)





The precarious funding of hospitals and staff in China, where doctors are underpaid and much of a surgeon's take-home income is "gray," meaning paid in cash for services rendered.<sup>37</sup> With transplant surgeries able to command upwards of 100,000 yuan (\$14,412) in cash payments — or commensurate amounts in dollars when treating foreigners — this provides a strong incentive for hospitals and surgeons to perform transplants.

Beyond all these conditions, however, the fundamental question is still organ sourcing. No matter the demand for transplantation, the incentives for doctors and hospitals to conduct transplants, and the institutional imperatives driving transplant development, without a national system of voluntary organ donation, prisoners of one kind or another can be the only source of deceased donor organ supply.

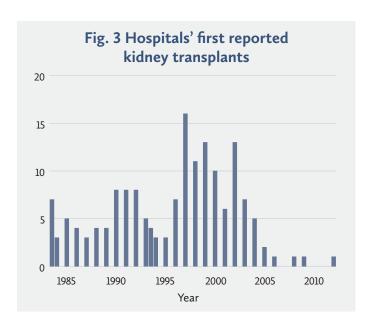
Three of the major trends that characterized China's organ transplantation industry post-2000 are sketched below: growth in infrastructure, growth in personnel, and growth of transplant-related technologies (including anti-rejection drugs).

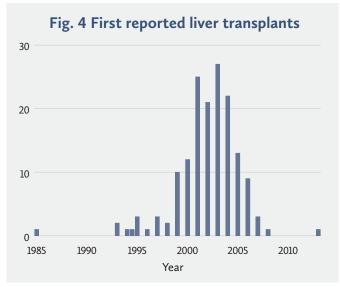
The figures show the rate of new organ-transplant research and surgical laboratories (Figure 8), as well as reports of the first time a particular kind of transplant surgery was reported to have been performed (Figure 3 - 7). Explanations for the figures are contained in Appendix 1; the raw data used to create the figures — comprising 773 datapoints across 417 hospitals — is contained in Appendix 2; the sources for the data for figures 3–9 are contained in Appendix 3 (appendices are available online).

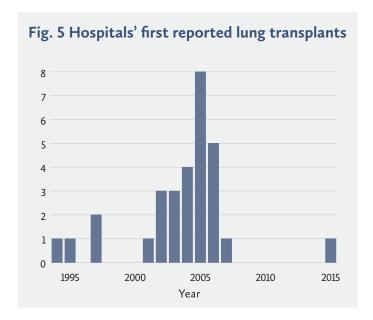
## Infrastructure and transplant type and volume

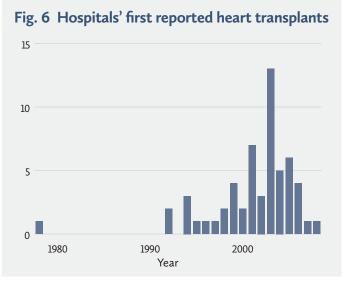
The data for these graphs is the result of data collected from the websites of more than 300 hospitals. Links to these materials were drawn from previously published research that had not previously been synthesized in this manner.<sup>38</sup> Each individual piece of data published by any particular hospital — the first liver transplant on this date, the first heart transplant on that — is not by itself indicative of illicit conduct, so a hospital would not be expected to self-censor or manipulate such information (unlike transplant volume, as discussed below). It is only when the data is brought together that the picture emerges of rapid post-2000 growth of organ transplant infrastructure.

The data reveal rapid, large-scale expansion in the transplant sector across multiple dimensions around the year 2000 — from

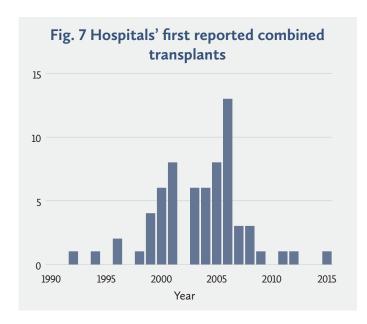


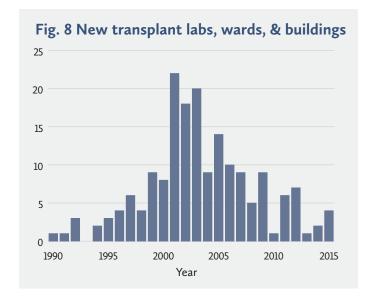






The fundamental question is organ sourcing. No matter the demand for transplantation, the incentives for doctors and hospitals to conduct transplants, and the institutional imperatives driving transplant development, without a national system of voluntary organ donation, prisoners of one kind or another can be the only source of deceased donor organ supply.





the number of hospitals performing transplants to registrations of new transplant technologies (patents); from the build-out of transplant physical plants (new wards, wings, research labs, entire buildings) to the number of hospitals that performed their first transplants of all organs except kidneys. A lack of corresponding growth in kidney transplants is consistent with the widespread use of kidneys from death-row prisoners before 2000.

This final fact — that the vast majority of hospitals performed their first liver, lung, or heart (but not kidney) transplants after 2000, and that this is around the time that the number of liver transplants grew parabolically (see Figure 14) — is worth noting. The first implication suggests an increase in the number of forced donors. The second, with regard to the mode of organ extraction, suggests that execution of the forced donor and organ extraction became more closely coordinated. Chinese officials, former judges, and former transplant surgeons have described scenes from the 1980s and 1990s in which prisoners were taken to an execution site, shot in the head (or right side of the chest), then quickly lifted into an ambulance for kidney removal.<sup>39</sup> The kidney is the organ with the highest tolerance to both warm and cold ischemic times. Warm ischemic time refers to the period that the organ stays in the body after cessation of circulation (i.e., when it stops being perfused with oxygenated blood); cold ischemic time refers to the period beginning when the organ is perfused with a cold preservative solution, until it is introduced to a new host, where it is re-perfused with warm oxygenated blood. All other organs are much more sensitive to ischemic damage. Therefore, the increase in liver, lung, and heart transplants after the year 2000 may suggest a shift in location and/or method of execution, so as to allow a more rapid retrieval of the target organ and minimize ischemic damage to ensure a successful graft. This apparent calibration of the execution process in the service of medical and commercial demands is an area of active research.40

#### Personnel

Given the growth in many other areas of the transplantation system, an expansion in the medical personnel driving it — transplant surgeons, nurses, and researchers — should also be observed. VOC did not, for this study, conduct a substantial collection effort from official Chinese sources showing the growth of transplantation staffing over time. However, it is clear from previously published material that these numbers grew significantly after the year 2000.

Data gathered by the World Organization to Investigate the Persecution of Falun Gong (WOIPFG)<sup>41</sup> a network of researchers who have analyzed vast quantities of official Chinese transplant

information, shows that 9,519 medical personnel had engaged in transplant work by 2014.<sup>42</sup> Most were transplant surgeons, along with a number of nurses, anesthesiologists, *et al.* VOC obtained and reviewed the personnel list WOIPFG compiled from an extensive archive of websites and medical publications.

In each case, WOIPFG identifies the name, professional title, and transplant information of the surgeons, (*i.e.*, their career transplant numbers or specific transplant figures from medical papers). In many cases WOIPFG includes an official photograph of the individual. Each of the entries was taken from publicly available information, much of which has subsequently been removed from the internet. The data indicate that transplant personnel growth tracks the documented growth of transplant capacity in hospitals nationwide.

Expansion in quantity of transplants was accompanied by improvements in quality, according to data in official Chinese transplant registries.<sup>43</sup> This manifests in longer survival times for transplant recipients, fewer instances of rejection and acute rejection, fewer infectious diseases, and so forth.<sup>44</sup> A range of other improvements in clinical practice are also reported in Chinese medical papers.

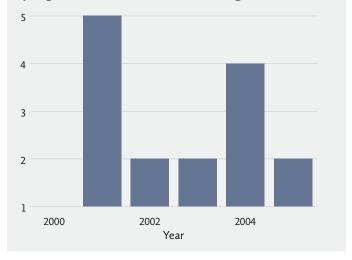
## Immunosuppressants and other transplantation technologies

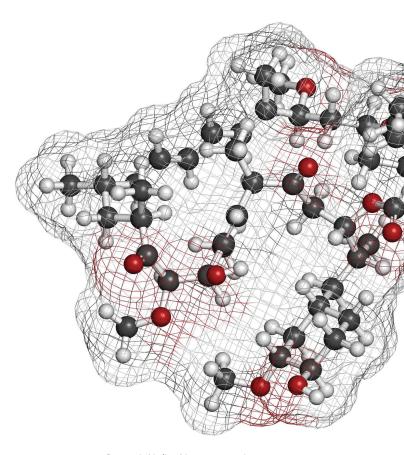
Organ transplantation involves the introduction of foreign genetic material into a recipient, which leads within a few days to a complex immune response known as *rejection*. Transplant surgeons have struggled with rejection for decades, and it remains a major barrier to successful transplantation. Immunosuppressants act to mediate host reaction, blocking certain inflammatory and rejective responses, allowing the recipient to live with a functioning new organ.

Several key immunosuppressants were made available in China soon after their clinical application elsewhere in the late 1990s and early 2000s. Foreign drug makers began entering the Chinese market in the late 1990s, just before the rapid growth of the system began generating enormous demand. The growth of China's transplant industry in the early 2000s thus happened to coincide with the rapid development of sophisticated immunosuppressive solutions, including a battery of new drugs and treatment protocols for combining them.<sup>45</sup>

In the early 2000s, China began building its own immunosuppressant industry, one that now competes with international pharmaceutical firms.<sup>46</sup> Cyclosporine and tacrolimus, the most common immunosuppressant drugs, were

Fig. 9 Newly established cooperative transplant programs with domestic or foreign institutions





Rapamycin (sirolimus) immunosuppressive drug, chemical structure. Used to prevent transplant rejection and in coronary stent coating.

added to China's pharmaceutical subsidy index in 2004, reducing the cost to end-consumers significantly.<sup>47</sup>

According to QYR Medical Research Center, domestic pharmaceutical companies controlled approximately two-thirds of the Chinese market by July 2016, as displayed below.<sup>48</sup>

This shift came with explicit government assistance, including subsidies like the \$2.8 million (20 million RMB) national policy loan in 2007, extended to North China Pharmaceutical for the mass production of immunosuppressants (used almost exclusively by transplant recipients) in Hebei Province.<sup>49</sup>

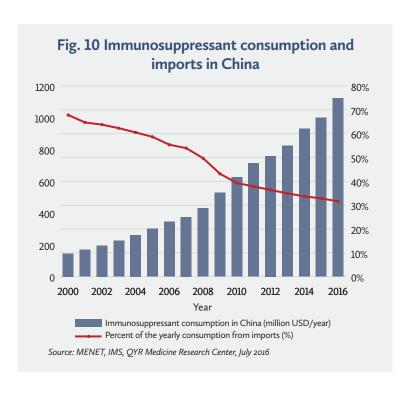
The above is a truncated summary of a complex issue for which data is difficult to obtain, subject to distortion, and (where commercially available) expensive. The data is also of questionable reliability for extrapolating a full picture of the domestic immunosuppressant pharmaceutical market.<sup>50</sup> Nevertheless, it is evidence that post-2000, government support helped the domestic industry, along with other elements of the transplant system, to grow rapidly.

Attendant with the growth of the anti-rejection drugs, other compounds necessary for transplantation were also developed in China, as Chinese transplant researchers and practitioners sought to control their entire transplant stack.

For example, China developed a cold preservative and perfusion solution, used to irrigate the organs while still in the host

body. Organs are then quickly explanted, placed in ice, and kept in a bag of this solution until transplantation. In 2001, materials technology researchers at a Ministry of Education Key Laboratory in Shanghai wrote: "China's lack of a UW [University of Wisconsin] or HTK [histidine-tryptophan-ketoglutarate] organ preservation solution has to a certain degree limited the development of organ transplant surgeries in China. The Technical Chemical Physics Institute of East China University of Science and Technology is currently conducting research in this area and hopes to successfully manufacture a high quality organ preservation liquid, to fill China's gap in this area."<sup>51</sup>

A few years later, the Second Military Medical University's Changzheng Hospital in Shanghai noted that it had managed to combine components from the UW and HTK solutions with "the advantages of traditional Chinese medicine" (Ginkgo biloba extract) and developed its own "Shanghai Multi-Organ Fluid."<sup>52</sup> This domestic solution was later reported in basic research to be "slightly superior" to the global standard UW solution in some respects.<sup>53</sup> The hospital's Organ Transplantation Research Institute received several million yuan in national funding for its preservation solution research, and reported that the fruits of this work were adopted in 95% of transplant hospitals in China, with their own solution effectively replacing UW and other expensive foreign imports.<sup>54</sup>



## TRANSPLANT VOLUME

ne of the most contentious questions surrounding China's organ transplantation system is the number of transplants that have been performed. Many key claims made by human rights researchers attesting to crimes against humanity in the procurement of organs in China rests on a substantial but unknown number of transplants. Chinese authorities not only fail to provide reliable data but also have been engaged in retroactive data manipulation and the provision of incomplete and contradictory statistics.

It is beyond the scope of this report to estimate the cumulative national transplant volume in China. Instead, this section examines the official claims and data, discusses the history of the debate, outlines its parameters and challenges, and reviews estimates by other researchers and the methodologies by which they were reached. It then re-orients the question away from what the actual transplant volume may be to the more relevant question: Can procurement from death-row prisoners and voluntary donors explain even conservative estimates of actual transplant volume?

## **4.1.** Official numbers

Perhaps the first and most important consideration in assessing transplant volume is that the Chinese authorities do not provide reliable, official figures, despite having access to relevant data and the ability to publish it.

Every other country with an advanced organ transplantation system publishes data on the number and type of surgeries that take place, often broken down by hospital and numerous other criteria. This data is typically reliable and comprehensive. No other country is known to systematically conceal and manufacture data about its deceased-donor organ procurement and transplantation program. On the contrary, transparency is the general rule in voluntary donation systems: openness engenders trust, which is key to obtaining greater public participation, acceptance of altruistic organ donation, and ultimately donations upon death. China's failure to provide reliable data, and instead to release piecemeal, contradictory, or falsified data, suggests that the authorities perceive greater benefits in keeping the real numbers hidden.

Data about three types of organ transplantation are relevant: transplants from living donors (identified as blood relatives);

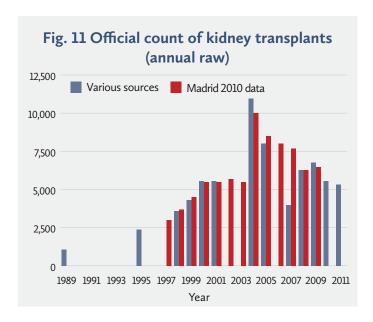
from voluntary donors in China's period of transplant reform; and from non-voluntary donors (identified as death-row prisoners). No official data on any of these types of transplantation can be taken at face value; each data point must be scrutinized for its origin, context, audience, and possible intent. Given the focus of this paper on evidence of extrajudicial killing for the procurement of organs, China's living donor data will be set aside for now.

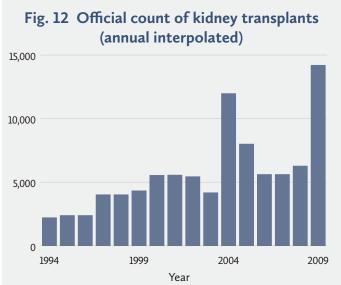
Huang Jiefu, in an unusual 2015 exchange with a journalist from the semi-official media group Phoenix Television, acknowledged the high level of secrecy surrounding the accurate number of Chinese transplants. When pressed on the change in the number of people waiting for transplants each year (from which the transplant number could be derived), Huang said: "What you just said is too sensitive, so I can't talk about it too clearly. You think about it, you will understand. Because if your country has no transparency, you don't know where the organs came from, and how many [transplants] were done is also a secret, [it was] like that, so actually a lot of things were all a big mess."55 Later in the interview he remarked: "It became filthy, it became murky and intractable, it became an extremely sensitive, extremely complicated area, basically a forbidden area. Last year was the most crucial year." He then blamed Zhou Yongkang, the former security czar, for any abuses that may have taken place. Zhou had previously been purged in Xi Jinping's anti-corruption campaign.

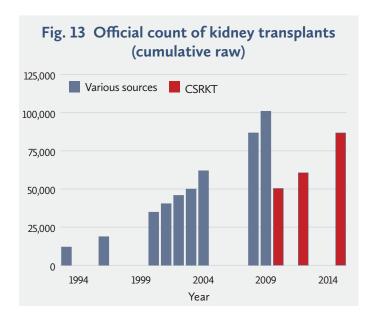
These rare admissions — that the real number of transplants may not even be precisely known, and that it's a secret anyway — has not prevented Chinese officials generally or Huang Jiefu in particular from presenting figures to the public. These numbers, however, have been contradictory, vague, incomplete, and confusing. A detailed analysis of contradictions in Huang's numbers, including in presentations made before international transplant bodies, <sup>56</sup> has been conducted at length elsewhere. <sup>57</sup> More recent claims of voluntary donor reform also appear to be founded on falsified statistics, a matter addressed later in this report.

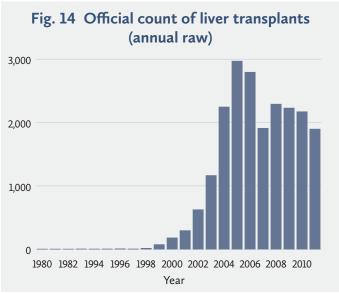
It suffices here to begin with the claim — made by Chinese sources for many years and uncritically repeated in Western reports<sup>58</sup> — that China's annual transplant volume has been about 10,000 transplants per year.<sup>59</sup>

The first difficulty with this figure is its static nature, despite the massive growth in transplant infrastructure post-2000.









There are no official databases that show hospital-level figures, or even regional breakdowns, for all transplants in a reliable manner: nothing that would allow researchers to cross-check the 10,000 per year claim. Some years the official data for liver and kidney transplants exceeds 10,000 by more than 50%.

While researchers must treat official numbers with caution, we think it helpful to present our best efforts at gathering the official numbers, if only for reference purposes. Explanation of the data used for the figures can be found in Appendix I.

#### Integrity and reliability of official numbers

Further discussion of the integrity of official data is appropriate here, with a focus on whether it can be considered accurate. The chief difficulties in trusting these data include:

- No centralized system of transplant hospital administration, certification, monitoring, or data collection existed until 2007, according to Chinese sources. Were efforts made to remedy this lack of controls in order to collect and publicize accurate data?
- The data are sometimes contradictory for instance in Huang Jiefu's Madrid presentation, two different data series of annual kidney transplant volume are presented for the same years, with no explanation of their difference. Note also how cumulative kidney transplant volume appears to "restart" in 2010 (Figure 13).
- The data typically come with no hospital-level or regional breakdown, making it impossible to directly compare them to other sources of information.
- Where there is hospital-level data (as in the China Liver Transplant Registry 2011 Annual Report), <sup>61</sup> it is contradicted by the observable activity at many of the hospitals who report data to the registry.
- Hospitals do not report all the transplants they perform to the official registries, and they have no incentive to do so, given the illicit origin of the vast majority of transplants.<sup>62</sup>
- Chinese authorities maintain at least 14 databases (see Table I) directly related to organ transplant volume at the central-government and hospital levels yet none of them are available for public inspection, indicating there is a large volume of data the authorities prefer to keep hidden. 63

For all these reasons, it is appropriate to cite data only with the caveat that it is the official version of events and nothing more. In light of well-documented redactions and retroactive editing of data and falsification of entire datasets on the part of Chinese authorities, we must conclude that these figures function primarily to tell us what the authorities would like us to believe about their transplantation system — not the actual dimensions of that system.

Chinese medical authorities even manipulate hospital-level figures on hospital websites. The KGM Report provides many instances of such activity,<sup>70</sup> including:

- Removal of entire websites (such as that of the Chinese Transplantation Society several weeks after allegations of organ harvesting emerged in 2006, or any number of websites belonging to Chinese hospitals advertising their transplant businesses).
- Closure of public access to organ transplant registries after they were cited.
- Hospitals reporting the same number of cumulative transplants performed, years apart — tantamount to claiming they performed no transplants in the intervening period, despite having multiple transplant surgeons on staff and identifying themselves as being major transplant centers.
- Hospitals reporting fewer cumulative transplants compared to reports years prior (*i.e.*, retroactive modifications of transplant volume, in one case lowering the cumulative transplant total by 1,500 nine years after the original number had been reported).
- A hospital claiming on its website to have performed onesixth the number of transplants that one of its surgeons said was the sample size for a study of transplant cases.<sup>71</sup>

This puts the researcher in a bind: if information as basic as cumulative transplant volume on individual hospital websites is subject to retroactive manipulation, what official data, if any, can be trusted? Implications exist both for scholars and policymakers. In general, we have taken the following words from the political science methodologists Alexander L. George and Andrew Bennett as our guide: "In interpreting the meaning and significance of what is said, the analyst should consider *who* is speaking to *whom*, for *what purpose* and *under what circumstances*."<sup>72</sup>

Table 1. Official Chinese organ transplant data sources

Dataset	Custodianship	Background	Public status
National Health and Family Planning Commission (NHFPC, formerly the Ministry of Health) internal data on organ transplants	NHFPC, Beijing	Data collected since organ transplants began in China, obtained from hospitals around the country	Closed
China Organ Transplant Response System (COTRS) <sup>64</sup>	China Organ Transplantation Development Foundation, Beijing	The sole legal allocation system for organ transplants since September 1, 2013	Available for collection <sup>a</sup>
China Organ Donation Administrative Center	Red Cross Society of China, Beijing	Established in April 2014. Parallel (and nominally identical) to COTRS	Available for collection <sup>a</sup>
China Liver Transplant Registry	Zhejiang University First Affiliated Hospital, Hangzhou <sup>65</sup>	Established in 2005	Closed
China Lung Transplant Registry	Wuxi Provincial People's Hospital, Wuxi <sup>66</sup>	Established in 2010	Closed
China Heart Transplant Registry	Fuwai Cardiovascular Hospital, Beijing <sup>67</sup>	Established in 2010	Closed
China Pancreas Transplant Registry <sup>b</sup>	Unknown	Unknown	Closed
China Small Intestine Transplant Registry <sup>b</sup>	Unknown	Unknown	Closed
China Scientific Registry of Kidney Transplants	309 PLA Military Hospital, Beijing	Established in 2009 by then Ministry of Health <sup>68</sup>	Closed
Transplant Patient Management System	309 PLA Military Hospital, Beijing	Established with Shanghai Roche Pharmaceuticals Ltd. in 2000 <sup>69</sup>	Closed
Hospital Information Systems at every hospital in China	Each hospital that has performed transplant surgeries	Data collected since organ transplants began in China. Each of the hospitals that have performed transplant operations will have this data.	Closed
Immunosuppressant drug health insurance reimburse- ment database	NHFPC, Beijing	Data collected since reimbursement for immuno- suppressant drugs began in early 2000s	Closed
Local Red Cross figures	Red Cross Society of China, Beijing	Reported in local officially controlled media or on local Red Cross websites	Available for collection <sup>a</sup>
Chinese Society of Organ Transplantation figures	Chinese Society of Organ Transplantation, Beijing	Data collected since at least 2000 and likely earlier	Closed

a Refers to data that does not exist as a complete, official dataset in a single place — it must be manually collected and archived from official websites or presentations, making it a time-consuming research procedure.

b Both the pancreas and small intestine transplant registries are mentioned in Huang, "Pragmatic Solution for Organ Donation in Response to Challenges Faced by the Chinese Society: Summary for the National Donation after Circulatory Death Pilot Program," and in Wang Haibo Presentation at The Transplantation Society's 2018 Annual Meeting, but no further information is available.

In light of such considerations, researchers have pieced together data from a variety of sources as inputs in models estimating transplant volume. The intricacies of this task are treated below.

## 4.2. Researcher estimates, models, and assumptions

Having established the contexts in which official numbers appear, the difficulty in taking reports of transplant volume at face value, and the authorities' efforts to obscure the matter, we turn to the alternative means that have been used to estimate transplant volume. Following is a summary of the models used and the assumptions that went into them, as well as an analysis of the strengths and weaknesses of the approaches. We consider the two main estimates, as well as reactions to the KGM numbers.

#### **WOIPFG** estimates

The World Organization to Investigate the Persecution of Falun Gong (WOIPFG) is a network of international researchers, many of them volunteers. While their linguistic style and manner of presentation may obscure the data — particularly when combined with the inherent complexity of the material — their work still possesses significant evidentiary value. As researchers, we are interested solely in the quality of their evidence, not in their style of presentation.

We primarily draw on chapters five and six in the report *The Final Harvest*, published in April 2016.<sup>73</sup> WOIPFG has since published other reports, but *The Final Harvest* contains the most direct and complete presentation of their estimates and methodology for Chinese transplant figures.

They present two versions of estimates, which employ conservative and aggressive assumptions, respectively.

The conservative approach has two parts, using two sets of assumptions, resulting in two figures. WOIPFG initially looks at every transplant hospital in China and attempts to produce an estimate for its transplant volume based on a variety of official sources: hospital websites, medical papers, official news reports, and telephone admissions elicited from Chinese doctors by undercover investigators. Estimates of transplants at 712 hospitals from the years 2000 to 2014 emerged, which come to a raw, non-adjusted total of 225,815 kidney and liver transplants (either living or deceased). These are raw numbers drawn from whatever data was available, in some cases resulting in obvious

underestimates. For instance, in this mode of calculation, the Anhui Provincial Hospital would have performed only one kidney transplant and twelve liver transplants from 2000 to 2014. As one of the largest hospitals in the province of 62 million people, and one of the two hospitals in the province authorized to perform transplants by the then-Ministry of Health in 2007, its 17 surgeons must clearly have performed more than one transplant during this period.<sup>74</sup> A total of 215 hospitals are similarly allotted just one transplant, as part of this first, conservative pass at a baseline estimate.

Notwithstanding the conservative approach, the result is still just over 15,000 liver and kidney transplants annually — a figure 50% above the standard claim of 10,000 transplants made by Chinese authorities since the mid-2000s.

Clearly this method of calculation is incomplete. It does not account for rates of change in transplants over the period in question, and it vastly undercounts numerous hospitals, because it is drawn from purely raw inputs taken from superficial data sources. In the case of Anhui Provincial Hospital, given that little data was available for the hospital (except one medical paper documenting a case of 12 liver transplants), only one kidney transplant was inputted.

Given the assiduousness with which Chinese authorities guard the secrecy of hospital transplant volume, some method of extrapolation from "known" data is required to arrive at an estimate for actual transplant figures. This happens in the next stage of WOIPFG's conservative estimate.

Continuing from the case of Anhui Provincial Hospital: WOIPFG investigators were told in a telephone call with a nurse in 2015 that the hospital had performed about 90 kidney transplants the previous year.75 They extrapolate this across nine years, add the cumulative total of 112 as of 2004 as reported by state media, <sup>76</sup> and arrive at a total of 1,012 kidney transplants from 2000 to 2014. The liver transplant figure is arrived at in a similar manner. The accuracy of this estimate relies on two unknown and to some degree unknowable assumptions: 1) that the claim of 90 kidney transplants in 2014 by a nurse in the urology department over the telephone was accurate, and 2) that it is fair to extrapolate this one datapoint back in time across nine years. Yet while there is no way of being sure of this figure, it appears plausible — i.e., it is well within the capabilities of the staff and facilities and is not so high as to sound like a boast — and is consistent with other information. WOIPFG's research shows 17 surgeons capable of leading or assisting in transplantation surgery on staff at the hospital by 2014. The performance of 112 kidney transplants between 2000 and 2004



Somporn Lorgeranon (L), the recipient of a kidney transplant while living in China testifies 04 June 1998 while an unidentified congressional aide holds photos of a Chinese hospital during US House International Relations Committee hearings on human rights on Capitol Hill in Washington, DC. Lorgeranon discovered after the operation that the kidney he received came from a Chinese prisoner who had been executed. (Luke Frazza/AFP/Getty Images)

If information as basic as cumulative transplant volume on individual hospital websites is subject to retroactive manipulation, what official data, if any, can be trusted? seems a rather low estimate, while 90 annually from 2005 to 2014 seems reasonable next to the transplant output other hospitals of smaller size, or in more remote areas, with fewer documented transplant staff.

The difficulty in evaluating WOIPFG's conservative calculation methodology lies in the scale of the work involved. They performed this exercise — as in the example of Anhui Provincial Hospital, condensed though it was — for every single one of the identified 712 transplant hospitals from the years 2000 to 2014. An example is shown in the screenshot pictured. Each provincial unit has a corresponding document with notes on how the adjusted figures for each hospital in that province, city, or region were arrived at.<sup>77</sup>

This means that making a full evaluation of WOIPFG's methodology would involve examining the basis and justification for adjustments to raw figures made to every hospital — a task far beyond the scope of this report. The case of Anhui Provincial Hospital was chosen because it exhibited the greatest discrepancies between unadjusted and adjusted figures (I kidney transplant from 2000 to 2014 versus I,012 adjusted), and thus appeared to be a useful example to illustrate the procedure used.

The outcome of WOIPFG's work is an unadjusted estimate of 225,815 kidney and liver transplants from the early 2000s until

the end of 2014, and an adjusted estimate (as detailed above) of 401,646 kidney and liver transplants. Some of the data begins before 2000 and ends before 2014, but the vast majority is within that range of 15 years. The 15-year average of each estimate is 15,054 and 26,776 transplants per year, respectively. Either of these figures seems to surpass what the authorities could account for through death-penalty executions alone. More work could be done on these estimates; for instance, researchers could isolate any transplants performed pre-2000 and create a systematic methodology for inputting and weighting the variables on which the adjustments were made. It is clear, however, that the adjustments are essentially conservative, straight-line extrapolations from public data (likely to be underreports).

WOIPFG suggests that the disclosed raw numbers in many cases underreport transplant volume by 10 and sometimes 20 times, and that their real estimate for total transplant volume in China is at least several times that of their adjusted figures detailed above. They go on to document: 1) Official sources contradict each other: one public source's figure exceeds another's by up to 10 times. 2) More than one-third of the hospitals in the previous analysis — 265 hospitals — were recorded as having performed only between one and five transplants annually, because no other raw data was available. 3) Chinese surgeons have given estimates of transplant activity that far exceeds the raw figures cited in the first exercise.

## Screenshot of WOIPFG spreadsheet showing result of hospital transplant calculations

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0 19 北京大学首钢医院	北京市	北京市	北京市石景山区晋元庄路9号	100144	电话:+86 10 68	887 5731							
1 20 北京天坛医院	北京市	北京市	北京市东城区天坛西里6号	100050	电话:+86 10 6	709 6611	1						
2 21 北京市南郊紅星医院	北京市	北京市	北京市大兴区瀛海镇中兴庄南路3号	100076	电话:+86 10-6	7992043							
3 22 北京市普仁医院	北京市	北京市	北京市东城区崇外大街100号	100060	电话:+86 10 6	711 7711, 8275	53822				172		
23 北京中医药大学第三附属医院	北京市	北京市	北京市朝阳区安外小关51号	100029	电话:010-5207	75555							
5 24 北京市海淀医院	北京市		北京市海淀区中关村大街29号		电话:6258304		101						
5 25 清华大学玉泉医院 (清华大学第二)	加北京市	北京市	北京石景山区石景山路5号	100049	电话:8825775	5	101						
7 26 北京民众眼科医院	北京市	北京市	北京市朝阳区林萃路林萃西里22号	100192	电话:+86 10 8	272 6911					186		
8 27 北京順义医院	北京市	北京市	北京市顺义区光明南街3号	101300	电话:010-6942	23220							
9 28 煤炭总医院	北京市	北京市	北京市朝阳区西坝河南里29号	100028	电话:010-8451	12685.010-646	67755						
0 29 北京中医药大学东方医院	北京市	北京市	北京市丰台区方庄芳星园一区六号	100078	电话:10 6768	9653:6768965	5				1		
1 30 天津第一中心医院	天津市	天津市	天津市南开区复康路24号	300011	电话:022-2362	26600:022	2572	4870	50	2	25	110	
2 31 天津医科大学总医院	天津市	天津市	天津市和平区鞍山道154号	300052	电话:+86 22 2	781 3550			1		7	1	
32 泰达国际心血管医院	天津市	天津市			电话:+86 22 65		-568-568		10			1	
4 33 天津医科大学第二附属医院	天津市	天津市	天津市河西区平汀道23号		电话:+86 22 8		120						
34 天津市人民医院	天津市	天津市	天津市和平区芥园道190号	300000	电话:+86 22 8	772 9532	80						
35 天津市天和医院	天津市	天津市			电话:+86 22 2						1		
7 36 天津市眼科医院	天津市		天津市和平区甘肃路4号		电话:+86 22 2						1500		
37 天津市第三中心医院	天津市		天津市河东区津塘路83号		电话:+86 22 84		442						
9 38 天津市第四中心医院	天津市		天津市河北区中山路1号		电话:+86 22 26			19					
0 39 天津市腕科医院	天津市		天津市津南区台儿庄南路261号		电话:导诊台:			11-医保: 8815	4				
1 40 天津爱尔眼科	天津市		天津市南开区复康路102号		电话:+86 22 2		3,3	ALLOW SOM			48		
2 41 天津市精华医院	天津市		天津市东丽区医院		电话:022-2446		- 1						
3 42 天津市津西医院	天津市		天津市河西区环湖西路7号		电话:022-2351		1						
4 43 复旦大学附属中山医院	上海市		上海市徐汇区枫林路180号		电话:021-6404		1000	1101	298	1		17	
44 上海市第一人民医院	上海市	上海市			由诉:021-6326		2200	910	2	1	178	30	
45 复旦大学附属华山医院	上海市		上海乌鲁木齐中路12号		电话:021-5288		392	216			270	1	
7 46 上海交通大学附属仁济医院	上海市	上海市			电话:021-5875		1500	1800	1				
8 47 上海瑞金医院	上海市		上海市瑞金二路197号(永嘉路口)		电话:021-6437		1600	238	3			2	
9 48 上海交通大学医学院附属新华医院	上海市	上海市			电话:021-2507		2000	75	3				
0 49 上海市肺科医院	上海市	上海市			电话:021-6511			/3		52			
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3 52 复旦大学医学院附屋肿瘤医院(上)			上海市零陵路399号		电话: 021-641			E-HOR -C-INCI TION	H 1407, UEA-3302733.	(E-INDIVIDUE)	31/05T-03033011(43-5	Commence of	
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Column headings, from left to right: index number, hospital name, province, city, address, ZIP, telephone number, cumulative total of kidney, liver, heart, lung, cornea, combined, and other organ transplants. (WOIPFG)







David Matas (Woody Wu/AFP/Getty Images)



David Kilgour (Yoshikazu Tsuno/Getty Images)

WOIPFG doesn't put a number on these higher estimates but suggests that these considerations could raise the total up to ten times greater than the adjusted figures previously noted. The full analysis examines around 100 hospitals as representative case studies and runs to more than 70,000 words with numerous citations of hospital websites.

#### KGM Report estimates

The Kilgour-Gutmann-Matas report, published in June 2016, takes a different route than WOIPFG in deriving its estimates. It also includes a roughly 240-page hospital-by-hospital analysis of bed numbers, floor space, occupancy rates, length of patient stay, transplant waiting times, surgical staff, and more — but its estimate for transplant volume is not an aggregate of calculations made on individual hospitals. The KGM Report categorizes hospitals by their type and size, estimates average volume from a sample of each type, and tabulates the results.

The authors write that due to Chinese state secrecy and deception, "we cannot offer a single absolute number for the annual volume of transplants or offer even a close approximation. We can, however, construct a common-sense calculation and make our assumptions transparent. To avoid giving a sense of false precision to a calculation which is made from an incomplete data set, we can also compare this to a range of back-of-the-envelope calculations that will be highly transparent to even the casual reader."

This exercise arrives at the estimate that between 60,000 and 100,000 transplants were performed annually in China from 2000 to 2015. The basic logic of their calculations and model assumptions follows.

KGM start with the minimum standards stipulated by the Ministry of Health for transplant licenses. <sup>80</sup> These standards were one of the first policy documents about organ transplantation in China, promulgated in June 2006, just after the first set of interim guidelines. Prior to these guidelines, there had been almost no central regulation of the transplant sector following the 1984 Temporary Rules allowing the use of deathrow prisoners.

The standards stipulate that every hospital licensed to perform liver transplants must have a ward with 15 beds specifically for liver transplants; hospitals licensed to transplant kidneys must have a ward with 20 dedicated beds. Additionally, each ward must have 10 intensive care beds. KGM examine the number of hospitals authorized to perform liver, kidney, and both types of transplants, and they calculate the total number of beds required. They assume that each bed accommodates 12 transplant patients annually (*i.e.*, 100% occupancy with one-month stays), arguing that this is a conservative estimate given that lengths of stay for kidney transplants may often be less than a month, and that hospitals regularly report exceeding their designated bed capacities. Multiplying these numbers by the 146 designated hospitals — some of which have the minimum

bed outlay for kidney, some for liver, and some for both forms of transplants — gives an estimate of 69,300 liver and kidney transplants annually. Over 15 years (2001–2015 inclusive), this comes to a total of 1,039,500 liver and kidney transplants.<sup>81</sup>

These calculations were made using a sampling of transplant hospitals operating between 2000 and 2015. Prior to the regulations in 2006 and 2007, up to 1,000 hospitals performed transplants in China; this figure was then brought down to 146, then to 164, according to Chinese medical authorities. KGM estimate the volume at 566 hospitals that were not approved to perform transplants post-2007 (presumably only 566 because data on others was not available). Using official designations, they then sort these into medium- and large-scale hospitals, assigning rough estimates of annual transplant volume (50 and 100 respectively), and multiply this by 7 years (2001 to 2007 inclusive). This comes to 339,850 transplants, an average of 48,550 transplants per year.

Put together, this comes to 1,379,350 transplants in total from 2001 to 2014 inclusive, or just over 91,000 transplants annually.

Finally, the authors conduct a rough test of these figures against a back-of-the-envelope volume scenario of an average of one transplant per hospital per day, or 365 transplants per year, for the most active centers. To this they assign lower annual totals for non-approved transplant centers, presented as a reality check of the other figures, in light of the dozens of transplant surgeons, nurses, and dedicated wards at hundreds of hospitals, as well as the massive national demand for transplant services. When these figures are tabulated, they come to about 900,000 for the 15-year period in question, an average of 60,000 transplants per year. Using more aggressive estimates of transplant volume — extrapolated from actual reports in some hospitals — the authors come to a figure of 1.5 million for the 15 years, or 100,000 annually.

KGM conclude the section as follows: "At this time, we would say that the range is between 60,000 to 100,000 a year, with an emphasis on the higher numbers. But what number most likely reflects the truth is left to the reader; we encourage the reader to make their own calculations as we do not claim that this is the final word on the subject."

#### Responses to KGM estimates

It is difficult to disentangle the responses to the KGM report from the views otherwise held on the question of state-sponsored extrajudicial killing for organs in China: those sympathetic to the broader allegations largely accepted the

KGM figures, while those suspicious of the allegations in the first place, and receptive to Chinese government promises of reform, have remained skeptical.

Skeptical responses include the following:

- Dr. Francis Delmonico, chair of the World Health Organization Task Force on Donation and Transplantation of Human Organs and Tissues: "I would say that the media has to challenge those who are making such assertion[s] to validate how they have computed that number. I'm skeptical about it, but it's not for me to answer that question. I think that you need to approach those that are estimating such transplant[s] from 60,000 to nearly double that at 100,000. So you see, automatically the inaccuracy might be at hand from saying on the one range of 60,000 to another range of 100,000. So far apart, [I] wonder how is it that they have arrived [at] such figures."
- Dr. Jeremy Chapman, director of renal medicine at Westmead Hospital in Sydney, Australia, in 2016 said the KGM report's estimates were "pure imagination piled upon political intent," that "pharma companies in China have been providing nowhere near enough medication for this number," and "Look at the sources of those documents. They are all Falun Gong."84 In 2018, before an Australian parliamentary committee, he said: "It was never 60,000 to 100,000. It was 6,000 to 10,000 potentially, but never 60,000 to 100,000. What we were dealing with was probably in the region of 6,000 to 10,000 in the early 2000s. The number of 60,000 to 100,000 was a concoction of recent days." Later he added: "While a hospital may have expanded to have 40 transplant beds, you cannot invoke the same number of transplants as you would in an American hospital. To give you some idea of the difference, they would have to have between three and four times the entire US transplant program implemented in China. Because of the difference in the capacity to manage them, you would probably have to multiply that by 10 because of the different practices. Thirty to 40 times the US infrastructure — doctors, surgeons, operating theatres and medications — and not being able to see it is just implausible to us."85
- Dr. Dominique Martin, co-chair of the Declaration of Istanbul Custodian Group: "The methodology by which these large estimates have been derived simply does not add up. It is really a gross overestimate of any kind of transplant activity that has been taking place in China in the past and certainly is not something that I would look to for figures on what is actually happening in China." 86

It is difficult, unfortunately, to fully present the counter-case to the KGM estimates, because the extent of the objections appears above. That is, these arguments have not been systematically presented, they rarely allege specific methodological flaws, and only Dr. Chapman's comment raises a clear disagreement in assumptions about inputs in the models used to calculate volume. These responses have been made in passing to inquiring journalists or legislators, and they are nested within a broader framework of working cooperatively with trusted members of the Chinese transplant leadership to assist with reforms. In the engagement-cooperation framework, the empirical task of attempting to gain a handle on historical and contemporary transplant volume beyond official statements is framed as disruptive and undermining.

Some of the assumptions that go into the KGM model are open to question or require further empirical support: to begin with, that hospitals follow the minimum mandates, that it's fair to assume 100% occupancy of beds by new transplant patients, and that patient hospital stay times are one month on average. The number of transplants that should be imputed to non-licensed hospitals post-2007 is also unclear. The authors anticipate many such objections: they refer to cases where hospitals do report occupancy exceeding 100% and where stay times for new recipients were less than one month. They also acknowledge there is no way to be sure hospitals follow minimum mandates. More empirical work must be done to establish occupancy rates over different years to the extent data is available, as well as average patient stay times, bed occupancy by post- and pre-operative patients, average stay times for those patients, and more.

KGM's work for the first time presented a new understanding of Chinese transplant volume to an international audience, inputting transparent, reasonable assumptions into a simple model and documenting the outcome. The appropriate response for those who object to the conclusions is to address the assumptions that went into the model and provide evidence as to why lower model inputs would be more appropriate. It is insufficient to simply declare that the methodology "does not add up" and is a "gross overestimate," or that the sources are "all Falun Gong" (clearly a mistaken claim, as a cursory review of the 2,367 endnotes in the KGM report shows) without specifying what the variables in the model should be, and providing evidence in support of those variables.

It should be noted that the figures for transplant volume proffered by many who have published on the issue come with no methodology at all. When numbers about Chinese transplant rates are cited in the literature, they are often simply repetitions of official Chinese government statements, with no caveats as to their reliability.<sup>87</sup> In many cases, Western supporters of Chinese reforms have gone even further than the Chinese authorities in attempting to account for the source of the organs — as when Dr. Chapman remarked that "They have 60,00[0] road deaths a year, they have many more workplace deaths, they have plenty of people in their ICUs who can be organ donors," at a time when Chinese officials themselves were reporting only a modest volume of voluntary transplants.<sup>88</sup> For reasons already enumerated, these claims cannot be taken at face value, and the problem of estimating China's actual transplant volume remains.

#### 43

#### The difficulty of estimating transplant volume

The task of calculating hospital transplant volume in China is fraught. Chinese hospitals provide scattered, inaccurate, and vague information; no national, provincial, or municipal data is available; national registry data (which, when it can be gathered via archives or elsewhere, appears to contain highly selective disclosures) is closed to public access.

This lack of transparency forces the analyst who is intent on pursuing accuracy, as opposed to accepting contradictory official Chinese statements, to make estimates based on a mosaic of publicly available sources. These include:

- hospital websites
- Chinese medical papers
- · surgeon biographies
- official Chinese media reports
- textbooks and clinical handbooks on organ transplantation
- a range of other official sources, including construction and renovation databases

These sources, however, must be handled with care, as they may contradict one another. In some instances, Chinese transplant surgeons and hospital administrators seem to play up their successes and surgical productivity; on other occasions, they seem to downplay the numbers. Many times, transplant volume has been redacted, adjusted downward retroactively, or not updated after many years, even as the transplant program appeared to continue operations.

The main sources by which transplant volume can be even roughly measured include the following:

#### Reports of transplant volume on hospital websites

This often takes the form, for instance, of phrases like "[the

hospital] performed over 500 liver transplants cumulatively as of April 2011," or "from January 2000 to January 2003 the hospital performed 102 deceased kidney transplants." Often, such data provided is incomplete, out of date, or unreliable. But in the absence of other information, it is often the only information available.

Of grave concern, however, is underestimated volume. A reference to "over 500," for instance, could mean 501 or 5,000. Such figures sometimes contradict the biographies of the hospital's own surgeons, surgeon biographies on third-party websites, and medical papers. The language in the example above, for instance, comes from the website of the Southwest Hospital affiliated with the Third Military Medical University in Chongqing. The claim that the hospital had performed "over 500" liver transplants as of April 2011 is shown to obscure the higher-bound number by a cursory examination of the surgeries of doctors at the hospital.<sup>89</sup>

#### Reports of transplants in medical papers

This, in theory, would be a more reliable source of raw scientific data for transplant figures at hospitals in China — though there is again no guarantee of reliability, and many open questions.

Data from medical papers may provide a more granular picture than hospital websites do. Continuing from the example of the PLA's Southwest Hospital, we can look at the papers published by some of its surgeons. Yang Zhanyu participated in 407 liver extraction and transplantation surgeries between February 1999 and February 2007, according to a medical paper, 90 while surgeon Wang Huaizhi was involved in 142 liver transplants from 1999-2003 according to another paper, 91 and surgeon Bie Ping was involved in 60 liver transplants from July 2004 and June 2006.92 These add up to at least 609 liver transplants by February 2007, four years before the claim of "over 500" from 2011. Yet this 609 figure does not include basic extrapolations as to Wang Huaizhi's transplants from 2003 to 2007, or Bie Ping's prior to July 2004.93 Moreover, these are just three surgeons from the 62 transplant surgeons at Southwest identified by WOIPFG.94 Of course, one would expect differences in productivity between surgeons, and many transplants involving multiple surgeons. Yet, only a portion of the actual surgeries performed get written up in medical papers, which are produced to document particular medical advancements or answer scientific questions — not as a catalogue of all transplants performed.

These factors, among others, make the matter of deriving numerical estimates from Chinese medical papers particularly difficult.

### Surgeon biographies, media reports, textbooks, and other sources

Biographies of surgeons on hospital websites and physician databases like haodf.com ("Good Doctor") provide data — though they are often out of date and unreliable. Media reports have included some of the highest estimates of transplant volume for any given hospital, provided by hospital presidents and leading transplant surgeons. Researchers may question the accuracy of these figures; however, given the politically sensitive position these individuals occupy, as well as the fact that they're speaking directly to state media, such figures offer a candid, firsthand account of contemporaneous developments. Textbooks typically provide cumulative national totals but appear to be carefully controlled (see Table A in Appendix 1 showing how transplant volume was "reset" in 2010 to half of the previously reported volume).

#### Admissions from undercover telephone calls

One piece of evidence is the body of calls made by activist investigators associated with WOIPFG to Chinese hospitals from 2007 to present. This resource, and how it may be authenticated and used, is discussed in a separate working paper by VOC.<sup>95</sup>

#### Putting it all together

The aforementioned sources provide transplant data, but given the phenomenon of underreporting and retrospective redactions, one datapoint rarely tells the full story. Instead, researchers put together a mosaic based on all this information. For instance, a hospital reports on its website that it has 50 beds in its liver transplant ward; then the hospital reports in a construction and renovation database that it has 95% occupancy; later, in a medical paper, one of the surgeons notes that occupancy times for liver transplant recipients are an average of four weeks. These three pieces of data can be put together to derive an estimate of 570 liver transplants per year  $(50^*0.95^*12 = 570)$ .

Often the data may not be as clean as this, and occupancy rates are given for the entire transplant ward, not merely for liver or kidney transplants. Similarly, the stay times may be given only for a period, or for a small subset of patients, and thus extrapolations — necessarily imprecise — must be made. We also do not know what portion of patients occupying a bed in the transplant ward at any given time are new patients or re-admitted patients with complications; thus, some of these variables require additional empirical support. But given the lengths to which Chinese authorities have gone to hide information about their transplantation system, short of direct access to hospital information systems and other data

sources, models with imperfect inputs are the only way to derive rough estimates for transplant volume in China.

In the examples below, rather than use the bed occupancy assumption of transplant patients as 100% (as in the KGM report), we have assumed 50% occupancy for new transplant recipients, allowing for re-admitted patients with complications even as beds are full.<sup>96</sup>

#### 4.4

## Volume estimates in a sampling of cities and hospitals

We have not attempted to conduct our own estimate of national aggregate transplant volume — a task far beyond the scope of this report. Instead, we are interested in, to begin with, examining whether the official claim of organ sourcing from death-row prisoners is consistent with the evidence of transplant volume. If plausible figures from a small sampling of hospitals come to more than what death row can account for, the Chinese government should have to answer for it.

Thus, we have elected to present the following table showing estimates of annual transplant volume at some of the most productive transplant hospitals in China. The table identifies the year the data pertains to, but we think it fair to extrapolate these figures across most of the period from 2000 to the present: the absence of data doesn't equal the absence of transplants taking place, so at least some extrapolation is warranted, and existing data seems the most sensible starting point.

The table seeks to answer one question: can currently estimated death-penalty figures explain transplant volume at even ten hospitals? The calculations substantiating the figures, largely drawn from the research that appears in the WOIPFG and KGM reports, follow. These are made in a back-of-the-envelope fashion, and the assumptions in the calculations are open to question. However, even after halving all the figures — made using highly conservative variables — the problem presented by these estimates for the official explanation of organ sourcing (in particular when considering them along-side the long tail of over 700 transplant hospitals operating prior to 2007, and the more than 160 centers afterwards) remains salient.

#### General Hospital of Jinan Military Command

The hospital is one of the largest regional transplant centers, was nominated a major kidney transplant center for the PLA, has a total of 2,360 beds, boasts transplant surgeons with top pedigrees, and appears to have underreported its transplant

operations. Scattered reports suggest more transplants are taking place than are disclosed.

The hospital's director reported that his institution had performed 2,500 kidney transplants from 1978 to 201297 though the hospital's own website reported only 1500 by then,98 and in 2003 was reported to have already performed 1,300. In other words, the hospital purportedly performed only 200 transplants between 2003 and 2012 — an implausibly low figure during this nine-year period of rapid growth in Chinese transplants.99 Such contradictory information suggests underreporting. State media revealed its actual transplant capacity in 2008 when the Qilu Evening News noted that the hospital had performed 16 kidney transplants in 24 hours, is capable of performing 6 kidney transplants simultaneously, and has ranked in China's top 10 for annual transplant volume for more than a decade. 100 Such activity may well be anomalous, but it indicates that an active, practiced, and ready transplant unit is able to perform when required. Similarly, according to a 2002 paper, the hospital once performed 7 transplants in a day and 32 in a week.<sup>101</sup> It is thus likely that 500 transplants annually is an underestimate of the hospital's actual volume, but the limited data restricts what can be defensively extrapolated.

#### **General Hospital of Nanjing Military Command**

The Nanjing Military Command's General Hospital is home to the PLA's Institute of Nephrology, which has a mandate directly from the Central Military Commission and is led by the renowned surgeon and Communist Party member Li Leishi (in 2007 praised as a model worker in the mold of communist icon Lei Feng). While the hospital's public data suggests it performs only 100 kidney transplants annually, 102 a casual remark in an interview with Li Leishi indicates that the number could be 10 times greater. Li noted in passing in an interview that three surgeons at his institute each did "a few hundred kidney transplants a year."103 In 2008 he remarked that he personally performed 120 kidney transplants annually, but now he does only 70.104 Hospital website archives as of 2014 show that there were 60 renal specialists employed at his hospital who played some role in kidney transplant operations (though perhaps only half of whom were transplant specialists), including 11 chief transplant surgeons. 105

In light of the claim that the three surgeons Li referred to did several hundred transplants each annually, it seems reasonable to assume that the II chief transplant surgeons — assisted by nearly 200 physicians and residents (vice professors, doctoral supervisors, graduate students) — could have done around 100 transplants each annually. Thus, I,000 transplants can be

Table 2. Transplant volume estimates in 10 hospitals

Hospital name	City	Years of data/ estimates	Estimate of annual transplant volume
General Hospital of Jinan Military Command	Jinan, Shandong	2004[?]-2012	500
General Hospital of Nanjing Military Command	Nanjing, Jiangsu	2001-2008	1000
Peking University People's Hospital	Beijing	2006	4000
People's Liberation Army No. 309 Hospital	Beijing	2009-2015	2000
People's Liberation Army No. 458 Hospital	Guangzhou	2007-2014	230
Second Xiangya Hospital of Central South University	Changsha, Hunan	2003-2014	500
Shanghai Renji Hospital (Affiliated with Shanghai Jiao Tong University)	Shanghai	2004-2015	1000
Southwest Hospital (Affiliated with the PLA Third Military Medical University)	Chongqing	2004-2015	650
Tianjin First Central Hospital	Tianjin	2007-2015	3000
Tongji Hospital of Huazhong University of Science & Technology	Wuhan, Hubei	2011	500
		TOTAL	13380

extrapolated based on only the chief transplant surgeons performing a third of the transplants Li mentioned.

#### Peking University People's Hospital

According to Zhu Jiye, director of the Organ Transplantation Institute at Peking University People's Hospital, "our hospital once conducted 4,000 liver and kidney transplant operations within a particular year, and all of the organs are from prisoners sentenced to death." <sup>106</sup>

His remarks, made in 2013, were in the context of the 2010 pilot program in which some hospitals were sourcing organs from voluntary deceased donors, and he was speaking about years prior to that. His comment that the 4,000 transplants were performed "within a particular year" does not specify

the year, but his tone suggests it was some years prior; we have chosen 2006. However, we also contend that if 4,000 transplants were performed in any year prior to 2010, it's likely a similar volume of transplants occurred in surrounding years for which we have no data.

The hospital has gone to some lengths to obscure information about its transplant unit, making it difficult to triangulate the number of transplants claimed with its beds dedicated to transplant operations. Its web pages on its bed configuration, transplantation department, and personal pages on transplant surgeons have all been removed from the internet.<sup>107</sup> The claim of 4,000 transplants is, however, on par with Tianjin First Central Hospital's ratio of transplants to total hospital beds. Peking University People's Hospital reports

having between 1,448 and 1,700 beds across 40 clinical departments,<sup>108</sup> while Tianjin First reports 1,500 beds across 47 clinical departments.<sup>109</sup>

#### People's Liberation Army No. 309 Hospital

The PLA 309 Hospital is one of the military's largest transplant hospitals. It expanded the bed count in its transplant center from 316 to 393 between 2010 and 2012 and led its peers in patient admittance and bed-turnover rates. Profits for its transplant center grew eightfold from 2006 to 2010. Assuming full occupancy and average patient stays of 30 days, this comes to between 3,792 and 4,716 transplants annually; assuming that only half the beds were occupied by new transplant recipients, we've assigned the hospital 2,000 annual transplants.

#### People's Liberation Army No. 458 Hospital

The PLA's No. 458 Hospital — also known as the Air Force Hospital of Guangzhou Military Command — is an example of one of the many generic military hospitals that quietly perform hundreds of transplants annually. Its surgeons who have engaged in transplant operations, 34 of whom are documented by WOIPFG, in have published very few medical papers, and the hospital's website contains minimal information on their activities. Based on a reported 40 liver surgery beds as of 2007, 112 and 39 urological surgery beds, 113 the assumption of half being used for transplant surgery at 30-day occupancy (i.e., that 50% are allocated to new recipients) yields an estimate of 228 transplants annually ((20+18)\*0.5\*12). The hospital reports 50 kidney transplants annually, and assuming the same ratio of transplants to beds for its liver transplant unit, this would be around 100 liver transplants. An estimate of merely double the official figure is likely an underestimate, but the example is cited as an instance of one of the numerous hospitals that form the long tail of China's organ transplantation apparatus.

#### Second Xiangya Hospital of Central South University

The estimate for an annual average of 500 transplants for the Second Xiangya Hospital is, like the Jinan Military Hospital, based on thinner evidence than other cases. The hospital has purged much of the information about organ transplantation from its website. The figure is based on a range of other qualitative factors, including a total of 3,500 beds;<sup>114</sup> being one of only seven hospitals in China approved to conduct all solid organ transplant operations;<sup>115</sup> being one of the earliest hospitals to perform combined organ transplants;<sup>116</sup> conducting more transplants in the first six months of 2002 than it had in its entire history until then;<sup>117</sup> boasting access to an uncommon organ sharing network with 10 other transplant centers;<sup>118</sup> and media reports of doctors working around the clock to perform dozens of surgeries over two or three days. In one case, doctors

performed nine kidney transplants in a single day.<sup>119</sup> The number we assign, 500, is likely a significant underestimate, being only about 50% more than what the hospital claims from hospital-based deceased-citizen donors in 2014 (288 kidney and liver transplants), and just over 30% more than its 2015 claimed voluntary deceased donors (342 transplants). Keep in mind that such procedures, if they were genuinely voluntary donations, would require far more infrastructure and personnel than harvesting from prisoner sources.<sup>120</sup> It should also be noted that nearly all of the official hospital sources cited in this paragraph, primarily drawn from the KGM report, were purged in 2016 (presumably after the report was published in June of that year).

### Shanghai Renji Hospital (Affiliated with Shanghai Jiao Tong University)

The Shanghai Renji Hospital is one of several transplant centers affiliated with Shanghai Jiao Tong University. In October 2004, the hospital expanded its dedicated liver transplant beds from 13 to 23, and by June 2007, had nearly quadrupled them to 90 beds.<sup>121</sup> By 2014, this number had expanded to 110 beds.<sup>122</sup> The hospital claims to perform 200 liver transplants annually and has state-of-the-art operating rooms capable of performing 6 liver transplants simultaneously.<sup>123</sup>

The hospital established a dedicated renal transplant ward in November 1999, adding 41 beds to its renal department (bringing the total to 70).<sup>124</sup> No further information is available about expansions to its kidney transplant bed infrastructure — though it seems extremely unlikely it remained static during the transplant boom while the liver ward grew.

The arithmetic of full-bed occupancy and 30-day admissions for transplant patients suggests anywhere from 650 to 1,800 transplants annually, assuming no growth in kidney bed usage. Assuming some use of the beds for patients with complications, we have used an estimate in the middle of this range.

## Southwest Hospital (Affiliated with the PLA Third Military Medical University)

The Southwest Hospital became a PLA "key laboratory" for liver transplantation in 2001,<sup>125</sup> and reportedly increased beds from 165 to 200 in its hepatobiliary surgery department (which performs liver transplants) between 2004 and 2016.<sup>126</sup> Its kidney transplant ward stood at 64 beds (with 22 for dialysis).<sup>127</sup> Assuming half its beds in each department were used for organ transplantation, 50% occupancy of new recipients, and 30-day stay times, this comes to 684 transplants (82+32\*0.5\*12; rounded down to 650). Surgeons' reports validate the estimate. Dong Jiahong, director of the hospital's hepatobiliary surgery department, claimed they're able to perform six liver



Fuzhou General Hospital of Nanjing Military Command and its stem cell laboratory



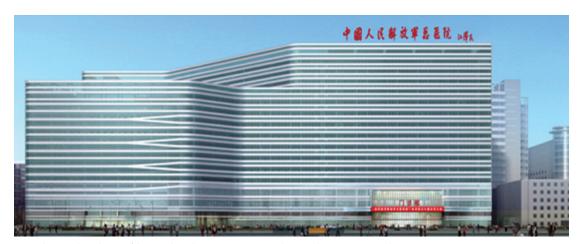
An architectural rendering of Southwest Hospital



An architectural rendering of Xinqiao Hospital



The People's Liberation Army Organ Transplant Centre



An architectural rendering of the People's Liberation Army General Hospital (No. 301 Hospital) Outpatient Department

transplants in a single day (having already broken their record and performed five in one day). The hospital was also one of those called upon by Huang Jiefu in 2005, in the infamous case in which he ordered, and had delivered, two livers on demand. Further, as noted above ("Reports of transplants in medical papers"), the surgeons Yang Zhanyu, Wang Huaizhi, and Bie Ping performed between 30 and 50 liver transplants annually in a number of years between 1999 and 2007 — based only on what was published in medical papers, which was almost certainly a fraction of their total transplants. With just over 60 identified transplant surgeons at Southwest, and allowing for the fact that figures reported in medical papers must be hard minimums, the assignment of 650 annual transplants to this hospital is a cautious estimate.

#### **Tianjin First Central Hospital**

The Tianjin First Central Hospital, perhaps China's largest transplant center, presents a useful case study given the relative abundance of information available about it. Based on a calculation of bed-occupancy rates, bed counts (and the expansion of wards), and turnover times, annual transplant volume appears to have been at least 3,000 beginning in around 2006.131 According to official reports from 2011 to 2015, the hospital performed around 1,000 liver transplants annually.<sup>132</sup> Depending on the model inputs, the estimated transplants per year could vary significantly.<sup>133</sup> We have used a figure in the lower end of the range proposed by KGM and WOIPFG. The Tianjin case also gives an example of how calculations based on bed occupancy can easily be upended by nonpublic data. In the TV Chosun documentary about organ trafficking at Tianjin First (discussed in more detail below), a nurse points to a high-rise hotel within walking distance of the hospital and indicates that the 16th floor is reserved for recuperating transplant recipients.<sup>134</sup> This suggests more activity than public sources report, because it means transplant beds at the hospital need not be occupied by recuperating patients, and more of them can be used by new recipients. In this context, our estimate is highly conservative.

### Tongji Hospital of Huazhong University of Science & Technology

The Tongji Hospital in Wuhan is one of China's most advanced transplant centers. It claims 86 beds reserved for transplants. Assuming full occupancy, with half the beds in use by new recipients who stay for 30 days and the other half occupied by old recipients receiving follow-up treatment, this would come to 516 transplants annually (86\*0.5\*12). The unknown accurate number is almost certainly greater, considering the hospital's national prominence, its status as one of the few hospitals approved to perform every form of solid organ transplantation,

the fact that it has more than 80 personnel involved in transplant work,<sup>136</sup> and that state media reported it performed "thousands" of kidney transplants annually.<sup>137</sup>

#### Comments on these estimates

The above table and discussion present a sample of the raw data and inferential logic associated with estimating transplant volume in Chinese hospitals based on highly limited and censored information. The estimates we have used are extremely conservative, in some cases not a great deal higher than the (clearly lowball) figures claimed by hospitals themselves.

The ten hospitals were intended as a roughly representative sample of civilian and military hospitals from around China — but are not to be taken as a top ten list. Only one hospital from Shanghai, one from Guangdong, one from Hubei, and two from Beijing were listed, yet the official catalogue of 173 transplant hospitals lists 10, 16, 7, and 20 respectively in those municipalities and provinces, which are the major centers of organ transplantation in China. 138 Beyond the officially sanctioned transplant hospitals, it is possible that other hospitals are performing their own illicit transplants. The official list of certified transplant centers was compiled in 2007 (originally as just over 160 hospitals) and was part of the first set of policies that centralized control over the transplant sector. Upwards of 800 hospitals were involved in the transplant business before then; given the absence of oversight, some of these institutions likely continued performing transplants despite Ministry of Health rules stating that they could not. This means that while the scale of the sector is difficult to pin down, any careful evaluation of the evidence shows a system far more sophisticated and expansive than what the authorities have explained.

The brief survey did not capture any of the major Beijing citizen transplant hospitals, nor the major Shanghai military transplant hospitals, nor the enormous civilian and military facilities in Guangdong, nor the busy transplant hub around Hangzhou, Zhejiang, nor any of the 12 transplant hospitals in Shandong. A relatively small number of hospitals may account for the majority of total transplants. In either case, another 10-20 hospitals with roughly the same volumes as those we examined could have been added to the table; perhaps half a dozen of these would have performed at least 1,000 transplants annually, and others several hundred. The long tail of transplant hospitals would then include another 140-150 centers post-2007, many performing perhaps 100 or 200 transplants annually, depending on the year (again, using conservative estimates).

This rough tallying might come to 10,000 or 20,000 transplants annually on average assigned across 20 to 30 of the largest centers, and then another approximately 15,000 across the remaining roughly 140 hospitals. These low estimates result from an assumption of 50% occupancy by new recipients, stays of 30 days, and otherwise careful extrapolations from known data. Such figures almost certainly underestimate actual volume, but they put forward the proposition as an illustrative exercise: even unreasonably conservative figures are inexplicable using death-row prisoners as the sole organ source. This is the case not just for reasons of total volume, which we cannot know, but due to the opposing trajectories in these two areas, as will be discussed now.

#### 4.5

## The more significant consideration: changes (and non-changes) in volume in relation to application of the death penalty

The analysis above shows a range of plausible scenarios based on the available data, using WOIPFG, KGM, and our own estimates, which show that hospitals in China appear to have been performing tens of thousands of transplants annually, perhaps up to the present.

The driving question in this report is not *how many* transplants China has performed, but whether the official explanation for their source adequately accounts for them. This analysis extends to 2015, at which point the official explanation of organ sourcing changed from death-row prisoners to hospital-based, voluntary-citizen donors.

If, as the Chinese government has claimed and as the received wisdom suggests, death-row prisoners have been the major source of organs through the beginning of the industry to 2015, we should expect to observe two related phenomena: 1) A gradual reduction in transplants over the post-2000 period as death penalty figures moderate due to reforms (discussed below), and 2) A sharp reduction in transplants after 2007, as the Supreme People's Court regains country-wide review authority over sentences and death penalty figures sharply decline.

While it is extremely difficult to get accurate data on both organ transplant volume and death penalty figures, the striking divergence in what are supposed to be tightly linked forms of activity is unexpected, anomalous, and deserving of explanation.

There are two key periods of divergence between the transplant sector and the death-row system.

#### Period one: 2000 - 2007

In an internal speech given at the national organ transplant conference in late 2006, Huang Jiefu presented the following data.<sup>139</sup> As of 2004, he said:

- There were 348 hospitals performing kidney transplants, 166 performing liver, 56 performing heart, 18 performing lung, and 13 performing combined heart-lung transplants. (The figure for kidney was less than 100 as of 1999, and therefore probably far less for other transplant types.)<sup>140</sup>
- From 2000 to 2004, 34,726 transplants had been performed, of them 28,736 kidney, 5,642 liver, 273 heart, 51 lung, and 24 combined heart-lung;
- Huang added that this meant growth from 2000 to 2004 by 510% for kidney transplants, 1,820% for liver, 1,100% for heart, 2,450% for lung, and 1,100% for heart-lung. (If the initial year was taken as 1999, these growth factors would be far greater for all but the kidney transplant figure.)

These figures are not reliable for an accurate picture of transplant volume, but they are useful for indicating that rapid growth took place post-2000. And they must be put in the context of comments by top transplant officials to similar effect: that the year 2000 was a "watershed" for the transplant industry; that liver transplant hospitals grew rapidly like "spring bamboo after the rain"; and that, while the average annual liver transplant volume in the late 1990s could be measured in single and double digits, by 2004, it was measurable in the thousands annually (according to official figures).<sup>141</sup>

Notably, Dr. Huang's claim of annual kidney transplants in 2004, being 510% the figure of 2000, would mean there were 27,500 kidney transplants across the country that year (the figure of 5,500 in 2000 being from the most unimpeachable source there is for the official account — Dr. Huang himself). When this is added to the official claim of 2,246 liver transplants in 2004, (presumably the real number is many times this figure), the sum now approaches very close to 30,000 kidney and liver transplants, based solely on an aggregation of official claims.

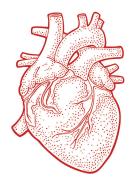
#### Period two: post-2007

The second finding that doesn't conform to the official organ-sourcing narrative is the continued growth of the transplant sector post-2007.

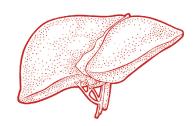
This is evident from expansion in beds used for or dedicated to transplant surgeries, the growth of sales for both domestic

Table 3. Growth of transplant-related surgical beds post-2007

Hospital	Year 1	Bed count	Year 2	Bed count	Year 3	Bed count
PLA 309 (Transplant only)	2010	316143	2012	393144	N/A	N/A
PLA 301 (Hepatobiliary surgery)	2013	172145	2016	180146	N/A	N/A
Southwest Hospital (Hepatobiliary surgery)	2004	168147	2011	200148	N/A	N/A
Tianjin First Central Hospital Organ Transplant Institute (Transplant only)	2006	500149	2007	700150	2013	750?151
First Hospital of Shanxi Medical University (All surgery)	2006	90152	2010	140153	N/A	N/A
Affiliated Hospital of Zunyi Medical College (Urological surgery)	2012	51154	2019	100155	N/A	N/A
PLA 452 (Chengdu Air Force) Hospital (Renal)	2002	210156	2009	1000157	N/A	N/A
The Third Affiliated Hospital of Sun Yat-sen University (Transplant only)	2005	40158	2019	113159	N/A	N/A
Shanghai Renji Hospital (Liver transplant only)	2004	13160	2006	23161	2016	72 or 118 (including pediatric) <sup>162</sup>







and foreign immunosuppressant manufacturers, and construction of dedicated transplant buildings and their full occupancy (most prominently Tianjin First Central Hospital, the largest in China since its completion in 2007). None of these developments are consistent with the reforms to China's death-penalty system, assuming death-row prisoners were the primary organ source.

As the table below indicates, hospitals often do not publicly distinguish the growth in their transplant-dedicated beds from the growth in the department in which transplantation is a part. In those cases, the question then becomes to what extent general renal and hepatobiliary surgery wards were used for transplant operations before and after 2007. While liver transplant appears to be a major therapy (based on general discussions in Chinese medical papers about treatment modalities for hepatobiliary diseases), 163 it is difficult with the information currently available to say how many beds in the renal and hepatobiliary surgery wards were used specifically for transplants, let alone how this number changed over the years. A relationship between the two must exist, however. According to a July 2018 interview with a hepatobiliary and transplant surgeon at Nanjing Drum Tower Hospital, the unit performs over 10 liver transplants per month, or over 120 annually. 164 From 2014 to 2018, the hospital's hepatobiliary ward reported having 180 beds. 165 If this 1:1.5 ratio of annual liver transplants to hepatobiliary surgery beds was common to all hospitals in China, and the numerical claim was accurate, we could approximately calculate the total number of liver transplants.<sup>166</sup> (But neither of these is a safe assumption to make.) Another example is the claim of 259 liver transplants in 2004 at the Third Affiliated Hospital of Sun Yat-sen University, based on a "very full" 40 beds in the transplant ward. 167 One area for further research would be to gather as many of these examples as possible in order to find an average ratio of reported annual transplants to urology or hepatobiliary surgery beds. In this case, however, we would still be reliant on the accuracy of such statements by surgeons to domestic media.

As a general matter, we think it fair to assume the ratio of occupancy of transplant patients in beds in the hepatobiliary or urology surgery departments before 2007 reflects the ratio post-2007. This would mean at least some of the additional demand for bed space came from transplant business. Our assumption rests on the abundance of other information about transplant growth post-2007. Without any other indications of the continued growth of the transplant industry post-2007, one may be forced to conclude that the expansion of renal and hepatobiliary surgery wards was due to an increase in other forms of surgery and was unrelated to increased

transplants. However, the growth of immunosuppressant sales (both domestic and foreign, the latter depending on the source consulted), expansion of transplant-dedicated beds in a number of centers, continued media reports referring to significant transplant volume, and comments by doctors and nurses speaking to undercover investigators attesting to waiting times of weeks or (at most) months, altogether suggest no slowdown in transplant activity during this period.

### THE RAPID AVAILABILITY OF ORGANS

erhaps the most important, yet least understood, aspect of China's transplantation system for years has been the extraordinary rapidity with which organs can be acquired for transplantation. In organ transplantation systems with voluntary donors, recipients must often wait years for an eligible donor to become available. Yet in China, waiting times during the 2000s were remarkably short, sometimes measured in months, but often in weeks or days. Some medical papers refer to wait times of hours. The most parsimonious inference that can be made from this phenomenon is that vital organs from living donors were being made available on demand. In cases of liver transplantation, the removal of the full organ must be coincident with death. These two facts lead to the conclusion that recipients are matched to captive donors who are then killed for their organs. Given that the Chinese government is unlikely to admit to this form of abuse, it must be inferred from the available evidence.

## Short waiting times for transplants at hospitals

Prior to the 2006 claims of organ harvesting of Falun Gong practitioners, Chinese hospitals publicly advertised waiting times of one or two weeks for an organ transplant. Rather than organs becoming available should a potential donor die, as occurs in systems of voluntary donations, organs appeared to be readily available. The procurement time was set in advance, implying that the time of execution was controlled. 168

In 2004, for instance, the website of the First Affiliated Hospital of China Medical University reported that it may take between a week and a month "to find a[n] HLA-matched donor" for a kidney transplant. <sup>169</sup> Numerous Chinese hospitals advertised their services to foreigners and Chinese alike for years, making clear that donors were available as needed with minimal waiting times. The June 2016 KGM report provides numerous examples of this practice. These advertisements, sometimes standalone websites, were mostly purged after the Falun Gong allegations emerged in 2006.

### 5.2. 'Emergency' transplants

The most striking demonstration of instant organ availability can be found in the phenomenon of "emergency" transplantation: China's ability to source livers within 4, 24, or 72 hours, according to China's own Liver Transplant Registry. In an effort to conform to international conventions around data provision and provide a minimal degree of transparency, China's transplant leadership began publishing the China Liver Transplant Registry in 2005. The annual report was later rescinded from public access, but researchers have been able to obtain the 2005, 2006, and 2011 reports.

The 2005 and 2006 reports show respectively that 29% and 26.6% of reported elective or urgent status liver transplants were conducted on an "emergency" basis,<sup>170</sup> defined in Chinese medical papers as between 24 and 72 hours of the patient's presentation at the hospital. Nearly all transplants performed on this basis are for patients who are suffering acute liver failure and will die if they do not receive the new liver quickly.<sup>171</sup>

That a significant portion of the transplanted livers in China were acquired within I-3 days is startling. Given the absence of voluntary donors through this period, there are only two possible explanations: I) When a new patient suffering liver failure presented at a hospital, there just so happened to be a preplanned execution about to take place, at a prison with which the hospital had a relationship, of a healthy death-row prisoner with the same blood type as the patient; or, 2) There is or was a pool of pre-blood-typed healthy donors (on or off death row) available to be drawn upon for their livers on demand (the extraction of which causes or must be coincident with death).

If the first scenario were to explain the phenomenon, it would require that a chain of fortunate coincidences was taking place in cities across China for many years, such that coincidences produced between one quarter and one third of liver transplants. Common sense rejects this explanation.

The second scenario requires no sequence of fortunate coincidence, but merely that the Chinese authorities have planned ahead and kept a healthy, blood-screened population of prisoners available to be killed on demand for their organs. This is well within the capabilities of the Chinese authorities and provides a simpler explanation. An incident in 2005 points to the second scenario.172 Dr. Huang Jiefu traveled with Luo Gan, the Communist Party's security chief at the time, to Xinjiang for the 50th anniversary of the regime's annexation of the northwest border region. While there, he performed an autologous liver transplant, which involves the removal of the patient's liver, excision of the cancer ex vivo, and then the replacement of the same liver back into the patient's body. In preparation for this procedure, Huang procured two additional livers. He obtained these back-up livers within 24 hours, after making telephone calls to the Third Military Medical University's First Affiliated Hospital in Chongqing and Huang's home institution, the First Affiliated Hospital of Sun Yat-Sen University in Guangzhou. The organs were delivered, though never used. This extraordinary sequence of events — inconceivable in any Western medical context — is documented in four official Chinese publications.173

This demonstrates the ready availability of organs during this period of growth. When viewed in light of the disconnect in transplant volume and death penalty reforms, it becomes difficult to explain this phenomenon with the standard claims of organ sourcing provided by official Chinese sources until 2015 (*i.e.*, death-row prisoners). This will be addressed in more detail below.

#### 5.3.

## Highly anomalous transplant activity indicating an abundant and ready organ supply

Apart from emergency transplants, other anomalous incidents and anecdotes indicate a ready organ supply.

- In 2002, doctors flew a donor to Tibet, where the donor's liver was extracted. 174 According to Tang Jinhai, one of the doctors, "In order to ensure the activity of the liver's hepatocytes, the extraction of the liver from the donor must take place simultaneously with the removal of the bad liver from the recipient. Otherwise, if the aircraft carrying the donor could not fly from outside the region to Tibet on time due to bad weather and such situations in Tibet are quite common during the winter the consequences would be disastrous. 175 From this, we must infer that the hospital flew a prisoner to a new location to be executed on demand for the liver transplant.
- Chinese media document multiple instances of rapid re-transplantation after rejection. In the case of the wellknown actor Fu Biao, the hospital performed his first liver transplant seven days after he was diagnosed with liver



Chinese medical papers. (Olli Törmä)

cancer.<sup>176</sup> He received a second liver transplant within one month due to rejection of the first. The second operation was performed by Shen Zhongyang, the senior surgeon at Tianjin First Central Hospital.<sup>177</sup> The First Affiliated Hospital of China Medical University, referred to above, advertised on its website guaranteed re-transplantation within a week in case of failure.<sup>178</sup>

• Anecdotes from surgeons indicate a high level of enthusiasm while performing a large number of transplants. The lead liver transplant surgeon at the Renji Hospital's transplant unit, Xia Qiang, told Chinese media in 2005, "I'm obsessed with liver transplants. It's like I'm addicted to it. I would feel uncomfortable if I don't go to the ward to see patients for one day. I do at least two to five liver transplants a week.... The management of my team is militarized. Every medical staff member must keep their cell phone turned on 24 hours a day because liver transplants may require going out for graft procurement or preparing for surgery at any time. We doctors must be on standby at all times."<sup>179</sup>

# THE INADEQUACY OF CHINA'S OFFICIAL EXPLANATION

hinese officials have provided shifting explanations for the source of organs through this period, while consistently denying that prisoners of conscience have been exploited as an organ source and calling such claims "ridiculous." <sup>180</sup> In 2001, a Chinese spokesman called testimony about the retrieval of organs from death-row prisoners "sensational lies" and said that there is no organ trade. "The major source of human organs comes from voluntary donations from Chinese citizens," the spokesman said. 181 This remained the official claim — that organs were obtained from voluntary donors — until 2006, when the official explanation changed decisively to death-row prisoners. The death-row explanation was sustained until 2014, when Dr. Huang and other officials announced that the source of organs in China would be solely volunteer donors starting January 1, 2015. This claim will be addressed later in the report.

Voluntary, ICU-based donors do not stand up as a plausible explanation for a source of organs during this period, because this source did not exist in any meaningful form in China until recently. China's pilot voluntary donation system was established (in 11 provinces) in 2010 and went nationwide in 2013. Huang Jiefu states that from the 1980s to 2009, only 120 cases of voluntary deceased donation existed.182 Without an understanding of China's organ transplantation system, it is easy to accept the official explanation that organs came from death-row prisoners. On its face it appears plausible, and it has come to occupy the status of common knowledge among human rights organizations, governments, and journalists. Yet upon closer examination, the use of death-row prisoners as an organ source fails to explain the data. Analysis must begin with a closer understanding of changes in death penalty policy in China over time. Two major impediments call into question the death-row sourcing explanation: the number of death-row executions, and the timing around the implementation of the death penalty. We will examine them in turn.

## Declining death penalty numbers since the early 2000s

As with many aspects of the Communist Party's judicial activities, no reliable, official national statistics on the application of the death penalty exists. Scholars have pieced together their own estimates of death-row numbers and their trajectory over

time, both at the national and regional level.<sup>183</sup> A general consensus emerges: judicial executions have been in steady decline over the last two decades, and a substantive decline began on January 1, 2007, when the Supreme People's Court in Beijing re-assumed authority to review each death-penalty sentence.

The first point — an annual decline in death-row executions since around the year 2000 — is exemplified in the data compiled by Dui Hua, a human rights organization, and the Cornell Center on the Death Penalty Worldwide.

While a question lingers over the precise numbers, scholars of China's death penalty are in consensus on the pattern indicated in Dui Hua's data: a decline since the turn of the century.



#### 6.2

#### Death penalty reforms since 2007

The second point, the decline in death penalty executions since 2007, has also been explored extensively in the literature and is supported by a large body of evidence. While it is impossible to know the precise extent to which judicial executions dropped — because the numbers are state secrets — available evidence indicates a substantial decline.

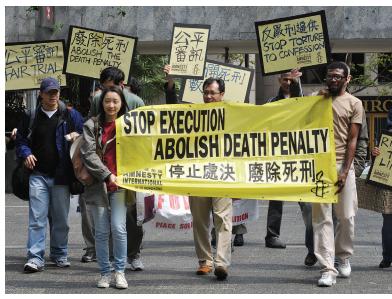
According to the business magazine Caixin, after the reforms in 2007 "leaders from the relevant departments worried that the public wouldn't be able to accept the fact that there was such a precipitous decline in death penalty numbers." In the politicized and secretive context of the Chinese Communist Party's judicial and security services, a comment of this sort — acknowledging the deep skepticism about any positive developments in relation to the judicial system — has a ring of plausibility.

The elaborate administrative procedures involved in judicial review at the Supreme People's Court add further credence to the reality of the reforms. Judges assigned to review death penalty cases are sometimes drawn from the ranks of the academy, to which they return after their judgeship. In interviews with Chinese media, judges have spoken of the office environment, review protocols, caseload, and extensive delays in processing paperwork.<sup>186</sup>

Local data back up these general conclusions, as the following charts based on municipal data gathered by scholar Moulin Xiong indicate (Figures 16 - 17).  $^{187}$ 

Above all, China's death penalty reforms have been characterized by increased judicial oversight, more layers for approval of capital punishment, far fewer crimes being punishable by death, an increase in sentences with reprieve versus actual executions, an end to the arbitrary and unsupervised implementation of the death penalty at the local level, and the cessation of "strike hard" campaigns (in which thousands were rounded up and executed).

Additionally, when assessing whether death-penalty prisoners are a plausible primary source for China's organ transplantation industry from 2000 onwards, it should be noted that Chinese law requires execution within seven days of the approval of the sentence. This stipulation appears in China's Criminal Procedure Law.<sup>188</sup> Judges within the system and advocates outside of it appear to believe that sentences are indeed rapidly dispatched. For instance, a former deputy judge in the Supreme People's Court reviewing death penalty sentences reports that he suffered "spiritual torment" when examining

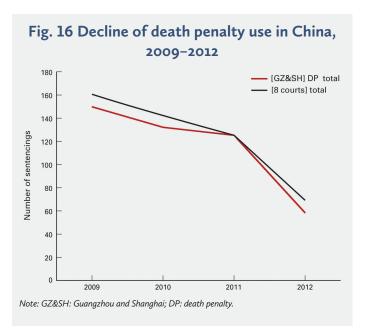


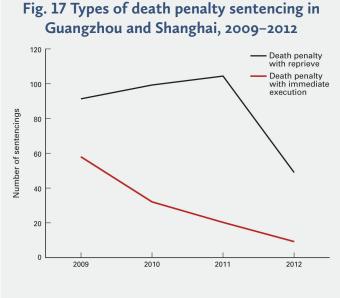
A group from Amnesty International protesting over the death penalty, march to the US Consulate and Chinese Liaison office in Hong Kong on March 30, 2009. Amnesty said that more people were executed in Asia than in any other part of the world in 2008 because China carried out more executions than the rest of the world put together. (Mike Clarke/AFP/Getty Images)

cases because he knew that "when the death penalty warrant went out, within seven days the prisoner would simply become a corpse." Similarly, advocates of abolition or limitation of the death penalty in China frequently cite rapid execution as needing reform. 190 Clearly, beliefs by insiders and activists do not mean that the policy is always adhered to, and violation of it may in fact be more common. We would be most justified in the assumption that the law is ignored in cases where it is in the interests of prison and hospital authorities to ignore it.

For death-row prisoners to be the source of these organs transplanted on an emergency basis, and for the authorities to adhere to the seven-day rule, a series of coincidences would be required. A patient would need to appear at a hospital with liver failure, right after a prisoner in the same city has been sentenced to be executed — a prisoner who is healthy and shares the same blood type as the recipient. Logic suggests that the odds of this coincidence are slim — but Chinese medical papers describe hundreds of such cases. In one case, it took only four hours to find a liver match.<sup>191</sup> It would border on the miraculous that surgeons matched more than 1,150 liver transplants in 2005 within around 24 hours, without any national organ matching and allocation system, while relying on death-row prisoners in the same city as the hospital that performed the operation.<sup>192</sup>

It may be possible to explain the relatively large number of such emergency transplants if there were fewer of them, and if their numbers were not in decline. Yet the abrupt rise of emergency liver transplants in the post-2000 transplant





Source: Xiong, "The Death Penalty after the Restoration of Centralized Review: An Empirical Study of Capital Sentencing."

boom, at a time when the death-penalty system was receding, is troubling. Transplant donors must also be relatively healthy and free of blood-borne diseases like hepatitis, which is common in China's unsanitary prison settings. <sup>193</sup> The spectacle of mass death-penalty sentence announcements carried out in China, after which dozens of death-row prisoners are taken away and executed, is inconsistent with a population that is systematically preserved until needed for their organs.

That the transplant system continued to grow after 2007 is additionally concerning. The case of the Tianjin First Central Hospital is illustrative. In 2007, when the number of death-row prisoners sharply decreased, the Tianjin First Central Hospital completed its 17-story dedicated transplant center, operating at full bed capacity in its transplant wing, before expanding the number of beds from 500 to 700. In 2007, new immunosuppressant plants were subsidized by the government. <sup>194</sup> In 2008, requirements for liver transplant were loosened, increasing eligible recipients by over 50%. <sup>195</sup> From 2010 to 2012, the Beijing 309 military hospital increased its transplant bed capacity from 316 to 393 — and saw its profit from transplants grow by almost eight times, from 30 million yuan in 2006 to 230 million yuan in 2010. <sup>196</sup>

The above does not mean that death-row prisoners have not been exploited to the extent possible as a source of organs. But the cumulative evidence suggests some other population too, *beyond* death-row prisoners. Moreover, this organ source must be held in captivity in large numbers, be free of bloodborne diseases, and have been blood- and tissue-typed: in short, ready for rapid execution and organ procurement.

# PRISONERS OF CONSCIENCE AND OTHER NON-DEATH-ROW PRISONERS AS ORGAN SOURCES

ecause the official explanation of death-row prisoners providing all organs for transplant is not consistent with the known evidence, we must look for alternative sources. Alternate populations, able to be blood-typed and killed on demand with impunity might include kidnapped beggars, vagrants, and other innocent parties; petitioners in detention; criminals who are convicted and do not have family visitors; and prisoners of conscience. Evidence points to all of these groups as targets, though by far the largest, most vulnerable, and most readily exploitable population is prisoners of conscience, most prominently (until recent years) practitioners of Falun Gong. A similar range of evidence from the past few years suggests the targeting of Uyghurs as well.

## Evidence of Falun Gong being used as an organ source

Falun Gong, a Chinese discipline of meditation and spiritual belief, has been the target of an eliminationist, extralegal political campaign by the Chinese Communist Party since July 20, 1999. Scholars have extensively documented the manner in which the anti–Falun Gong campaign circumvented the state and judicial apparatus, instead mobilizing *ad hoc* Communist Party–run security organs to track down believers and subject them to forced ideological conversion, compelling them under pain of torture to renounce their beliefs.<sup>197</sup>

Chinese officials estimated that the Falun Gong population was 70 million by the end of the 1990s, <sup>198</sup> and investigators estimate that as many as 1 million have been in custody at any given time in the country's vast network of labor camps. <sup>199</sup>

The research on the use of Falun Gong as an organ source includes multiple books and lengthy reports.<sup>200</sup> As such, only a brief outline of the key evidence indicative of organ harvesting of Falun Gong practitioners is presented. The primary strands of evidence are as follows:

 Falun Gong detainees report being subjected to unusual blood tests, chest X-rays, and ultrasounds. Refugees report that a bus drives into the labor camp, and only the Falun Gong are called out to be given physical exams and blood tests, without explanation.<sup>201</sup> In the months that followed, tested prisoners began disappearing.<sup>202</sup>

- There is an extensive catalogue of telephone calls made to Chinese transplant hospitals by investigators outside China posing as potential patients, relatives of patients, and doctors. These investigators have elicited admissions from nurses and doctors that organs are available on demand. In a number of these calls, hospital personnel have stated that the source of the organs is Falun Gong.<sup>203</sup>
- China's transplantation sector began its rapid transformation just six months after the campaign against Falun Gong began, at a time when the death-row population was going into well-documented decline.
- There are many cases of summary cremations of young, healthy detainees who die mysteriously in custody. No information is provided to the family — they simply receive an urn of ashes.<sup>204</sup>
- There are documented cases of family seeing the dead with scars indicative of tampering with the body, consistent with organ removal. In one case in Chongqing, the police admitted that the organs were removed immediately after death; the state claimed it was in order to make medical specimens.<sup>205</sup>
- An overlap exists of personnel carrying out the anti-Falun Gong campaign and performing transplants.

The last item — an overlap in personnel engaged in both organ transplantation and anti–Falun Gong work — has been observed in two prominent cases.

The first is the surgeon Zheng Shusen. Zheng is one of China's most well-known liver surgeons and a prominent leader in China's transplantation system, whose career includes being the chief editor of the leading scientific journal on transplantation, past president of the Chinese Society of Transplantation, vice president of the Chinese Medical Association, president of Zhejiang Medical University's First Affiliated Hospital.



Falun Gong practitioners meditate on Capitol Hill in Washington, D.C. on July 12, 2014. (Edward Dye/Epoch Times)

Zheng is also the former director of the China Anti-Cult Association (CACA) in the province of Zhejiang. <sup>206</sup> CACA is a Communist Party agitprop (agitation and propaganda) agency dedicated to the defamation and destruction of Falun Gong. In this role, Zheng has appeared at public events sitting alongside security officials, including secret police, calling for the political struggle against Falun Gong. In 2009, Zheng wrote in the preface to an anti–Falun Gong book, "Falun Gong' and similar evil religions are like viruses corroding the organism of humanity, warping the souls of believers, destroying social order, disrupting economic development, and have become a public nuisance to mankind and a cancer on society." <sup>207</sup>

Zheng published a paper in 2004 documenting 46 instances of "emergency" liver transplants — that is, where the donor was located within 24–72 hours of the patient's presentation at hospital.<sup>208</sup> Zheng's position as chief of a provincial anti–Falun Gong agency may offer some explanation as to the source of such organs, given the difficulty of accounting for the rapid sourcing of organs from death-row prisoners.

Another official who has served in both capacities — as a career apparatchik in the public security system while moonlighting in the transplant field, rather than the other way around, as in Zheng's case — is the disgraced and imprisoned Wang Lijun. Wang was the former police chief of Chongqing and long-time ally of deposed Politburo member Bo Xilai.

Wang Lijun ran a research project related to organ transplantation when he was public security bureau chief of Jinzhou City, Liaoning Province. Wang's "On-site Psychological Research Center," a laboratory housed in the same building as the Public Security Bureau, was host to "thousands" of on-site experiments in organ transplantation, according to the transcript of a 2006 award speech.<sup>209</sup> Wang was being feted by the Guanghua Science and Technology Foundation, a charity that promotes science under the direct leadership of the Communist Youth League, one of the Chinese Communist Party's mass recruitment and mobilization organizations. Photographs on official websites show Wang, dressed in scrubs in his lab, discussing his transplant experiments. Given that there were only thousands of judicial executions across the whole of China during these years, Wang's performance of "thousands" of transplant surgeries — as alluded to in the award speech — appears to have drawn on non-death-row prisoners as a source. Wang's direct involvement in the anti-Falun Gong campaign may, like Zheng's two hats, offer a partial explanation as to how he gained access to living humans so readily.

## Evidence of Uyghur Muslims being used as an organ source

Since summer 2017, Chinese security authorities have embarked on a large-scale campaign of incarceration of primarily Uyghur (though also Kazakh and Kyrgyz) Muslims in the northwestern Xinjiang Uyghur Autonomous Region. Detainees are held in large facilities where they are subjected to political and religious re-education and "vocational training."210 These incarcerations are affected without due process, without the presentation of evidence of any crime, and largely outside the boundaries of Chinese law.211 Estimates of the number of individuals in the centers vary widely but range from hundreds of thousands to several million, with a general consensus of about a million.<sup>212</sup> The number of camps is also unknown. Researchers have documented the existence of dozens of camps, but activists have alleged there are far more — upwards of a thousand. The broad range of coercive policies being pursued against Uyghurs in Xinjiang today mirror those used against the Chinese population as a whole when the Party was seizing power in China, including regimentation of daily life, struggle sessions, public confessions, displays of loyalty to the Party, and incarceration of individuals who constitute perceived threats (including prison sentences of 10-plus years merely for engaging in group worship). Relatively few reports of deaths of Uyghurs in custody exist; however, those familiar with PRC history know that large-scale killing in previous campaigns was common.213

Does evidence suggest that Uyghurs and other Muslims subject to coercive state power in Xinjiang or elsewhere in China have been targeted or are vulnerable to being targeted for organ harvesting? We find that while there is less circumstantial evidence to suggest this has taken place than exists surrounding the Falun Gong-related allegations, there are numerous reasons to think such abuses have occurred, continue to occur, or may occur in the future. The evidence supporting this view is as follows.

I. Widespread, coercive collection of DNA and blood type. Public security and other authorities in Xinjiang have collected biometric data — including DNA, fingerprints, iris scans, and blood types — of all Xinjiang residents between 12 and 65 years of age.214 Some of this data appears to have been coerced from people, while other collection is done under the aegis of a free physical examination program though the participation rates in this ostensibly voluntary program are so high that researchers suspect coercion.215 The data comes from individual national ID numbers, and the blood type is kept on the IJOP mass surveillance system used to monitor Uyghurs in Xinjiang.216 Ensuring donor and recipient have compatible blood types is a precondition for successful transplantation, though DNA information can also be used to facilitate donor and recipient matches and ensure better post-transplant outcomes. Maya Mitalipova, director of the Human Stem Cell Laboratory at the Whitehead Institute for Biomedical



This photo taken on June 2, 2019 shows buildings at the Artux City Vocational Skills Education Training Service Center, believed to be a re-education camp where mostly Muslim ethnic minorities are detained, north of Kashgar in China's northwestern Xinjiang region. (Greg Baker/AFP/Getty Images)

Research at the Massachusetts Institute of Technology, told the China Tribunal, a people's tribunal investigating allegations of forced organ harvesting from prisoners of conscience in China, that "scientists have come up with a comprehensive DNA scoring system using many genes to predict long-term success of transplantation." This comports with publicly available research. While we cannot know if this motivated the collection of DNA data from Uyghurs, improving matches for organ transplantation is one of the purposes to which it could be applied.

2. Blood tests and physical examinations of individuals consistent with those required for assessing organ health. Four former Uyghur and Kazakh detainees testified to the China Tribunal that they had blood and urine samples involuntarily taken and were also given ultrasounds. Blood type is a prerequisite for matching for organ transplantation; urine samples may be used for identifying kidney health.

Gulbahar Jalilova, a Kazakh businesswoman, stated in her testimony: "On the night of arrival at the No. 3 prison, I was stripped naked for a medical examination. They took [a] blood sample and urine sample before placing me in a cell. In less than one week, I along with other prisoners with black hoods over our heads were taken to an unknown place, there was medical equipment in the corridor, we were examined and blood samples were taken, and we also had ultrasound tests. We were examined once a week stripped naked. I fainted once when I was in the

No. 3 prison, I was taken to the prison hospital where I saw many other prisoners and we all had medical examinations almost daily. In the No. 2 prison, there is a big medical clinic, we were examined regularly [using] blood samples and ultrasound tests. We had injection once every 10 days. On the 27th of August 2018, before I was due to be released, I was taken to a big prison hospital for a check-up."<sup>219</sup>

Mihrigul Tursun, a Uyghur with family ties in Egypt, stated that she was detained and tortured in April 2017, then detained again in January 2018. She states, "The authorities handcuffed and placed ankle shackles on me. Also a black hood was placed over my head before I was taken direct[ly] to a hospital. I was stripped naked and put under a big computerised machine. One female and two male officials examined my body while I was still naked and then dressed me in a blue prison uniform."<sup>220</sup>

Omer Bekari, a Uyghur and naturalized Kazakh, stated that he was arrested in March 2017, and released in January 2018. He attested that the following took place soon after his detention: "I was taken to a medical clinic or a hospital in Pichan, on the 26th of March 2017. I heard the conversation between the medical staff and the police: 'There are 2, 3 people in front of you for the urine test, we will let you know when it is your turn to give a sample.' They gave me water to drink before taking me to the toilet, insisting

that I produce for them a urine sample. About half an hour later, they removed my clothes from above my waist line, [and] the first thing they did was to take blood samples from my arm. Then I was placed on a bed for a full body check, they used ultrasound ... applying cold gel, checked my kidneys, then [an] ECG [for my] heart, my lung[s]. I believe they were using ultrasound, as a cold gel was placed on different parts of my body. I was moved from side to side and rolled over from off my back to my chest so that I could be tested [on my] back and chest. I believe it is possible that they used different equipment when carrying out their tests."221 He writes that the physical tests lasted two hours, on that occasion, and were repeated about two weeks later in a hospital, where he was taken to different medical departments for different tests, with a hood over his head the entire time.

Abduweli Ayup, currently a resident of Turkey, says that he was detained in July of 2015, during which time he was interrogated via torture in a "Tiger Chair," after which "I was taken to a hospital. As I had a hood placed over my head, I don't know which hospital it was. I know they carried out a full body check, X-ray, taking saliva, urine, and blood samples, applying a cold gel before examining different body organs."<sup>222</sup>

3. **Deaths in custody and disappearances.** The total number of deaths of Uyghurs and other victims of the Xinjiang



If the Chinese authorities are using Uyghurs for their organs, we would expect to observe the same evidence we now observe: unusual blood tests or physical exams; transfers of detainees to prisons around China or other means to efficiently transport organs *from* Xinjiang; disappearances of detainees; and continued rapid availability of organs at hospitals.

mass detention campaign is unknown. The Xinjiang Victims Database maintained by Eugene Bunin as of early June 2019 identified 66 deaths since 2017, though this is almost certainly incomplete.<sup>223</sup> We were unable to identify instances in which investigations had been launched following these deaths or any officials punished. Given reports of abuses, rape, and torture of detainees,224 it is highly unlikely that wrongful deaths in custody will result in official investigation, oversight, or accountability for those responsible. A climate of impunity is likely to result. No reliable data exists on the number of Uyghurs who have disappeared into the camp system entirely, and we are not aware of any current attempt to systematically track this figure, notwithstanding the difficulties of the exercise. It appears that disappearances are taking place. 225 Ms. Tursun, quoted above, says she witnessed 9 deaths in her cell of 68 people over three months, and infers from this that the total volume of deaths would likely be far higher across the country.<sup>226</sup>

4. Transfer of detainees by rail around China. Reports emerged in 2018 that the authorities were secretly transferring up to hundreds of thousands of Uyghurs by rail to prisons and detention facilities in the Chinese interior. These claims are based on firsthand accounts, gathered by overseas Chinese-language media, of guards and others attesting to such transfers.<sup>227</sup> Related evidence includes large-scale temporary closures of railways in Xinjiang,

indicating that rail infrastructure may have been reserved for prisoner transfers during this period. VOC corroborated these reports, but only via second- and third-hand testimony.<sup>228</sup> Such transfers do not in themselves constitute evidence of additional abuses, though the presence of eligible prisoner donors close to hospitals around China could facilitate coercive organ procurement. New regulations aimed to ensure priority passage for human organs on airlines across China may also facilitate abuses, despite their ostensible purpose being to foster the development of voluntary transplantation in China.<sup>229</sup> The appearance of organ transplantation priority lanes at airports in Xinjiang is one development that could be read either way: as evidence of the development of a voluntary transplantation system (or propaganda meant to create this impression), or as an indication of infrastructure allowing flights of batches of organs from Xinjiang to major cities on the coast.230

5. The continuation of organ trafficking in China post-2017. As will be discussed below, substantial evidence suggests illicit organ trafficking has continued in China from 2015 to the present. While we have no data on the scale of this practice at a national level, the available evidence indicates that kidneys and livers were available on short notice — *i.e.*, within weeks, typically — at a number of military hospitals in Beijing as of late 2018. This corroborates the same type of evidence gathered by undercover Korean investigative journalists at the Tianjin First Central Hospital in mid-late 2017.<sup>231</sup>



Uyghur prisoners, bound and blindfolded, are moved between detention facilities in Xinjiang as shown by drone footage released in October 2019. (War on Fear/YouTube)

6. The failure of the official explanation to account for organ transplantation post-2017. Chinese officials claim that since 2015, voluntary, hospital-based deceased donors have been the only source of organs available for transplant in China. This narrative allows Chinese authorities to explain rapid organ availability at major hospitals by simply asserting that the organs come from the robust and growing voluntary donation apparatus. However, as discussed below, it appears that China's voluntary deceased donation data was falsified at the central level—and thus we do not know what the real transplant figures are. It seems reasonable to infer, however, that the total transplants taking place are at least as numerous as those claimed to come from voluntary donors; by 2018 this figure sat at about 18,000 organs from 6,000 donors.<sup>232</sup>

The above findings must be understood within the context of the entire campaign against Uyghur Muslims in Xinjiang, which appears intended to destroy Uyghurs as a cohesive people. The range of policies under this rubric include mass incarceration and coercive deconversion from Islam, mandatory use of Chinese written and spoken language by children at school, prohibition of the Uyghur language in the public sphere, destruction of mosques, vilification of Uyghur religious beliefs as "ideological viruses," subsidies and policies encouraging intermarriage between Uyghur women and Han men, incentives for Han settlers to colonize Xinjiang, forced consumption of or injections with unidentified drugs, and more. According to local observers, these policies have effectively changed the face of Xinjiang; their continuation over decades may result in the total effacement of the Uyghur people. Though there are only scattered reports of deaths in custody at present, and no clear evidence of outright mass murder, large-scale killing has played an important role in the Party's historical campaigns. There are also multiple reports of localized massacres of Uyghur villages in Xinjiang by Party security forces.233

Given the close resemblance the anti-Uyghur campaign in Xinjiang has to the Party's other coercive campaigns through its history — including most recently the anti-Falun Gong campaign, but also the political-ideological mobilization campaigns between the 1940s and 1960s — there are precedents for widespread lethal violence. The global attention this campaign has garnered, and the negative repercussions that open violence would receive, has likely had a moderating effect.

If China is using or has used Uyghurs for organ sourcing, we would expect to observe the same evidence we now observe: unusual blood tests or physical exams; transfers of detainees

to prisons around China or other means to efficiently transport organs *from* Xinjiang; disappearances of detainees; and continued rapid availability of organs at hospitals. The use of Uyghurs as a source of organs would fulfill multiple needs simultaneously: those who refuse to renounce their beliefs may be disposed of silently and profitably, while civilian and military hospitals with political backing would retain access to fresh organs. The mechanism for using prisoners in this manner is established, and there is an immense demand for organs, which Uyghurs would supply.

Researchers continue to search for and gather evidence on this potential abuse. It is also possible that while all of the above is strongly suggestive of illicit organ trafficking from Uyghurs, such abuses may not have in fact taken place. We discuss below the difficulty we are confronted with when dealing with the evidence we have, in light of incentives and constraints on the actors involved. Yet the current constellation of evidence conforms to an alarming pattern.

7.3.

## Evidence of other non-death-row prisoners and citizens being used as organ sources

Although officially Chinese authorities deny that they have killed prisoners of conscience for their organs, they acknowledge that abuses have taken place. Specifically, the official narrative concedes that some non-death-row prisoners may have been targeted for organ harvesting — whether as living donors (like the young man who exchanged a kidney for an iPad),<sup>234</sup> or in some cases via killings carried out by rogue actors against those on the margins. Stories circulate of kidnappings for the purpose of organ harvesting. When such cases surface, the Chinese state represents itself as the lawful authority prosecuting illegal, profit-motivated organ harvesting. The large volume of transplants taking place in state and military hospitals, however, escapes such scrutiny.

A 2009 case in Xingyi, in the southwest region of Guangxi, received notoriety. The corpse of a well-known local beggar was found, absent its vital organs.<sup>235</sup> In 2013 in Taiyuan, Shanxi, a six-year-old boy was kidnapped and drugged, then had both his cornea cut out.<sup>236</sup> For nearly a decade, reports have emerged of organ trafficking gangs operating out of Wuhan: women disappear; they later emerge as corpses bearing signs of organ removal.<sup>237</sup> There are numerous reported cases of healthy young men disappearing in Wuhan, with their parents suspecting that they have been abducted and their organs removed; a reporter who covered the case was later sacked from his job, suggesting a coverup. Wuhan has some of the largest and

most advanced organ transplantation hospitals in the country, though no reports link their staff or leadership to the illicit activities. Public security officers have also broken up transplant rings in Wuhan. One such ring rented villas to perform the surgeries, suggesting an "extremely skillful and organized" surgeon performing in highly constrained conditions.<sup>239</sup> Online sources allege the abduction and organ harvesting of beggars (including street children) taken in at official "Help Centers" (jiuzhu zhan), but such stories do not appear to have been subject to the same intensive investigative journalism in China as other cases.<sup>240</sup> The hollowing out of the entire field of investigative journalism in China over the last few years also means such reporting is less likely than in the past.<sup>241</sup>

These criminal networks engaged in organ trafficking, with ties to official institutions, echo reports of so-called "vampire gangs" of the 1990s: criminal groups who ensnared young people on false pretenses, then held them captive while extracting their blood over a period of months. They would then sell the blood to government-run blood donation centers.<sup>242</sup>

One official source describes what until August 2014 was the largest prosecution of organ trafficking. There were 15 defendants, including the organizers, brokers, nurses, and doctors, accused of trafficking 51 organs, reaping 10 million yuan (nearly \$1.5 million). They rented apartments in Beijing to remove organs from living donors — presumably willing and surviving — procuring the services of a director of urology at a major Beijing hospital, then rented the hospital facilities to perform the transplants. "They directed the entire criminal process of organ trafficking at a scale that is shocking, causing clear and obvious social harm," said a legal review of the case. "If we allowed the commodification of organ transplantation, the phenomenon of organ trafficking would become more severe and even more horrifying."243 Even these revelations were limited, however, with investigative stories revealing the extent of the network purged from the Chinese internet.244

Chinese authorities appeal to the phenomenon of criminal gangs, acting in concert with isolated doctors and hospitals in their underground organ trafficking schemes, to explain the majority of abuses in China. Officials claim that when such parties are caught, they are duly punished, that these activities are unrelated to the claims of organ harvesting from prisoners of conscience, and (implicitly) that they explain the extent of the abuses in organ transplantation in China.<sup>245</sup>

Reading these cases *against* the official narrative, however, it is also possible to see them as an epiphenomenon of the larger-scale abuses taking place in the state hospital system. In

many cases the gangs use hospital facilities and surgeons who have honed their skills performing numerous transplants. The logistical challenges to these fly-by-night operations — kidnapping beggars or children, using rented non-medical facilities and hired hands — are far greater than those faced by a hospital with access to stable organ sources, and it would seem infeasible that such networks could operate at scale with a sufficient pipeline of victims, particularly given the challenges of blood-matching, tissue-typing, cross-matching, and complex surgery. These gangs do not adequately explain the large-scale organ trafficking at hospitals documented by other data.

# CHINA'S TRANSPLANT REFORM PROGRAM, 2015 TO PRESENTS

n 2010, in response to increasing attention and criticism related to the sourcing of organs, China's medical administrators began the first of a series of pilot programs that had the stated goal of transitioning the country from the use of prisoners as an organ source to the use of voluntary donors, in accordance with international medical norms.<sup>246</sup> Until late 2014, this impulse to construct a voluntary organ transplantation system remained largely rhetorical. Many of the key organizational and bureaucratic preconditions for a voluntary organ transplantation infrastructure were absent, and the Chinese medical authorities had not articulated a consistent public stance. In late 2014, however, Huang Jiefu, the leading official in the transplant sector, announced that starting January 1, 2015, death-row prisoners would no longer be used as an organ source, and the country would immediately transition to a reliance on hospital-based deceased voluntary donors.

The post-2015 period differs from the 2000–2014 period in several ways: an explicit promise was made by Chinese authorities to stop using prisoner organs; there was a long period of anticipation leading up to the supposed implementation of this promise; the undertaking received significant international publicity and affirmation; China's claims of reform continue to shape elite understandings and discourse on the country's transplant system. If China had indeed implemented the reforms as claimed, or were there not clear evidence to the contrary, discussion of alleged abuses in China both before and after the reforms would likely take on a very different color. Researchers and activists would either need to limit their claims to a previous era or argue that official claims lack credibility for one or another qualitative reason.

As it happens, however, Chinese medical authorities appear to have systematically falsified the dataset on which the reform narrative was based, in a manner easily detectable and extensively documented using statistical forensics. The author of this report published these findings in the journal *BMC Medical Ethics* in November 2019.<sup>247</sup> A summary of this research is presented below, along with an analysis of how this new information may shape our understanding of transplantation in China from 2015 to the present.

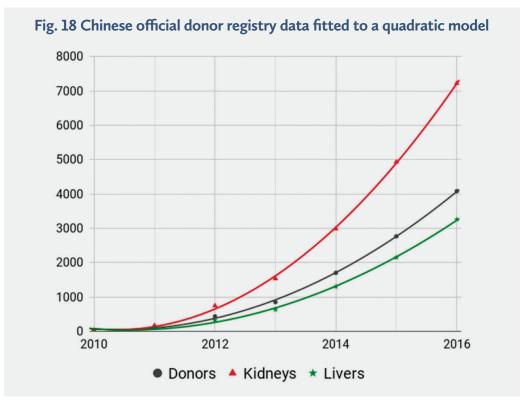
#### 8.1.

## Apparent systematic falsification of voluntary organ donor registry data, 2010 to present

As claimed by Chinese authorities, the new voluntary system has new, key features: a national computerized organ allocation and registration infrastructure, known as the China Organ Transplant Response System (COTRS); clear definitions of death by both circulatory and neurological diagnostic criteria; a network of hospital-based organ procurement organizations (OPOs); transplant coordinators affiliated with both local hospitals and branches of the Red Cross Society of China; and a policy of "humanitarian aid" for families of deceased donors. Since the pilot program began, China's healthcare officials reported extraordinary successes. According to COTRS data, from 2010 to 2018, annual voluntary deceased donors went from 34 to 6,316, an increase of 18,500%; kidneys and livers transplanted went from 63 in 2010 to 10,481 in 2016 (the last year for which precise data is available), an increase of 16,600%.

These figures do not appear to represent the accretion of genuine hospital-based transplants taking place across the country, but instead statistical manipulation. The core evidence that the donor registry data was falsified, as argued in the *BMC Medical Ethics* paper, is as follows:

I. China's annual voluntary deceased organ donation data (deceased donors, deceased kidney, and deceased liver transplants) published by the China Organ Transplant Response System (COTRS) from 2010 to 2016 conforms almost exactly to a quadratic equation — meaning that the growth curve of the data is extremely smooth. When China's data is compared to similar data from 50 countries in the Global Observatory on Donation and Transplantation managed by the WHO, it is found to be between one and two orders of magnitude smoother making it the sole outlier. The authors argue that this is extremely unusual (even after controlling for the fact that any rapidly expanding series will exhibit greater "smoothness," or, statistically, a higher R-squared value) and that there is no reason this should be the case if it was real data formed by the accretion of voluntary deceased organ transplant cases.



A November 2019 paper in BMC Medical Ethics shows that China's voluntary organ transplant data from the China Organ Transplant Response System (COTRS) conforms extremely closely to a simple quadratic model. This, along with numerous other anomalies, indicate the data may have been falsified. (BMC Medical Ethics)

China's annual voluntary deceased organ donation data conforms almost exactly to a quadratic equation — meaning that the growth curve of the data is extremely smooth. When compared to similar data from 50 other countries, it is found to be between one and two orders of magnitude smoother — a distinct outlier. This is extremely unusual. Along with an array of other evidence, it indicates that the data was manufactured based on a simple model.

- 2. The discovery that the COTRS data growth curve is almost exactly a quadratic equation led to the hypothesis that the data was centrally manufactured. To test this hypothesis, the authors collected and examined Chinese Red Cross data, at both the central and provincial levels, to see whether it was internally consistent as well as consistent with COTRS. The findings of these analyses substantiated concerns of data falsification, as a wide range of anomalies, inexplicable artefacts, inconsistencies, and apparently forced quotas were found in both central and provincial data. The character of these anomalies, the paper argues, could not be explained in any other manner than human-directed manipulation, which is consistent with the initial indication.
- 3. Following the completion of this initial analysis in April 2018, at The Transplantation Society meeting in Madrid in July 2018, the Chinese authorities published the 2017 figure for voluntary deceased donors. This new figure allowed for significant simplification of the original model, so that it could now be explained almost entirely by a one-parameter quadratic. It is a basic axiom of statistics and quantitative social science methodology that the more parsimonious a model, the greater its explanatory leverage. So while a general quadratic was already problematic for the integrity of China's voluntary donor reform data, the reduction of the initial model to a much simpler equation gave significantly stronger support to the argument that the dataset must have been falsified all along.

In its appendices, the BMC paper also highlights a number of instances of apparent misclassification of nonvoluntary donors as "voluntary" in medical papers, shows that rates of consent are much lower than official claims would suggest, and documents the use of large cash payments to poor rural families to encourage the meager volume of donations that do take place.

The report concludes that, in the best judgment of the authors, organ transplantation in China is now a "hybrid system," using organs from extrajudicially executed prisoners, judicially executed prisoners, and a small number of genuinely voluntary donors whose families are compensated with large sums of cash. Whatever their status, the authors argue that all donors are simply labeled "voluntary" and attributed to COTRS.

The above is a highly truncated summary of the findings of the BMC paper, useful here for understanding claims about the extrajudicial killing of prisoners of conscience. Chinese medical authorities and official propaganda have presented the reform program as an explicit rebuttal to the claims of organ harvesting

from such prisoners. Xinhua said that "a few evil religious organizations have spread lies, which have been smashed apart by the facts of the [reform] situation." Dr. Huang Jiefu is quoted as saying that China's voluntary transplant data "effectively rebuts these lies." <sup>248</sup>

Given that the narrative of reform became an important rhetorical tool to counter the claims of organ harvesting by Falun Gong and transplant ethics organizations, the finding that the reform program was itself an elaborate deception demands attention. We believe that two simple propositions can be advanced in light of this: First, the voluntary system is operating at a smaller scale than claimed. Second, there are strong incentives to claim falsely that the voluntary system is operating at a far greater scale, and to orchestrate a national deception to bolster this claim. The next section addresses one possible motivating factor.

#### Evidence of ongoing organ trafficking, 2015 to present

Policymakers have been confronted with evidence of China's organ harvesting for more than a decade; in recent years, they have additionally been told a story of encouraging reforms and an end to abuses. Given that the reform program appears to be another exercise in data falsification, we must examine whether the transplant apparatus continues to operate at the scale investigators have previously claimed.

Evidence of an active transplant sector in China abounds: 1) Official claims that more hospitals must be authorized to perform transplants due to the supposed growth of the voluntary system; 2) A documentary by the major South Korean television network TV Chosun, broadcast in November 2017, which found that international transplant tourism continues at a significant scale at hospitals in China;<sup>249</sup> 3) Undercover footage recorded by an activist from military hospitals in Beijing indicating readily available organs and apparently significant transplant activity; and 4) Admissions in telephone calls by investigators that vital organs are still available within a week's notice.

These four pieces of evidence indicate that the transplant system does, in fact, continue to operate at significant scale in China as of 2019 — though how many transplants are actually taking place is still unclear. The evidence we present below is consistent with either of two explanations: a successful, national voluntary deceased organ donation system, or ongoing illicit organ trafficking. Given that the data associated with the voluntary system appears to have been falsified, we believe it is fair to conclude that illicit organ trafficking continues.

#### TV Chosun documentary (Nov 2017)

In November 2017, the South Korean cable network TV Chosun published an investigative report documenting ongoing organ trafficking at the Tianjin First Central Hospital.<sup>250</sup> The reporters went undercover as relatives of a patient in South Korea in need of a kidney transplant, presenting medical records to match. The reporters found that the hospital employed a Korean-speaking nurse who helped them navigate the process. She said that one patient received a transplant after a two-week wait, while another required a seven-week wait (presumably the comments were in reference to kidney transplantation). She also said that the international ward alone had performed three kidney transplants, four liver transplants, and one pancreas transplant the day prior. The nurse explained that while technically the hospital is not supposed to be engaged in the activity, "the government pretends not to notice," and "we have lots of foreign patients, so we do it as a matter of course." She suggested they might need to wait either a week, or if lucky two days, or if unlucky a month or more; but if they were to "donate" money to the hospital, the transplant could be arranged even faster. Quoted prices began at \$130,000, not including the expedited processing fee.

While she claimed that Tianjin First is the only hospital in China offering this service to foreigners, this does not appear to be the case. The website tran-kid.com, still online as of February 2020, was advertising transplants at the Wuxi Hospital and the TEDA Cardiovascular hospital, in English and Arabic. Notably, the hospital in Wuxi is the Wuxi People's Hospital, where the well-known lung surgeon Dr. Chen Jingyu is vice president.

When Dr. Li Huige, a German medical researcher, publicly confronted Dr. Wang Haibo at The Transplantation Society's 2018 meeting in Madrid as to the claims in the TV Chosun documentary, Dr. Nancy Ascher, then-president of TTS, answered on Dr. Wang's behalf. She dismissed concerns that the content of the documentary suggested widespread abuse, said that TTS had referred the video to the Chinese authorities for their investigation, and indicated that further discussion was unwarranted. <sup>251</sup> Dr. Wang then said that the incident was isolated and was reported to the police, and that the nurse who made the admissions above "is at large, is running, the police are chasing her."

### Undercover footage from hospitals (Nov-Dec 2018)

In November and December 2018, the human rights activist and investigator Yu Ming, now resident in the United States, made a series of covert recordings of interactions with patients and doctors regarding organ transplantation at various military hospitals in Beijing. VOC reviewed documents related to Yu's trial and arrest (related to his Falun Gong beliefs and activism, not organ harvesting), obtained copies of and analyzed the footage he secretly recorded, examined the devices he used to record it, established his identity through two independent sources, and reached the conclusion that both his story and the footage was genuine. FOX and BBC subsequently broadcast portions of his work, while other parts of it are being considered as part of a documentary film. The following is a summary of the admissions he garnered at the hospitals.



Human rights investigator Yu Ming speaks to the camera outside the People's Armed Police General Hospital in Beijing in November 2018, during his on-the-ground covert investigation of organ transplantation in China. (Yu Ming)

At the Beijing People's Armed Police Hospital, the investigators struck up a conversation with a patient who had just had a kidney transplant. The patient said he ended up paying 480,000 yuan, or about \$70,000, and that he had waited about two months because of his uncommon type O blood. He referred to a friend, with type A blood, however, who got a kidney transplant in just seven days after paying the "gift" money to speed the process along. "Normally it's two weeks, or at most a month," the patient said. The patient had received the transplant in January of 2019 and was aware that four other kidney transplants took place on the same day. "Sounds like they have a lot of kidneys available!" the investigator said, to which the patient replied, "They're doing that every day, or at least during the New Year they were doing it every day." 252

Again, at the Beijing People's Armed Police hospital, the investigators spoke with the Beijing-based lawyer Dong Renyou from lilin Province.<sup>253</sup> This conversation was revealing. Dong said he checked in at the hospital in May 2018 and received a new liver on June 20. Dong claimed to have some form of inside knowledge, or connections with hospital personnel, that gave him additional insight into the process by which hospitals acquire organs. At one point in the interview, Dong claimed, "This hospital generally has fairly abundant sources, compared with other hospitals nationwide. They've done it for many years, and on top of that they have some special means that remain secret to get liver sources — actually they buy them. They'll pay whoever can get the livers." He cited the cost to be at about 400,000 yuan (\$58,000) for the liver, plus a bonus of 100,000, as well as 300,000 to 350,000 yuan for the surgery itself, with the total for a liver transplant running up to 800,000 yuan (\$116,000). Again, he said that cash payments in red envelopes would expedite the process. The investigator asked whether he'd have to wait "a few months," and Dong said "No; one month is enough," then directed the investigator to speak with a particular doctor.

The most intriguing part of the interview was when Dong boasted about knowing "how things work here," citing by name former leaders of the Ministry of Health, claiming he had "helped them out on some things," and that he has a friend who works in the ministry and thus "knows all about what goes on behind the scenes." He was asked whether organs come from Falun Gong, and at first denied it, saying "those are just rumors"

— but added that the donors they can get "do breathing exercises, purely using qi [roughly: 'life force'] to improve their bodies." He then talks about how the cells in those qigong practitioners, who supposedly become liver donors, are somehow better in quality — but he warns the investigator "don't mention the qigong thing, it's sensitive." Finally, Dong says he is under the impression that there are fewer patients now than in previous years, but also that there is greater local hospital participation in transplants. He says: "Some people not from Beijing, like from Hebei, they don't have to come up here anymore, they can get treatment at a local hospital. In the past they all had to come to Beijing." Two other remarks deserve note: "It's become an industrial chain. There are more liver sources here than patients."

The evidentiary value of these claims remains an open question, though his comments are interesting and appear to acknowledge that significant transplant activity continues in China, that organs are being acquired on a rapid basis from undisclosed sources, and that the notion that they're somehow healthy due to gigong practice is at least a small part of transplant patient lore.

## Undercover telephone calls (Jan 2015-Dec 2018)

Investigators with the World Organization to Investigate the Persecution of Falun Gong have from 2006 to the present made cold calls to Chinese hospitals, engaging in conversations with doctors and nurses about organ transplantation. The investigators assume a range of identities: fellow doctors, potential patients, concerned relatives calling on behalf of potential patients, Party disciplinary officials engaged in anti-corruption investigations, and domestic security officials requesting expedited transplant procedures for their relatives. The targets they call range from low-level nurses answering the switchboard in hospital wards, to senior transplant officials reached on their cell phones, to high-ranking Communist Party and military officials reached at (presumably) their offices.<sup>254</sup>

VOC confirmed the authenticity of the calls by observing them being made in person, observing callers make them in real time over the internet, and reviewing telephone records. In addition, VOC compared the numbers dialed and call length listed on the records with audio files uploaded to the WOIPFG website,

The comments by lawyer Dong Renyou, recorded undercover in a Beijing transplant hospital, indicate that significant transplant activity continues in China, that organs are being acquired on a rapid basis from undisclosed sources, and that the notion that they're somehow healthy due to qigong practice is at least a small part of transplant patient lore.



Dr. Wang Zhiyuan, executive director of the World Organization to Investigate the Persecution of Falun Gong, speaks at the China Tribunal in December 2018. (China Tribunal)

then verified that the numbers belonged to the hospitals in question in China by calling them back. Subsequent to VOC's requests for authentication, Dr. Wang Zhiyuan, the executive director of WOIPFG, performed his own verification, having New Tang Dynasty Television, a dissident broadcaster based in New York City and founded by Falun Gong practitioners, to record five of his calls with two witnesses.<sup>255</sup>

Without presenting the full analysis of these calls, it is clear that from 2015 to 2018, staffers at Chinese hospitals made claims or admissions that organs were available often within weeks. They also revealed how many transplants had been performed at the hospital over the last year, week, or day. A sampling of such cases follows.

During a call to the Shandong Yantai Yuhuangding hospital on June 10, 2017, a "Director Wang" told an investigator by phone that for a patient with type B blood, a kidney could be obtained within a week to 10 days. When asked about organ quality, he said they were from young donors; when asked whether the kidneys were donated, he said "How could there be that many? We have our own channels." <sup>256</sup>

In a November 3, 2018, call, Dr. Zheng Shusen, president of the Zhejiang Medical University First Affiliated Hospital and head of the transplant center, said a liver transplant could be arranged within two weeks. When asked about Falun Gong organs, he hedged, saying, "We test the organs when they come." <sup>257</sup>

On November 6, 2018, Dr. Miao Shuzhai, a chief surgeon in the Zhengzhou People's Hospital transplant ward, told an investigator that a liver transplant could be arranged within "normally one or two weeks, up to a month." When asked whether the organs "were Falun Gong, those healthy donors, right?" he said, "right right." <sup>258</sup>

In a November 6, 2018, call with Dr. Lang Ren, director of the liver transplant center at the Beijing Chaoyang Hospital, the doctor said that a liver could be arranged "within about two or three weeks, if nothing goes amiss." Remarkably, when asked: "So as for the donor source, it's that Falun Gong kind, the normal healthy donor, right?" Dr. Lang responded: "Yes yes, that's right, that's right, you said it correctly." 259



A boy lies on his hospital bed with his eyes covered with bandages in a hospital in Taiyuan, north China's Shanxi province on August 27. The six-year-old boy from northern China was drugged and had his eyes gauged out, reports said, in a gruesome attack by a ruthless organ trafficker. (TR/AFP/Getty Images)

On November 7, 2018, an investigator assuming the identity of the deputy director of a security office in Sichuan Province asked Hang Hualian, director of the liver transplant center at Shanghai Renji Hospital, whether "you use those Falun Gong sources, the donors in a normal condition," to which Dr. Hang said "correct, that is for certain."

On November 16, 2018, an investigator reached Dr. Chen Huaizhou, the director of the liver transplantation department of the Guangxi No. 181 PLA hospital in Guilin. The investigator again identified himself as the deputy director of a security office in Sichuan Province inquiring about a transplant for a family member. Toward the end of the seven-minute call, the investigator began asking about whether the organs came from Falun Gong practitioners. The first question was met with an unclear, mumbled response; the second resulted in an affirmation that "yes, yes, just come to the hospital for an examination first." The third time the question was posed — "OK, OK, what you've said is fine, so it's the Falun Gong donors [isn't it]?" — the answer was simply "Correct." <sup>261</sup>

On December 2, 2018, about a third of the way through a conversation with a Dr. Li at the Beijing Chaoyang Hospital, a WOIPFG investigator asked whether "your hospital kidney sources are still Falun Gong, that kidney source, right?" to which Dr. Li said "Right." The investigator asked once more, "Of course, it's the case that it's still that Falun Gong sort, those types of kidneys, the regular kidney source, right?" And again Dr. Li answered: "Right, right, right." The conversation continued on topics such as the use of brokers to source organs, the role of the hospital in organ procurement, and more. <sup>262</sup>

On December 15, 2018, Bai Rongsheng, a secretary to Dr. Shen Zhongyang, the president of the Tianjin First Central Hospital, was asked by a WOIPFG investigator (again, posing as the security official from Sichuan seeking a transplant for a relative) whether livers were being obtained from Falun Gong. Bai first said, "What?", and then when the caller asked again — "I'm talking about the donors, the source of the livers. The situation with the liver donors right now is that they're the pretty healthy ones, right? That is, the healthy Falun Gong donors, correct?" — he answered "right, right right." <sup>263</sup>

WOIPFG features over 100 of these calls, from hospitals across China, making a range of admissions like those above, in the 2016–2017 period. From October to December 2018, about a dozen calls were made eliciting the same reactions and admissions. A forthcoming working paper by VOC deals with questions of call authenticity, WOIPFG's methodology, and questions of bias. <sup>264</sup> In short, despite the absence of a rigorous, scientific protocol, it

is clear that the calls occurred, and doctors and nurses have told WOIPFG investigators, whose cover identities they often appear to accept, that they have organs available on a short-term basis. This contradicts Chinese official claims of reform, given that the voluntary system would entail lengthy wait times for organs. It also concurs with the data obtained by on-the-ground undercover investigations, as well as with the wait times discussed in official documents over a decade ago.

# COUNTERARGUMENTS, ALTERNATIVES, AND QUESTIONS OF PROOF

his section consists of three parts. The first part examines and responds to a few of the key counterarguments that have been made against the KGM report and its thesis of organ harvesting from prisoners of conscience. The second attempts to conduct a counterfactual thought experiment as to how it may be possible to account for the quantity and on-demand nature of organ transplants in China absent prisoners of conscience. The third addresses the concept of "proof" in social science and suggests a few potentially useful ways that stakeholders may think about the allegations and evidence in this report.

#### 9 1

## Arguments against the thesis of organ harvesting from prisoners of conscience

This report assesses, engages with, and responds to the major arguments and counterarguments that have been put forward. But many of the counterarguments to the case are non-empirical, are presented in an *ad hoc* manner, or fail to address *specific* deficits of evidence or argumentation. Broad-stroke dismissals of this report's thesis abound — but a *precise and clear* refutation equal to this report's methodology or detail has yet to emerge. We think none can.

This section aims not to present a history of the controversy but to elucidate current major arguments against the claims that China has recently committed (and commits) large-scale extrajudicial killing to obtain organs. It aims to present the best version of the arguments against the thrust of this report — and then to answer them.

## Doubts about the basic credibility of the KGM figures

This view is articulated above ("Responses to KGM estimates") and is primarily presented as sheer disbelief in the possibilities of (i) annual transplant volume in the range of 60,000 to 100,000, and (ii) large-scale extrajudicial killing and organ harvesting of enemies of the state. Representative comments in this vein are that the estimates are a "concoction" (Dr. Chapman) or "really a gross overestimate" (Dr. Martin).

There are two significant problems with casual dismissal such as by Drs. Chapman and Martin. First, such dismissals never suggest an alternative, more accurate methodology for calculating transplant volume. Chinese authorities have shown that they consider the question of transplant volume to be a state secret and rebuff inquiries with deflections and disinformation. This attitude has permeated internal Chinese medical literature during the 2000s, unlike in the 1990s when major journals and leading officials published claims of national transplant totals. The reasons for the shift after the year 2000 are unclear. We believe it is fair to draw a negative inference from this persistent pattern of hiding information: that the authorities feel they have something worth hiding.

The second problem is that casual dismissal neglects the essence of the issue: not what the absolute numbers are, but whether *any careful estimate* of the Chinese official explanation of organ sourcing accounts for the transplant volume and industry trajectory. By putting the focus only on these particular numerical estimates (presented in the KGM Report), attention is redirected from the primary question — the true source of organs fueling the growth of China's transplant system — to a secondary question.

An eloquent example of such dismissals came from Graham Fletcher, now Australia's ambassador to China, speaking as first assistant secretary, North Asia Division, Department of Foreign Affairs and Trade. Mr. Fletcher told a parliamentary committee, "As to the idea that there is a separate parallel hidden vast network of unspeakable activity where people are essentially killed for their organs, we don't believe that that is happening." <sup>266</sup>

This remark requires some unpacking. In the first place, the allegation is not that the activity takes place in a way that is "separate" and "parallel" to the transplant apparatus, but that extrajudicial killing has, in fact, been the primary source of organs for that apparatus. The standard explanation for the observable transplant activity (death row) results in a far more complex and thoroughgoing conspiracy, as will be discussed below. The web of connections between transplant hospitals and the judicial apparatus is already quite "hidden," and no outside organization has any thorough understanding of the exact nature of these relationships, or the real number of Chinese transplants. These questions remain, quite apart from the question of extrajudicial killing.

Because judicial death-row executions and natural deaths do not numerically keep pace with China's surge in transplants, we argue that most of the organs must have come from victims of extrajudicial killings.<sup>267</sup> We believe the evidence shows that the victims must include political prisoners. But the political logic of this apparently radical step needs to be addressed, because it may be that it is not as radical as it first appears. The only difference between using death-row and political prisoners, which in Fletcher's words turns an established phenomenon into an "unspeakable activity where people are essentially killed for their organs," is the nature of the crime committed by the prisoner in question. Death-row prisoners have been sentenced via a judicial process, while prisoners of conscience are held because of their ideological, religious, or political commitments. Yet when comparing the state's treatment of these populations in other contexts, the latter population is often treated worse. Moreover, the state has made clear — through its own actions and public statements — that it considers those guilty of ideological and political crimes as a far greater threat to its rule than those who have committed non-political crimes. For instance, once convicted and sentenced, death-row prisoners are speedily dispatched (at least according to the law). They are permitted to hire lawyers, often paid for by the state, and their cases are processed with multiple layers of oversight, including review procedures that extend to the Supreme People's Court (since 2007). This is not to suggest that these prisoners are protected from arbitrary abuses, sometimes on par with political prisoners; or that the state's procedural gestures confer genuinely just treatment — it is merely to note that there is at least the institutionalization of procedural rights. Prisoners of conscience, on the other hand, are often dealt with in an entirely extralegal manner; subjected to torture, starvation, forced labor, etc.; and driven toward renouncement of their religious convictions.268 Deaths in custody are met with no punitive consequences for perpetrators, and victims and families have no recourse to an oversight body.

This is why no vast leap is necessary, as Mr. Fletcher suggests, for the hypothesis of extrajudicial killing as China's organ source to find purchase on the above established facts. China was long ago forced to acknowledge that its expansive transplant machine was based on the use of death-row prisoners; simply *including* political prisoners among those monetized is, in a sense, no more than a rational choice on the part of local security and hospital leaders engaged in the organ business.

Uncritical skepticism of this kind sometimes extends to disbelief that such a vast conspiracy could have been kept secret by so many parties for so long — to believe that if the claims were true, we would have known about them by now. Presumably those holding such objections are unfamiliar with the global

history of secret intelligence and military projects in general, or with the extraordinary leverage the Chinese party-state has wielded over its people for 75 years. For a surgeon performing an illicit transplant, to turn whistleblower would be to risk his life — and the lives of his family members. And to whom might such a dissident safely turn? The frosty reception major governments have given these allegations bode ill for the defector. There exists no willing and ready body of established experts and resources to process, debrief, and establish new lives for such dissidents. Potential defectors have thus been walled in.

# Chinese transplant infrastructure would have to be substantially greater than that of the US to perform a comparable number of transplants

This argument proffered by Dr. Jeremy Chapman, former president of The Transplantation Society, in his parliamentary briefing and private correspondence with this author, has several parts. Dr. Chapman argues that, due to China's high rate of infectious complications after transplantation, many patients are readmitted for lengthy periods, with the result that *new* transplant recipients are only a minority of the total bed occupancy, and thus most beds in transplant wards are occupied by readmitted patients. Therefore, Dr. Chapman argues, if China were performing five times as many transplants as the entire United States, that would require not merely five times the infrastructure but also additional facilities to care for readmitted patients with complications.

#### As Dr. Chapman writes:

"The rate of infectious complications is high in China and they have very long lengths of stay — many patients live a long way from the transplant unit and end up staying in the hospital for many weeks. This is actually very common across Asia and is familiar in most Indian and Pakistan high volume centres — the recent transplants represent a very small proportion of the admitted patients. In the US and Australia the recent transplants represent most of the admitted patients and they are looked after in clinics after that.... Hard to quantitate however." <sup>269</sup>

The issue of re-admission presents the greatest weakness in the KGM methodology, because their occupancy calculations do not factor it in. At the same time, lengths of stay for new patients appear to be below those presented by WOIPFG and in the KGM Report. This appears to be the case according to a preliminary probe for such data at six hospitals over a number of years. Examples of average hospitalization times for recipients

of deceased donor organs — three for kidneys, three for livers — drawn from medical papers over two decades, establish both the length of stay and the downward trend in that length:

- Average hospitalization times for kidney transplant recipients at the PLA Jinan Military Region General Hospital dropped from 45 days (1991–1993, n=170), to 31 days (1994, n=62), to 25 days (1999–2000, n=227).<sup>270</sup>
- Average hospitalization times for kidney transplant recipients at the Zhongshan Municipal People's Hospital from April 2013 to September 2015 were 25.5 days (±3.6, n=25) and 18.5 days (±3.5, n=25) for a control and observational group, respectively.<sup>27I</sup>
- 3. Average hospitalization times for kidney transplant recipients at Southern Medical University Nanfang Hospital from March 2005 to 2008 were 14.67 ±7.03 days (n=234).<sup>272</sup>
- 4. The average hospitalization time for liver transplant recipients at the PLA No. 301 General Hospital in Beijing between July 2002 and December 2004 was 41 ±20 days (n=98).<sup>273</sup>
- 5. Average hospitalization times for liver transplant recipients at the First Affiliated Hospital, Chongqing Medical University, from 2005 to 2012 were 21.3 (n=54) and 29.5 days (n=42) for two cohorts.<sup>274</sup>
- 6. Average hospitalization times for liver transplant recipients at the Beijing Chaoyang Hospital from January 2011 to December 2014 were 27.31 ±11.64 (n=65) and 22.56 ±10.56 days (n=48) respectively for a treatment and control group.<sup>275</sup>

Hospitals are committed to reducing the length of stay per patient, as medical papers indicate. Take, for example, "Measures to Shorten Average Length of Stay," which identifies organ transplantation (along with victims of burns, tumors, and cerebral trauma) as an area of focus. It may be common in India and Pakistan, where it appears that a small number of high-volume centers dominate, "77 for patients to travel long distances and experience prolonged hospital stays, but China has unique differences: multiple major transplant centers exist in the most populous of Chinese provinces and cities; transplants are expensive and must be paid out of pocket, while those with means are usually urbanites; efforts are made to maximize resources.

Such claims of lengthy stays and idle resources also neglect salient countervailing evidence, such as at the Renji Hospital in Shanghai, where administrators advertised their promotion of "daytime surgeries" and promoted the rapid turnover of beds (the



Jeremy Chapman and Philip O'Connell, former and current presidents of The Transplantation Society, and José Nuñez of the World Health Organization (L-R), at a press conference in Hong Kong on August 19, 2016. (Sun Mingguo/Epoch Times)

report in question did not discuss transplantation specifically, but the principle of profit-driven incentives remains).<sup>278</sup> Fudan University's hospital advertised hospital stays of only 9 days after liver transplantation,<sup>279</sup> while the Shandong Provincial Hospital claimed patients would need to stay 12 days.<sup>280</sup> These may or may not be outliers; we do not have the data to say one way or the other. But these are among the pieces of evidence against Dr. Chapman's argument of the majority of bed capacity being occupied by patients with infections.

We were unable to either substantiate or reject Dr. Chapman's claim about disproportionately high rates of infectious diseases after transplantation in China resulting in far longer stays and occupancy of the majority of transplant wards. A brief examination of a small number of papers dealing with infection rates suggested they were between 24.8% and 79.5% for kidney transplants<sup>281</sup> and 22.35% and 25.3% for liver transplants.<sup>282</sup> Yet the infection rate alone is not responsive to the matter of length of stay during readmission. One paper dealing with infections of a particular kind of bacteria after liver transplantation provided helpful summary statistics, indicating that, in the best cases, 11 days were spent in ICU and 63 days total in hospital, while, in the worst cases, stays were 50 and 103 days, respectively.<sup>283</sup> The scope of this data spanned four patients and cannot necessarily be taken as representative.

More importantly, part of the context missing from this form of argumentation rests in the failure to see that organ transplantation in Chinese hospitals was and is a source of profit for both the institution and surgeons involved. Organ transplantation appears to have begun in part as a means of ensuring the Party elite had access to organs, but the decade of the 2000s saw the national commercialization of the therapy. In the context of a fee-for-service hospital system, with transplant surgeries priced at hundreds of thousands of yuan, it would be implausible for hospital administrators who run their transplant wards like a business to allow the majority of the beds to be occupied by infected patients. Attentive readers may also recall the ratio of ICU to regular beds in the mandated minimums for transplant wards: 10 ICU and 15 regular for liver, and 10 ICU and 20 regular for kidney. If most of the beds for post-operative recuperation were filled by readmitted patients, there would quickly be a bottleneck in surgeries.

An argument that China would require more medical personnel and facilities to perform the same number of transplants as the United States also appears to neglect the gulf of difference between how organs become available in each of the two systems. The complexities of hospital-based voluntary deceased donation in the United States require enormous resources devoted to precise coordination and timing around organ retrieval, transportation, and transplantation. Chinese surgeons and medical administrators are just now grappling with these serious issues; previously, they exercised control over the location, timing, and even method of death of forced donors. Obviously, far fewer personnel would be required to attend to a captive prisoner in a place of detention than would be required in standard cases of brain or cardiac death of potential donors in US hospitals.

Chinese surgeons have revealed in interviews and profiles with state media and in medical papers that transplantation wards have been thriving. Researchers have even studied burnout rates in overworked transplant nurses. <sup>284</sup> Given the body of qualitative evidence going against the idea of transplant wards filled with convalescing patients, we err toward the assumption that new patients are half of all transplant ward occupants. Even this highly conservative assumption yields transplant volume estimates far beyond the official explanation of organ sourcing. We suggest that the focus of exasperation of international transplant experts be toward the Chinese authorities and their campaign of disinformation and secrecy around their transplantation industry, and not toward the researchers who are attempting to shed light on the topic.

# The absence of a list of the numerous alleged victims, and the supposed lack of individual cases

Critics have raised a seemingly straightforward question: If hundreds of thousands of prisoners of conscience have been killed for their organs, where is the list of names of the disappeared?

Such a contention may stand as the greatest evidentiary deficit in the case made in this report. Credible reasons for the absence of this information, and contemporary events in Xinjiang, bear witness to the difficulty of activist communities gathering such information in conditions of extreme persecution.

The website Minghui.org, a clearinghouse for firsthand information from Falun Gong practitioners in China, had as of July 2019 a list of only 1,457 disappeared or missing persons. <sup>285</sup> The cases typically include name, last known appearance (typically an instance of persecution, such as incarceration in a labor camp), former workplace, hometown, and other personal identifying information. Yet one might expect a list several orders of magnitude larger if Falun Gong practitioners were subject to widespread organ harvesting, as the evidence in this report suggests.

For understandable security reasons, Minghui does not make its editorial staff available to answer questions, and thus we can only infer reasons for this deficit. One is the difficulty of collecting reliable data under conditions of severe persecution. After the anti-Falun Gong campaign began, Falun Gong's network — informal and volunteer in the first place — was destroyed. Contact between Falun Gong practitioners from that point forward was all conducted in an underground manner, and like many underground, peaceful resistance movements, Falun Gong activists would rarely identify themselves to one another during chance encounters.<sup>286</sup> Second, family members of Falun Gong adherents who disappeared, if they themselves were not Falun Gong practitioners and activists and thus not connected to the Falun Gong underground, would likely not even know about Minghui, be able to access it, or have either the means or inclination to report the prolonged absence of a loved one.

We suggest that Minghui make efforts to compile a comprehensive list of missing persons in a manner that is safe for individuals in China. However, we reject as invalid the criticism that the absence of this form of evidence — absent for legitimate reasons — means that the abuse has not taken place. Nor can we disregard a clear, evidentially supported pattern that points in the same disturbing direction.

Along with pointing out the absence of a comprehensive list of missing persons, some observers have expressed doubts about the allegations due to the supposed absence of individually identified victims of organ harvesting. Graham Fletcher, the Australian ambassador to China, has summarized this objection in a striking manner. His remarks are worth quoting at length due to his previous role, and to how well his comments, in response to inquiring parliamentarians, capture the state of knowledge of key Western government officials on the topic in question — knowledge which is then transmitted to lawmakers as authoritative:

"We have no evidence that prisoners of conscience are being killed in China.... A lot of crazy things happen in China, and we usually find out about them sooner or later. We have a vast wealth of information, as I am sure you know, about human rights abuses of all kinds through the police system: torture, corruption of various kinds, suppression of freedoms of assembly, *et cetera*. We know names, places and dates, we have relatives — we have a lot of information. We have no information about anyone who claims their relative has been executed for Falun Gong belief or who has disappeared somehow." <sup>287</sup>

This response neglects the documented case of Jiang Xiqing in Chongqing in 2009, whose family was informed that their father's organs had been removed.<sup>288</sup> It neglects the half a dozen other individual cases noted by David Matas and David Kilgour in their book.<sup>289</sup> It also neglects the multiple reports of targeted blood testing and medical examinations of detained Falun Gong practitioners consistent with those required to ascertain organ health. Such cases had been matters of public record for many years prior to Mr. Fletcher's remarks in 2017.

## Immunosuppressant sales fail to support such large transplant volume

Organ transplantation involves the introduction of foreign genetic material into a recipient, which within a few days leads to a complex immune response known as rejection. Suppression of graft rejection involves a combination of drugs given in sequence. A typical protocol might include a high dose of corticosteroid and an acute anti-rejection drug immediately after transplantation — known as induction therapy — followed by daily maintenance doses of a standard immunosuppressant like cyclosporine (later largely replaced by tacrolimus, often in tandem with another drug) for the rest of the recipient's life. <sup>290</sup> Critics of the theory of extrajudicial killing for organs have pointed to the apparent absence of a sufficiently large number of immunosuppressant drug sales

to support the claims of transplant volume put forward by WOIPFG and KGM.

It is unclear whether this argument originated with Chinese transplant officials or Western experts. The first public statement of this kind is from Dr. Chapman, who told The Globe and Mail in June 2016, in response to the KGM Report, "Pharma companies in China have been providing nowhere near enough medication for this number [of transplants claimed by KGM], and felt the downturn with the reduction in transplants as the executed prisoner organs dried up."291 The source of this claim and of its associated numbers was not specified. In August 2016, Huang Jiefu told The Transplantation Society's biennial meeting in Hong Kong that China's 10,057 organ transplants in 2015 were 8.38 percent of the global total and that this figure is in line with China's use of immunosuppressants, which were about 8 percent of the global market.292 This argument was then re-presented as a major part of the evidence against the KGM claims in the work of Simon Denyer of *The Washington Post*, who wrote:

"Data compiled by Quintiles IMS, an American health-care-information company, and supplied to The Post, shows China's share of global demand for immunosuppressants is roughly in line with the proportion of the world's transplants China says it carries out.... Xu Jiapeng, an account manager at Quintiles IMS in Beijing, said the data included Chinese generic drugs. It was "unthinkable," he said, that China was operating a clandestine system that the data did not pick up.... Critics counter that China may also be secretly serving large numbers of foreign transplant tourists, whose use of immunosuppressant drugs would not appear in Chinese data. But this assertion does not stand up to scrutiny." 293

Subsequent correspondence with *The Washington Post* by experts (including the author of this report) in a number of fields, including statistics, organ transplantation, and medical ethics, pointed out that the journalist, and the newspaper, had made an elementary statistical error. As the letter stated:

"The incorrect assumption is the assertion of a statistical relationship between China's global share of immunosuppressants and its global share of transplants. The *Post* has not established or even proposed any causal mechanism about why these two figures should hold such a relationship, especially given the many variables in play." <sup>294</sup>

The *Post* reporter used immunosuppressant sales dollar amounts (not dosage) to calculate a country's global share of drug consumption. This is an invalid argument, because drug prices vary greatly between countries (immunosuppressants are 2.5 to 4

times cheaper in China than in the US, for instance). The two letters to the *Post* pointed out that both Japan's and the US's portions of global immunosuppressant sales are significantly higher than their portions of global transplants (and that Japan even reported more immunosuppressant sales than China in 2015). Given that the global total of each percentage must come to 100%, many other countries' share of global drug sales must be significantly lower than their share of transplants. The Post's implicit assumption that a country's portion of global immunosuppressant sales should be equal to its share of global transplants was simply mistaken. Moreover, the actual total of global transplants is itself unknown, because China's data is secret.

The Post's claim that transplant tourism to China is negligible also appears to be mistaken. The documentary filmed in China in late 2017 by South Korea's TV Chosun shows that Chinese transplantation centers still accept foreign patients, have tailored services for foreign patients and their family members, and have different pricing for patients from overseas. The Post reporter also missed that almost all Chinese hospitals have two pharmacies: an official one and an unofficial one that operates in a legal gray zone, intended to generate income directly for the hospital. The editor admitted this omission in response to the first letter. Data from unofficial hospital pharmacies, which do a significant portion of business, are not included in IMS figures. Finally, IMS data collection in China did not begin as a national series until 2012; the figures, such as they are, shed no light at all on transplant volume prior to that point. The *Post* responded substantively to the first letter but not the second and declined to amend its article despite the documented errors.

Subsequently, this author engaged IMS to access their data and learn more about the manner in which they collected it. During this process, through discussions with personnel in China, it was discovered that IMS gains some of its data through official and/or semi-official intermediaries, which collate data for municipalities, and that IMS does not get raw data directly from all hospitals for which it has data. IMS personnel were reluctant to address these aspects of data access and collection. They made the admissions, guarded as they were, only after extensive questioning. IMS personnel were clear that their China data are less accurate than their US data.295 The target audience for IMS's costly research is foreign pharmaceutical companies competing for the Chinese market, and we may expect that it is valid for that purpose. However, given that China has fostered domestic immunosuppressant manufacturers for nearly two decades, and that these companies now enjoy majority market share, such data should not be expected to provide a comprehensive picture — especially in light of the extreme political sensitivities surrounding the question

of organ transplantation, the prevalence of "gray" pharmacies not captured by IMS, and the fact that data passes through intermediaries with official ties before reaching them.

This section responding to the counterarguments against the organ harvesting claims has not addressed the non-empirical arguments that have been made. These include the claim that the organ harvesting allegations are a political tool by Falun Gong to damage the image of the Chinese government, or that existing reportage lacks credibility because it cites information gathered by human rights researchers and activists associated with Falun Gong.<sup>296</sup> Our response to these arguments is this: Analysts need to be clear about what they are studying. It is likely that political sensitivities, research taboos, and scholars' own ideological predispositions influence how they approach these topics, and this has in turn influenced knowledge about and reception of the claims of organ harvesting. Thus, while there may be interactions between these two broad themes, we should be clear about addressing each issue discretely (or the interaction between them, if that is our focus). It indeed seems likely that if the allegations of extrajudicial killing for organ harvesting come to be accepted as common knowledge among both elites and the public in China and the West, this may damage perceptions of legitimacy of the Chinese Communist Party and vindicate long-standing yet largely overlooked claims made by Falun Gong. But we should not reject the research on those grounds. The concern of this report is to honestly assess the evidence of grave human rights violations; casually dismissing evidence simply because it was gathered by those who have suffered persecution is hardly a fair, appropriate, or reasonable standard.

9.2.

# Is there a potential alternate explanation for China's organ transplant program that does not rely on prisoners of conscience?

Short of conceding that a significant and unique crime against humanity has taken and may still be taking place, does any alternative scenario adequately explain both the rapid growth in organ transplantation post-2000, its continuation through death penalty reform in 2007, and the voluntary donor reforms of 2015 to today? In the interests of a robust counterargument, we attempt to sketch out what would be needed — *apart* from prisoners of conscience — to explain China's organ transplant activity.

In this case, the explosion in both the quantity, quality, and types of organ transplants performed after the year 2000 had nothing to do with the availability of a new organ source, and it was merely coincidental that it took place only months after the mass incarcerations of the anti-Falun Gong campaign.

Instead, it was due to the development of greater expertise on the part of China's transplantation community, and thus more effective use of the limited death-row organs available.

As Huang Jiefu told Party cadres in an internal 2006 speech:

"In the early 1990s a number of young Chinese scholars brought the knowledge and techniques they'd learned abroad back to the motherland, and under the guidance of the older generation of specialists and scholars in the transplant field, through arduous and meticulous study and unstinting efforts, obtained the remarkable results of today. Especially in the last few years, the related foundational and applied research in organ transplantation was begun, transplant techniques gradually matured, transplantation programs and the scope of transplant indications expanded daily, the number of transplants underwent rapid growth, and post-operative patient and graft survival rates saw marked improvements." 297

In this scenario, almost every eligible death-row prisoner would have been exploited as a source of multiple organs. This would have entailed a high level of cooperation nationally between hospitals, which would have had to establish joint databases



Huang Jiefu (Simon Song/South China Morning Post/Getty Images)

for sharing information on potential donors and recipients; such information would have been essential to fully use the limited number of donors while still achieving relatively short wait times (measured in weeks or months).

Moreover, the manner in which the death penalty was applied would have had to change substantially: the requirement that the sentence be carried out within seven days of its approval by the higher court would have to have been ignored, in order to blood-type prisoners and keep them alive until multiple compatible recipients were identified. Further, the act of execution itself would have had to be altered, to marry it closely with the process of organ extraction in order to minimize ischemic damage (caused by lack of oxygenated blood), especially to the liver, heart, and lungs. This surgical achievement would have required an elaborate deception, given domestic Chinese media reports of public sentences of capital prisoners, followed by mass executions — a scenario not conducive to the most efficient use of a limited number of prisoners for their organs.

Finally, the death penalty system would have had to grow from the year 2000 onwards, contrary to all extant scholarship, in both China and the West, about death-penalty reform in China, and the widely discussed policy of "kill fewer, kill cautiously." <sup>298</sup> In this scenario, the death penalty in China would have operated for two decades at a scale at least an order of magnitude greater than is understood by almost every scholar who has researched the matter. This conspiracy would have extended to well-known professors seconded from law schools who serve as judges in the Supreme People's Court reviewing death-penalty decisions by lower courts. Moreover, while it appears there has been an extensive coverup associated with organ trafficking from prisoners of conscience, this form of coverup has typically been fairly crude: purging numbers from hospital websites or falsifying statistics. The subtlety and extent of the coverup required to keep secret a death-penalty system operating at 10 times its known size would be enormous.

One key obstacle in the death-penalty conspiracy scenario would be the tension between, on the one hand, ensuring organs are available on-demand, and on the other, ensuring that every prisoner is maximally exploited for their economic value. Without a cross-hospital computerized system matching donors and recipients, a given recipient (in need of a kidney, for instance) would need to wait until another two recipients registered at the same hospital (for the other kidney, and liver) and happened to match with the same forced donor. This process may take months, or even years, depending on their biometric characteristics. If each prisoner were to provide two or three organs (necessary if death-row prisoners were

the sole source), either wait times would be very long, or else a highly efficient network of donor-recipient matching and allocation would have to be in operation. Chinese medical authorities are still working on establishing such a system in 2020; there is no evidence that it has been in operation for most of the period this report focuses on. In the year 2000, researchers with the People's Armed Police hospital noted that "given the special conditions in China, establishing a [matching system] would be a very long-term project."299 They suggested instead that paramilitary hospitals lead the way and build a network that could be used nationally among themselves — though there are no indications that this actually happened. In 2011, Chinese state media carried a report stating that "there are numerous problems in the domestic donor allocation system. Many areas use the organs locally and lack any unified priority or allocation principles. This leads to waste of organ resources."300 This agrees with the observation of a foreign anthropologist in 1997, who noted that "the Chinese government has generally left the management of organ procurement to ... the individual transplant centers. These centers operate quite independently of one another."301

Notwithstanding these obstacles, continuing the thought experiment in which prisoners of conscience are *not* exploited for their organs, the death-row scenario above could have been augmented by the following patchwork of organ sources:

- I. Victims of kidnapping and those on the margins of society
- 2. Illegal organ procurements during regular hospital deaths
- Payments to families for hospital-based deceased procurement
- 4. Organ trafficking from living donors

In any plausible scenario excluding prisoners of conscience, however, the death penalty system would still need to be the primary supply, given the rapid availability of organs and their volume. Victims of kidnappings are an unreliable source, while the Chinese transplant establishment has only recently developed hospital-based sources. The surgical complexities associated with partial living liver donations rule out such donors being a large supply of organs, though the data for living kidney donations remains unclear.

The major question this patchwork scenario would fail to address, however, is straightforward: if the Chinese state would allow the effective institutionalization of such widespread and rampant forms of abuse against judicially executed prisoners and vulnerable members of the public, how and why would it prevent explicitly identified enemies of the state from also being victimized and monetized in this manner? Such a sequence

of events is not at all consistent with what we know about both the constraints and incentives that hospital authorities and the security apparatus operate under.

Either scenario requires a national conspiracy of some sort, though only one requires that the conspiracy be carried off in broad daylight. The death-row conspiracy makes extreme demands of cooperation between hospitals, secretly mediated by central authorities, with highly sophisticated disinformation seeded into the scholarly literature over two decades. It also requires that these parties resist monetizing a freely available captive population that is considered relatively healthy, despite knowing the unlikelihood of their being punished for thus abusing the state's enemies. The prisoner-of-conscience conspiracy, on the other hand, allows each hospital and detention facility to pursue its own interests with the tacit agreement of central authorities, allowing the targeting of the most vulnerable populations already in detention. Meanwhile, all who participated would materially profit from the arrangement. Given that no constraints prevent this conduct and many incentives actually encourage it, the only conceivable reason hospital and security authorities would not have done it must be due to ethical considerations. The plausibility of such a turn of events we leave the reader to judge.

## 9.3. Scientific epistemology, 'proof,' and the precautionary principle

The limited public discussion that has taken place on the allegations in this report has generally suffered a great lack of clarity. The terms *proof, verification,* and *substantiation* are often used yet never defined.<sup>302</sup> Absolute certainty is never attained in any empirical science, let alone in unraveling the clandestine activities of a closed authoritarian regime. In this section, we discuss the ideas that lie behind the use of these terms and attempt to clarify what we believe are the actual matters of fact and epistemology at play. Our purpose is to provide readers with a few conceptual tools they can use to navigate this difficult topic, and to outline what we believe are fair, defensible, ethical positions to adopt in light of the current state of the evidence.<sup>303</sup>

Before that discussion, a brief detour is warranted to examine a case with striking similarities from another closed authoritarian regime: the Soviet Union.

In late 1957, a nuclear waste explosion took place in the southern Ural Mountains of the Soviet Union, killing hundreds of people, causing thousands to be evacuated, and contaminating

an area of between 800 and 1200 square miles. After the scientist and dissident Zhores Medvedev made passing reference to the incident in a 1976 paper in *The New Scientist*, he was rebuked by then-head of the United Kingdom Atomic Energy Authority, Sir John Hill, who dismissed the claim as "pure science fiction," "rubbish," and "a figment of the imagination." Soviet authorities were themselves engaged in a thorough coverup of the incident.

Over the years that followed, Medvedev engaged in the pains-taking scientific detection necessary to establish the veracity of the event to the satisfaction of Western observers, and the incident is now a matter of historical record. Medvedev's work consisted in a forensic analysis of Soviet scientific papers published after the incident, from which he showed that Soviet geneticists and radiologists started studying the severe, artificial radioactive contamination of large bodies of water in the late 1950s. By comparing their reports of contamination with strontium-90 and cesium-137 found in water and biomass, and by pressing in on unusual reports by local fishermen and animal trappers, he inferred the magnitude of the sudden radioactive contamination and determined it was caused by a nuclear incident in the Southern Urals in 1957.<sup>305</sup>

The evidence discussed in this report, and the story that emerges from it, has a similar character — a pattern of activity pointing to secret state malfeasance or abuse, while the alleged perpetrator engages in denial and coverup, and established experts summarily dismiss the claims. In the case of the Soviet nuclear disaster, the truth emerged over time as other analysts concurred with Medvedev's argument, and Soviet authorities declassified files associated with it.306 This instance, like many other cases, shows how secret state programs, especially crimes against humanity, do not become matters of public knowledge until long after the fact. Other cases might include the slavery and atrocities of the Congo Free State, the Katyn massacre of Polish officers by the Soviet military, the crimes of the Nazi regime, or the biomedical experimentation of the Japanese Imperial Army's Unit 731, which resulted in thousands of cruel deaths. Even the abominable Tuskegee syphilis experiment in the United States ran for four decades. If indeed the Chinese Communist Party has engaged in the extrajudicial killing of prisoners of conscience for their organs, the truth will eventually come to light. In the light of historical precedent, it is hardly surprising that this particular instance has not been immediately recognized and its truth established.

We are confronted with the fact that although the relevant international constituencies have been presented with the evidence outlined in this report, they have not appeared to attend to it with the care it demands. In response to this, we have two choices. We could engage in a sociological analysis of why the evidence has not been seen as sufficiently convincing by these groups, including a study of their perceptions of the credibility of Falun Gong and possible hesitancy to endorse the claims given this association. Or, we could mount a positive argument as to the sort of epistemological approach toward the evidence and inference that observers should adopt. The first is an important area of future inquiry, but it is not within the remit of this report. Thus, the remainder of this section concerns itself with the latter task. It hopes to address questions such as these: What would it mean for the allegations to actually be "proven"? What qualifies as "proof" in both common speech and scientific discourse? Is this the most appropriate framing of the issue? How ought we think about the truth status of these allegations?

Different questions in both the natural sciences and social sciences entail different techniques of inquiry for answering them. Each technique of inquiry has its own standards for judging their implementation and interpreting findings. Scientific inquiry is often concerned with the question of causality: Did X cause Y? Through what process? To what degree can we be sure? The experimental method is a paradigmatic mode of scientific inquiry that provides a quantifiable way of answering such questions. An ideal experiment of a randomized control trial for a new pharmaceutical isolates causality by holding everything constant except the intervention being studied. Statistical techniques are then used to calculate the probability that the observed outcome can be attributed to the intervention being studied. In this model, the "truth" of whether X caused Y is disaggregated into technical procedures of research design, measurement validity, and statistical inference. "Proof" is quantified as a probability. If the probability that mere chance led to the observation is one in one billion, for instance, we assume that chance was not responsible, and attribute causality to the intervention. Experiments are the basis of much of our scientific knowledge, and when we think of some causal relationship as "proven" in science, we often refer to the social agreement as to how we treat extremely unlikely outcomes.

The question at the heart of this report can obviously not be resolved by the experimental method. We are confronted with a choice between two unpleasant scenarios: either the Chinese authorities have exploited prisoners of conscience for their organs, or they have engaged in a more complex conspiracy involving the death penalty system. We cannot quantify the probability that one explanation is better than another. The problem requires us to think. What criteria, then, should we employ in favoring one explanation over another?



The China Tribunal, an independent tribunal examining the evidence of forced organ harvesting in China, sits to hear witness testimony in London, April 2019. (China Tribunal)

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Some of the basic theoretical tools for thinking through scientific problems can guide us here. As Stephen Carey writes in his introduction to the scientific method:

"Anomalies are puzzling and unfamiliar and they are potentially revolutionary as well. If an anomaly can be documented, something has to give. Accepted ideas need to be revised and new forms of explanation may need to be developed and tested. Because so much is at stake the investigation of anomalies must be undertaken with two goals in mind. The first, of course, is to uncover the facts, to get a sense of what is going on. The second is to determine whether the phenomena can be 'explained away.' Can the phenomena be accounted for by reference to familiar, conventional modes of explanation? Only if conventional explanation fails can we be confident we have uncovered something that is genuinely anomalous." 307

The basic structure of this report has sought to follow this approach. The anomaly that we attempted to explain away was the rapid and sudden growth of China's organ transplantation in the year 2000, followed by its continued growth through 2007, even as the official source of organs through this period was in a well-documented decline. Then, in the post-2015 period, China has been found to have falsified its donor registry data, yet still appears to be doing a sizable volume of transplants. The conflict between these observations and "familiar, conventional modes of explanation" (i.e., death-row prisoners and voluntary donors) points to the need for some other explanation. When we look at other captive populations that would satisfy this supply of organs, we find prisoners of conscience. And then, when we look for evidence that would be predicted by the use of prisoners of conscience for the organs, we indeed find it: unusual blood and medical tests, threats of organ harvesting from prison guards, admissions of organ harvesting by transplant surgeons, unexplained deaths in custody with the family prevented from seeing the body, cases where the family attests to the body having been tampered with or had organs removed, and overlaps between personnel in the transplant and security sectors.

In light of this basic application of scientific logic, the demand for "proof" or "verification" of the allegations seems not quite mistaken, but simply incoherent and unresponsive. Numerous observations point to a major anomaly in the standard explanation for China's transplantation practices, and many other observations point to the use of prisoners of conscience. Such activity would also not be outside of what we might expect, given the constraints and incentives under which the relevant parties in China act. There are no independent bodies of oversight which would prevent security officials and hospital

authorities from colluding to monetize populations that the state has deemed the enemy, engaged in a violent campaign of suppression against, and exempted from legal protections. Such an arrangement would allow both actors to reach desirable goals: the state to dispose of its enemies, and surgeons to expand their private incomes and advance their scientific careers.

While it is insufficient to argue for the plausibility of an outcome without furnishing evidence of it, plausibility structures are an important part of how knowledge is formed, anomalies recognized, and explanations accepted. If an explanation does not comport with everything else we know, thus threatening to overturn an established paradigm, the burden of acceptance it faces is much greater. But if it *extends* existing theory and understandings to a new case or instance, it may be more readily admitted. The case of extrajudicial killing for organs is not a paradigm shift but instead an extension of what we know. It is not only rational and plausible in the context of contemporary China but substantiated by a significant body of evidence. The absence of additional, redundantly confirmatory evidence, such as skeptics often demand, does not prevent one from judging the evidence at hand.

Nevertheless, the lack of a simple and decisive revelation — like a defecting surgeon with a cache of documents, databases, and video files of gruesome surgeries — has contributed to an apparent unwillingness to engage in the basic process of scientific inference described above.

In response to this, we propose that human rights groups, medical organizations, and governments can simply set aside for a moment the ultimate truth status of extrajudicial killing for organs in China. At the same time, they should begin to explore it as they would any scientific hypothesis for the growth of China's transplantation system. This posture would force the Chinese authorities to demonstrate the hypothesis to be false. These organizations should talk openly about the vulnerability of prisoners, especially detained Falun Gong and Uyghurs, to these abuses, while developing the in-house expertise and comfort with the issue needed to arrive at their own judgment if the Chinese government continues to fail to provide a plausible counter-explanation.

This approach is founded in the scientific epistemology known as constructive empiricism.<sup>308</sup> It does not demand that one be absolutely certain that the events in question have taken place. Instead, it merely requires that observers examine the evidence, consider competing hypotheses, and provisionally arrive at the theory that appears to be most empirically adequate. The "truth" of the matter is bracketed. Is the explanation

of extrajudicial killing for organs empirically adequate, while the official explanations appear specious and inadequate? If so, then observers should entertain the extrajudicial hypothesis and publicly raise such concerns in an effort to have them allayed by Chinese authorities.

This approach has the lowest resource and reputational costs and is a precondition of any further steps in forming a global consensus. The question of consensus-building has been present since the issue emerged in 2006. The former prime minister of Australia, Kevin Rudd, when he was shadow minister for foreign affairs, backed an independent inquiry. His perception of the importance of common knowledge about the claims is prescient. "The key responsibility we've got as an Opposition is to establish the truth of these matters. They are very serious allegations.... That's why we've got to get to the bottom of it," Mr. Rudd told the program Lateline in 2006. He noted that Amnesty International and Human Rights Watch had failed to comment on the claims. "I think we've got to be cautious about this, exceptionally cautious. But because the allegations are so far-reaching and so profound, we need to ensure that there is an appropriate investigation." When asked "what if the Chinese refuse to allow an independent investigation?" Rudd responded: "Let's cross that bridge when we come to it.... But we do have a responsibility to get to the bottom of this."309

The apparent earnestness of Rudd's remarks seems almost quaint 14 years later, given that it does not appear that the Australian government engaged in any such wide-ranging fact-finding efforts,310 and that the extent of the response by the Chinese authorities has been to accuse those raising these allegations of engaging in rumor-mongering.311 Indeed, until perhaps recently it would not have been in the trade or diplomatic interests of Western governments to devote resources to this problem, given the distinct possibility of a conclusion that would demand action or public statements contrary to those interests. Recent geopolitical shifts and perceptions about the relationship between China and the global order may foster a public sphere more conducive to the discussion of the problem. To a degree, any public stance supporting this issue on the part of a major international body must be a political decision; but much more would it be a decision against the primacy of political concerns, and for the primacy of evidence and clear thinking.

Like the Australian government, major international human rights organizations and global medical organizations have failed to devote serious resources to grappling with the problem. Collectively, it is the public statements of these entities that signal the credibility of the claims to the major media organizations, whose reporting on them then contributes to the

formation of a social consensus about their importance and truth status. This consensus then — in an ideal world — has flow-through effects in shaping policy. Certain policies could foreseeably mitigate the abuses. This ideal process of good research leading to good policy has failed, beginning with the first tier of responders, the medical organizations.

Both the World Health Organization and The Transplantation Society, the peak body for transplant professionals globally, have exhibited an unreasonably high degree of skepticism toward any evidence and information about extralegal abuses in China, while exhibiting extreme credulity toward official Chinese denials and promises of reform. This puzzling outcome must be counted as a resounding success on the part of PRC information and elite co-optation operations. They managed not only to neutralize criticism from this sector, but even win praise from international transplant leaders for reforms, while helping to found the WHO task force against organ trafficking. In all this, PRC officials demonstrate an impressive sophistication in leveraging a small number of key elites in international organizations for achieving their own ends.<sup>312</sup>

One may attribute the reticence of the major human rights groups to the tacit deference of the specialized medical organizations. If this is so, it is a position that should be revisited. Both Amnesty International and Human Rights Watch are on the record with remarks that tacitly or explicitly cast doubt on the claims or declaim responsibility for rendering a judgment based on accountable, clear, and public reasoning.<sup>313</sup>



Former Australian Prime Minister Kevin Rudd in September 2013. (Cole Bennetts/Getty Images)

Human Rights Watch told Radio France Internationale in April 2019 that it "has not substantiated claims that any one community is particularly targeted for this treatment, partly as a result of government-imposed restrictions on research."<sup>314</sup> The framing of the response, of "any one community" being "particularly targeted" seems overly curated, given that the key contention is not that "any one community" has been "particularly targeted," but merely that China's system of coercive organ procurement *extended* to include vulnerable groups in captivity. By so framing the tenor of the question, Human Rights Watch avoids the burden of a direct response to the real controversy and leaves the impression that they doubt the allegations without providing a genuine argument.

Amnesty International has attempted to strike a similar tone, though it has given the impression of being more open to the claims. Amnesty International researcher Corinna-Barbara Francis told the European Parliament in 2012, that "there are many groups that these organs may be taken from, the Falun Gong being one of the main groups," but as an organization Amnesty has subsequently said little further on the matter.<sup>315</sup> In 2016, an Amnesty International spokesperson in Australia told the Associated Press that they had not done their own research on the matter and supported an independent investigation.<sup>316</sup>

For government officials, the message to be read between the lines is simple. In the memorable words of Australian diplomat Graham Fletcher, referring to Human Rights Watch and Amnesty International, the allegations "are not given credence by serious human rights activists." Though Freedom House stated in a 2017 report that it found "credible evidence suggesting that beginning in the early 2000s, Falun Gong detainees were killed for their organs on a large scale," this finding does not appear to have resonated among the halls of government.

Events have progressed since the allegations emerged in 2006, and China has claimed to carry out a complete reform of its transplantation system. The veracity of this reform has now been challenged, and Chinese authorities stand accused of falsifying their voluntary deceased donor data. Meanwhile, the Chinese government incarcerates up to millions of Uyghurs and involuntarily collects their biometric data. At the very least, it would behoove the medical and human rights communities to establish for themselves whether they agree that the data have been falsified, given the negative inferences that may then be justifiably drawn. Such data falsification may reasonably suggest a broader coverup, and it leaves the source of ongoing transplants unexplained. If Chinese authorities feel they had nothing to hide, it is unclear why they have gone to so

much trouble to remove evidence and create a false impression as to the successes of their voluntary transplant system.

At this stage, we believe that observers should temporarily bracket the language of proof, a concept that cannot yet be fruitfully or coherently applied to this issue, and instead consider the relative plausibility and rationality of the two competing explanations. Using this framework, and absent new evidence which calls into question previous findings, they should provisionally adopt as empirically adequate the hypothesis of extrajudicial killing of prisoners of conscience until such time as a better explanation presents itself. On this basis, they will be enabled to begin speaking about the matter, educating the public and fellow elites, demanding transparency from the Chinese government, and giving the issue the public attention it deserves.

Another compelling reason for adopting this stance is the precautionary principle.<sup>319</sup> The precautionary principle is a widely accepted ethical framework for guiding action in the face of uncertainty; it is used to inform decision-making in development, food safety, law, public health, environmental policy, and elsewhere.<sup>320</sup> It applies directly to this case. The precautionary principle states that when confronted with uncertainty, the action that should be taken is the one that is expected to result in the least harm.<sup>321</sup>

Adoption of the precautionary principle should not be confused with simply being overly cautious. One may charitably grant that international organizations have been extremely cautious around these allegations, possibly in part to avoid making grave claims about the Chinese government that later prove to be false. Public, false allegations would damage the reputation of the People's Republic of China, stunt the careers of Chinese transplant surgeons, and embarrass the organizations who made them. However, those harms would both be temporary and recoverable: in the worst case, China would be forced to be transparent about its organ transplantation system and thus allay the fears of crimes against humanity. The organizations would preserve their reputations given how serious and well-evidenced the concerns were. The precautionary principle highlights the danger of not acting if the allegations are true. In that case, public action by international organizations may potentially reduce the number of innocent people who are killed for their organs.

The precautionary principle, when coupled with the body of evidence as it now stands and the nature of the allegations, leads to an ethical imperative to respond.

### CONCLUSION AND RECOMMENDATIONS

he basic structure of the argument driving this report is simple and can be summarized in three parts. Firstly, Chinese hospitals have been performing a significant number of transplants since the year 2000, often on an on-demand basis; given the absence of a functioning voluntary transplant system, this implies that prisoners of one kind or another are being blood-tested and killed on demand. Secondly, China's official explanations for organ sourcing have been both deceptive and inadequate in accounting for this activity, meaning that some other source appears to have been used. Thirdly, there is a significant body of evidence consistent with prisoners of conscience (first Falun Gong and now Uyghurs too) being used as organ sources.

Despite the simple structure of the argument, however, the evidence required to substantiate each of the propositions is complex, and a large quantity of it must be carefully analyzed. Some of the evidence is technical, and simplistic demands for certainty about it are unsuitable. The case demands that we understand the evidence and how each piece of evidence contributes to the full picture, and then establish the most plausible scenario that accounts for it. It also demands that we consider a disturbing form of medical abuse and an egregious violation of ethical norms being carried out in a flagrant manner, which many of our trusted international bodies have shied away from addressing.

Fruitful methodological overlaps exist between the investigative research involved in piecing together the contours of China's domestic organ-trafficking industry and the mass internment of Uyghur Muslims. But differences also emerge. In both cases, researchers gather and analyze an eclectic array of open-source data to obtain evidence diagnostic of human rights abuses. Mass internment, however, is a technically simpler procedure than coercive organ procurement, and the available evidence that is directly diagnostic of internment is clearer for all to see: large camps with high walls, fortified with barbed wire, security posts along the perimeters, and menacing entrances. Empty streets, tours of camps, interviews with former detainees, and government documents attest to mass confinement. While what goes on inside the camps can be learned from many of the same sources, in the main the case is based on *direct observation*.

Coercive organ procurement, however, must typically be *inferred*. This is because it is posited as a secretive process that

takes place in zones of confinement away from even the enclosed space of the concentration camp. Until defectors emerge with primary documents, we can only rely, for the most part, on a large body of varied evidence. Yet such evidence should not be dismissed merely because it is indirect — it is evidence all the same and yields only a few explanations. One of those explanations, we have argued, is far more plausible than any other. When attempting to understand clandestine, security-medical procedures carried out by a closed authoritarian state, it is the language of clear and consistent patterns of evidence, the incentives and constraints on political actors, and explanatory parsimony that should be favored, rather than the vaguely defined demand for a "proof" that could never arrive in the absence of a major political dislocation or extraordinary testimony. Even then, inference would still be necessary.

Notwithstanding — or perhaps because of — the volume and nature of the evidence, the issue continues to occupy a peculiar position in the West, somewhere between truth and rumor. The claims have traveled far and wide, yet the major media outlets treat it with silence. The European Parliament and the US Congress have passed resolutions condemning the crimes, and over a decade ago (in 2008) the UN's Committee on Torture demanded an investigation — yet these motions went no further. As far as elite opinion is concerned — that is, in human rights organizations, the China field, the medical community, the executive branches of Western governments, and the major media corporations — these allegations could happily remain in limbo. None of these constituencies has shown a desire to get to the bottom of it. But the reasons for this likely have less to do with the strength of the evidence and more to do with how it has been communicated, perceived, and received.

The result of this consensus of silence has been that the Chinese authorities have, with help from Western transplant doctors and even ethicists, achieved the feat of turning the matter on its head: rather than the international community uniting to demand that the Chinese government come clean on actual transplant volume and answer questions about organ availability and sourcing, it is volunteer activists and independent researchers who are made to justify their necessarily broad range of estimates based on incomplete and frequently misleading official data. Meanwhile, the established human rights groups have come to feel that their best option is simply to tell inquiring journalists and foreign policy officers that they cannot substantiate the claims.



Sir Geoffrey Nice QC, former UN war crimes prosecutor and chair of the China Tribunal, speaks at the Tribunal's Final Judgement event in London in June 2019. (China Tribunal)

"The Tribunal's members are certain – unanimously, and sure beyond reasonable doubt – that in China forced organ harvesting from prisoners of conscience has been practiced for a substantial period of time involving a very substantial number of victims."

- Sir Geoffrey Nice QC on behalf of the China Tribunal

It is likely that elite responses to this issue in the West have been mediated by complex feedback effects, where the stance of one group is reinforced by the stance of another: none devotes serious attention to the issue, so socially authorized knowledge about it is not produced, which allows others to feel justified in also continuing to neglect it. But none of these responses is neutral, and behind each choice lie social, empirical, and ethical judgments. The vast majority of this report has been aimed at the empirical questions, but we again point to the relevance of the precautionary principle in this case to emphasize the inescapable ethical dimensions of any response (or indeed, non-response) by those whose responsibility it is to deal with claims like these.

Application of the precautionary principle allows stakeholders to treat the prisoner of conscience hypothesis as a serious *potential* explanation for China's transplant activity. On this basis, they can make a range of public statements and actions that would help bring about a potential attenuation of the abuse. An approach founded in the ethics of precaution — precaution for the lives of innocents at stake, not for political considerations or optics — should come naturally to any organization that advocates for medical ethics and human rights.

Medical organizations could call for a moratorium on publications from Chinese transplant surgeons, ban human organ transplant research from China at conferences, and assemble a panel of experts across disciplines to examine the allegations. Human rights groups could highlight the troubling pattern of evidence and what it points to, while expressing concern about the vulnerability of prisoners of conscience to illicit organ

procurement; they could publicly express concern that prisoners of *some kind* appear to be killed on demand, and demand that the Chinese government explain who. These actions would not imply that they are *certain* that the crimes have been committed — merely that the constellation of evidence warrants strong public scrutiny, and should not be relegated to "the outer fringes of advocacy."<sup>322</sup> Journalists could tell the stories of those who have been blood-typed and subjected to suspicious medical examinations. Governments could put pressure on The Transplantation Society and the World Health Organization to alter their positions of credulity and complaisance, while using Magnitsky sanctions against surgeons who are complicit. All of these actions would draw wider public attention to the problem and alert the Chinese transplant establishment that it is under close scrutiny; such actions may also deter abuses and save lives.

At this stage, only the Chinese authorities are in a position to put these allegations to rest.<sup>323</sup> Instead of doing so, they have co-opted international medical elites and engaged in an elaborate scheme of data falsification, creating the simulacrum of a genuine voluntary organ donation system while continuing to offer organs on demand to paying clients.

The explanation we put forward for the PRC's organ sourcing practices does not stem from an "intentionalist" interpretation of CCP policy toward religious minorities:<sup>324</sup> *i.e.*, we do not argue that when the regime embarked on its anti–Falun Gong campaign or ongoing cultural genocide of the Uyghur people, an order was given from the top that these populations be harvested for their organs. Rather, we believe that a confluence of conditions gave rise to the activity: a large population of individuals

whose treatment takes place entirely outside the color of the law, and where Chinese security authorities may act with impunity as to their life or death; campaigns of dehumanization through slander, defamation, blood libel, and other forms of hate propaganda; mass incarcerations, in some cases alongside prisoners already slated for organ procurement after execution; other forms of economic exploitation of these prisoners (including forced labor); an underfunded user-pays public hospital system where large portions of surgeon income are fee-for-service, creating direct financial incentives for transplant surgeons to increase volume; the absence of a voluntary donation system, with transplant organs sourced almost solely from judicial authorities; and an established system of organ trafficking from death-row prisoners, where it is expected that financial benefits are shared among participants in both the judiciary and hospital sectors. Given the simultaneous presence of these conditions, it would be more surprising if these vulnerable populations were not subject to this particular form of commercial exploitation.

While we were drafting this report, the China Tribunal, a people's tribunal, was established to investigate the same allegations discussed here, with a particular focus on whether crimes under international law had been committed. The Tribunal, chaired by former UN war crimes prosecutor Sir Geoffrey Nice QC, in June 2019 delivered a judgment that "in

China forced organ harvesting from prisoners-of-conscience has been practiced for a substantial period of time involving a very substantial number of victims."<sup>325</sup> The Tribunal members spent more than 12 months reviewing over 150 submissions of evidence and witness statements and reading a large body of literature on the topic. Their verdict sets out how they evaluated the evidence and why they reached the conclusions they did. Neither PRC authorities nor surgeons friendly with Chinese authorities made any attempt to rebut the allegations.

The conclusions of the China Tribunal, the finding of systematic falsification of organ registry data, and the evidence and inference in this report should lead to a shift in the terms of debate on this issue. We have presented the most plausible explanation for China's organ-sourcing practices, though we would be relieved if a more plausible scenario — that is, one fully able to account for the observed phenomenon, and more parsimonious than any other — were presented. At the same time, if the Chinese authorities had such an explanation, presumably they would have given it by now. In light of a new population of blood-typed political prisoners who are highly vulnerable to organ harvesting, we urge observers to examine the evidence on which our conclusion is based, consider our suggestions for handling the truth-status of the claims, reflect on the ethical justification for doing so, and act.

## **ENDNOTES**

- 1 Freeman, "Scientists Say Mysterious' Oumuamua Object Could Be an Alien Spacecraft."
- 2 Doyle, "The Sign of the Four."
- 3 Robertson, Hinde, and Lavee, "Analysis of Official Deceased Organ Donation Data Casts Doubt on the Credibility of China's Organ Transplant Reform."
- 4 For one example, see Budiani-Saberi and Delmonico, "Organ Trafficking and Transplant Tourism: A Commentary on the Global Realities." claiming "considerable progress" in China in 2013, prior to the reported mandated use of a national organ allocation system or reported elimination of use of prisoners as organ sources. See also O' Connell, Ascher, and Delmonico, "The Transplantation Society Believes a Policy of Engagement Will Facilitate Organ Donation Reform in China."
- 5 The reasons for this oversight are well beyond the scope of this report. For a helpful related discussion, see Rhodes, The Debasement of Human Rights: How Politics Sabotage the Ideal of Freedom.
- 6 See Tatlow, "Submission to the China Tribunal."
- 7 Note that the China Tribunal, discussed toward the end of the report, conducted an expansive review of the evidence during the time this report was being researched and written.
- 8 Second Affiliated Hospital of Harbin Medical University, "心臟移植动物实驗成功 [Heart Transplant Experiment in Animals Is Successful]."
- 9 "器官的移植 [The Transplantation of Organs]."
- 10 Jin, "吴阶平: 医学研究从自己摘除一只肾萌发 [Wu Jieping: Research in Medical Science Sprouted from the Explantation of One Kidney]."
- 11 "中山大学附属第一医院器官移植中心 [The Sun Yat-Sen First Affiliated Hospital's Organ Transplant Center]."
- 12 Jin, 历史的代价一文革死亡档案 [The Price of History: Cultural Revolution Archives of Death], 252–253. The facticity of accounts like this is difficult to confirm. Historian and archivist Xu Xinyun [徐欣云] notes in Xu, 档案"泛化"现象研究 [Research on Generalization of Archives], 56, that the book is a work of reportage that "archival researchers should make themselves familiar with" as a complement to traditional archival material.
- 13 Hu, 血祭红土地 [Earth Red With Blood Sacrifice], 57–64. The version consulted for this summary was a translated by Human Rights Watch/Asia, part of the human rights NGO's supplementary submissions to the US Senate Committee on Foreign Relations' May 4, 1995 hearing on China's use of executed prisoners.
- 14 Gutmann, The Slaughter: Mass Killings, Organ Harvesting, and China's Secret Solution to Its Dissident Problem, 17–30.
- 15 Gutmann, 20-27.
- 16 Relevant research on the topic of specialized health care for the Party elite includes Tsai, "Medical Politics and the CCP's Healthcare System for State Leaders"
- 17 Ouyang, "Governing the Chinese Medical Profession: A Socio-Legal Analysis."
- 18 "器官移植科党支部先进事迹-交通大学医学院附属仁济医院快讯 [Advanced Stories of the Party Branch of the Organ Transplant Department: Renji Hospital, School of Medicine of Jiaotong University]."
- 19 《华中科技大学年鉴》编纂委员会编 [Huazhong University of Science and Technology Yearbook Editorial Committee], "华中科技大学年鉴 2005年 [Huazhong University of Science and Technology Yearbook 2005]."
- 20 杭州市劳动和社会保障局编 [Hangzhou Municipal Labor and Social Security Bureau], "劳动和社会保障政策法规汇编 [Compilation of Labor and Social Security Policies and Regulations]."; 河南省社会文教行政财务制度选 [Henan Province Social Culture and Education Administration, Henan Provincial Department of Finance], "卫生财政关于器官移植医疗费报销问题的复函 [Health Ministry Finance Administration's Reply on Reimbursement of Medical Expenses for Organ Transplantation]."
- 21 Human Rights Watch, China: Organ Procurement and Judicial Execution in
- 22 "攀登移植之巅 延续生命精彩 [Climbing the Peak of Transplantation, Extending the Wonders of Life]"; Zhang, "武大肝胆疾病研究院: 器官移植与时间赛跑 [Wuhan University Hepatobiliary Disease Research Institute: Racing Against Time With Organ Transplantation]."
- 23 Kilgour, Gutmann, and Matas, "Bloody Harvest/The Slaughter: An Update."
- 24 This decrease has been widely documented. For example: "China Executed 2,400 People in 2013, Dui Hua."

- 25 Su, "器官捐献迷宫 [The Labyrinth of Organ Donation]." He is vice president of Sun Yat-sen University's First Affiliated Hospital, an expert affiliated with the Healthcare Committee of the Central Committee, which looks after the health of top Party leaders, and is described as a "leading figure" in the transplant sector in multiple news reports and official documents.
- 26 Yan et al., "提高肝移植手术效果的探讨 (单个中心连续 200 例肝移植病例分析) [Discussion on Improving Liver Transplantation Outcomes (analysis of 200 Cases of Liver Transplantation in a Single Center)]."
- 27 Guo, "器官移植立法之难 [The Difficulty of Establishing Organ Transplant Legislation]."
- 28 The claim that only 100 hospitals performed transplants in the US in 2006 is difficult to verify in part because the structure of the US's Organ Procurement Organization-based organ donation system differs so significantly from China's hospital-based system. In any case, the appearance of the comparison can be read to show that Chinese officials find it a matter of pride to have exceeded US transplant capacity in at least this one manner.
- 29 Guo, 45. Note: That Huang Jiefu said there were 500 hospitals capable of performing liver transplants does not mean that the number was in fact 500.
- 30 Guo. 45
- 31 "体器官移植技术临床应用管理暂行规定. [Interim Provisions on Administration of Clinical Application of Human Organ Transplantation Technology]."
- 32 Human Rights Watch, China: Organ Procurement and Judicial Execution in China
- 33 Wang, "黄洁夫: 使用死囚器官是历史难堪一页 [Huang Jiefu: The use of death row prisoner organs is an embarrassing page in history]."
- 34 Guo, "器官移植立法之难 [The Difficulty of Establishing Organ Transplant Legislation]," 45.
- 35 Guo, 45.
- 36 Ministry of Health of the People's Republic of China, "卫生部关于印发肝脏、肾脏、心脏、肺脏移植技术管理规范的通知 [Ministry of Health Promulgates Technical Management Qualification Standards for Liver, Kidney, Heart, and Lung Transplantation]."
- 37 See Liebman, "Malpractice Mobs: Medical Dispute Resolution in China," 191; Ying et al., "Dual Practice by Public Health Providers in Shandong and Sichuan Provinces, China," and in particular Liebman note 53 for primary sources
- 38 This refers primarily to the KGM Report and research by WOIPFG.
- 39 Wang, "Statement Of Wang Guoqi, Former Doctor, Chinese People' s Liberation Army Hospital."
- 40 Paul et al., "Human Rights Violations in Organ Procurement Practice in China"
- 41 Our inclusion and discussion of WOIPFG data in this report by itself indicates some level of confidence in their research, but additional qualification is appropriate. WOIPFG's raw collection and documentation efforts — which have been thorough and vast — should be distinguished from both their analytical process as well as their presentation style. In the first category, raw collection, we have no reason to doubt the reliability of their work as a whole. We have obtained 25 gigabytes of hospital website archives, PDF and PNG files of medical papers, doctor biographies, video files, and much more, which WOIPFG researchers collected by going to the websites of hospitals one by one, taking screenshots, logging archives, and inputting data. In almost all of the numerous cases we have checked, these corresponded to publicly available information. We have found a number of instances in which the original source says something slightly different to what WOIPFG says it says, or where WOIPFG's interpretation may be construed as imprecise or overly emphatic (e.g., counting all beds in one hospital's hepatobiliary surgery department as transplant beds, and counting dialysis beds in a renal department as transplant beds), but these cases appear to be marginal. Occasional mistakes and conflations may be expected when dealing with tens of thousands of complex data points. We have interviewed WOIPFG tens of thousands of complex data points. We have interviewed WOIPFG researchers and investigators at length about their procedures, which, with the exception of their undercover telephone calls, are based on accessing publicly available data. Judgment of WOIPFG's reliability in gathering publicly available data should be sharply distinguished from judgment of their analysis or style of presentation. In some instances, it appears that the failure to make this distinction has led to WOIPFG's work being disregarded, to the detriment of advancing knowledge on this issue. We are pleased to make use of the remarkable body of primary data they have collected much of which is no remarkable body of primary data they have collected, much of which is no longer available, while submitting it to our own process of analysis.

- 42 "追查国际发布中共788家非军队系统医疗机构涉嫌活摘法轮功学员器官的7, 423名医务人员的追查名单 [WOIPFG Publishes List of 7,423 Medical Personnel at 788 Non-Military Hospitals Suspected of Involvement in Live Harvesting of Falun Gong Practitioner Organs]."
- 43 Wang et al., "Liver Transplantation in Mainland China: The Overview of CLTR 2011 Annual Scientific Report."
- 44 See for instance Jiang WS, Zhou ZY et. al, "China Liver Transplant Registry Annual Report 2011."
- 45 Kuypers and Vanrenterghem, "Tailoring Immunosuppressive Therapy"; Danovitch, "Immunosuppressive Medications for Renal Transplantation: A Multiple Choice Question."
- 46 "海正药业:关于制剂产品他克莫司胶囊获得欧盟上市批准的公告 [Hisun Pharma: Announcement Regarding Tacrolimus Medication Capsule Products Obtaining EU Listing Approval]."
- 47 China Data Center for Food & Drug Administration, 大趋势 中国医药市场调研报告集 (2008版) [Major Trends: Study Report on China's Pharmaceutical Market (2008 Version)].
- 48 QYResearch Solid Organ Transplant Immunosuppressant Research Center, "Global and China Solid Organ Transplant Immunosuppressant Consumption 2016 Market Research Report." This is a commercial report that may not be published but may be shared with interested and qualified parties upon request.
- 49 Zhou, "河北省生物产业项目首次获得国家政策性贷款 [Hebei Pharmaceutical Project Receives First State Policy Grant]."
- 50 Further reference will be made to the question of data provided by IQVIA (formerly IMS Quintiles) in the 'Controversy' section below.
- 51 Dong et al., "器官保存液最新进展 [Recent Progress of Organ Preserving Liquids]." Key Laboratories (重点实验室) are an important component in China's science and technology system, typically set up and funded according to central policy priorities.
- 52 Yao and Hu, "多器官保存液的研究进展 ( I ) [The Advances in Research on Organ Preservation Solutions ( I )]."
- 53 Fan, Zhu, and Wu, "自制多器官保存液在草犬肝脏低温保存的应用 [Effect of Self-Designed SMO Multi-Organ Preservation Solution on Cold Prolonged Storage of Dog Livers]."
- 54 On funding and replacement of foreign imports: "器官移植科 [Organ Transplantation Department]."; "器官移植研究所 [Organ Transplantation Research Institute]"; on UW imports being expensive: Bai et al., "自制 KYL 器官保存液对恒河猴肝脏的保存作用 [Effects of Self-Made KYL Solution on Preserving Macaque Liver]." Note, however, that this claim of the hospital's solution being used in 95% of transplant hospitals across the country may have been exaggerated, may have become true only immediately prior to its publication, or may have been applicable primarily to only kidney, heart, and lung transplants, given that the 2011 China Liver Transplant Registry report (Jiang WS, Zhou ZY et. al, "China Liver Transplant Registry Annual Report 2011," 30–31) still presents UW as the most commonly used solution. The product used in China was likely manufactured domestically.
- 55 Xu, "原卫生部副部长:周永康落马打破死囚器官移植利益链 [Former Health Minister: Zhou Yongkang's Downfall Broke the Profit Chain Using Death Row Prisoner Organs]."
- 56 Huang, "Tomorrow's Organ Transplantation Program in China: Presentation in Madrid, Spain."
- 57 Matas, "Organ Sourcing in China: The Official Version."
- 58 Wines, "China Announces a System for Voluntary Organ Donors"; Chen, "China to Perform Record Number of Organ Transplants, despite Ban on Harvesting from Executed Prisoners"; Huang, "Organ Harvesting Ban Could Strain Already Troubled System."
- 59 Su, "如果生命马上结束,你愿意用器官帮助别人吗?[If You Were about to Die, Would You Donate Your Organs to Help Others?]."
- 60 Huang, "Tomorrow's Organ Transplantation Program in China: Presentation in Madrid, Spain."; compare slides 5 and 19 for inexplicable discrepancies; cf. also Matas's careful discussion of Huang's numbers: Matas, "Update on Numbers - Organ Transplants & Sources in China."
- 61 Jiang WS, Zhou ZY et. al, "China Liver Transplant Registry Annual Report 2011."
- 62 The article "中国器官捐献之困谁人能解? [Who Can Solve the Dilemma of Organ Donation in China?]" documents a case in which the Tianjin First Central Hospital's transplant department told the publication that they had performed 330 liver transplants in 2010 (itself almost certainly an underestimate by perhaps an order of magnitude), but when the reporter accessed the transplant registry, it had only reported seven. Officials (at both the hospital and managing the registry) declined to comment.
- 63 Reprinted from Robertson, Hinde, and Lavee, "Analysis of Official Deceased Organ Donation Data Casts Doubt on the Credibility of China's Organ Transplant Reform."
- 64 Beijing: National Health and Family Planning Commission, "China Organ Transplant Response System."

- 65 Zhao and Li, "中国器官移植发展基金会: 深化器官移植 落实 "依法治国 [China Organ Transplantation Development Foundation: Deepen the Implementation of 'rule of Law' in Organ Transplantation]."
- 66 Wuxi People's Hospital, "肺移植诊疗中心简介 [Introduction to the Lung Transplantation Diagnosis and Treatment Center]."
- 67 Chinese Academy of Medical Sciences, "个人简介 [Biography of Huang Jie]."
- 68 Zhang et al., "中国肾移植科学登记系统对青年医师的培训应用体会 [Experience of Training for Young Doctors by Chinese Scientific Registry of Kidney Transplantation]"; Chen and Shi, "中国肾移植科学登记系统 (CSRKT) 发展历程 [The History of the Development of the China Scientific Registry of Kidney Transplants]."
- 69 People's Liberation Army No. 2 Affiliated General Hospital, "中国肾移植科学登记系统 [China Scientific Registry of Kidney Transplants]."
- 70 Kilgour, Gutmann, and Matas, "Bloody Harvest/The Slaughter: An Update," 303–328.
- 71 In this case either the hospital wrongly reported the figure or the doctor falsely inflated it. Given that the surgeon was writing for other surgeons, while the hospital's website was public-facing, the surgeon's figure seems reliable and the hospital's motives dubious.
- 72 Bennett and George, Case Studies and Theory Development in the Social Sciences, 99–100 (emphasis in original).
- 73 World Organization to Investigate the Persecution of Falun Gong, "The Final Harvest: A Comprehensive Investigation into the Chinese Communist Party's Live Organ Harvesting of Falun Gong Practitioners."
- 74 "追查国际发布安徽省非军队系统医疗机构涉嫌活摘法轮功学员器官医务人员的追查名单 [WOIPFG Publishes List of Medical Staff in the Non-Military Hospital System of Anhui Province Suspected of Organ Harvesting Falun Gong Practitioners]."
- 75 World Organization to Investigate the Persecution of Falun Gong, "WOIPFG Internal Working File for Calculations of Southwest Hospital Transplant Figures 2000-2014." The veracity of WOIPFG's telephone investigations will be addressed in a forthcoming VOC research note.
- 76 "'贵族手术' 离百姓还有多远? [How Far Is 'Surgery for Aristocrats' from the Common Folk?]."
- 77 Cf. World Organization to Investigate the Persecution of Falun Gong, "WOIPFG Internal Working File for Calculations of Tongji Hospital Transplant Figures 2000-2014."
- 78 "The Final Harvest Chapter 6: The Real Numbers: China's Secret Transplant Volumes Revealed."
- 79 Kilgour, Gutmann, and Matas, "Bloody Harvest/The Slaughter: An Update," 356.
- 80 Ministry of Health of the People's Republic of China, "卫生部关于印发肝脏、肾脏、心脏、肺脏移植技术管理规范的通知 [Ministry of Health Promulgates Technical Management Qualification Standards for Liver, Kidney, Heart, and Lung Transplantation]."
- 81 Kilgour, Gutmann, and Matas, "Bloody Harvest/The Slaughter: An Update," 357–358.
- 82 Kilgour, Gutmann, and Matas, 364.
- 83 Zhang, "US Expert: China's Reform in Organ Transplantation Made Huge Achievements."
- 84 Vanderklippe, "Report Alleges China Killing Thousands to Harvest Organs."
- 85 Joint Standing Committee On Foreign Affairs, Defence And Trade, "Measures to Prevent Organ Harvesting (Jun 13, 2017)," 1–2.
- 86 Joint Standing Committee On Foreign Affairs, Defence And Trade, 4.
- 87 The 10,000 annual transplants claim often appears without caveat. Cf. Hemphill, "China's Practice of Procuring Organs from Executed Prisoners: Human Rights Groups Must Narrowly Tailor Their Criticism and Endorse the Chinese Constitution to End Abuses," 436; Huang, "Report of the Madrid Consultation: Part 1: European and Universal Challenges in Organ Donation and Transplantation, Searching for Global Solutions," S54; Rhodes and Schiano, "Transplant Tourism in China: A Tale of Two Transplants," 6; Zhang et al., "Preliminary Analysis of Factors Influencing Organ Donation Rates in China," 1421.
- 88 Needham, "Sydney University Forced to Reveal Emails in Chinese Organ-Donation Link Scandal." Note that the figure attributed to Dr. Chapman in Needham's article appeared as "60,00," while China's road death figure has in fact been reported to be over 60,000 (Cf. "Road Traffic Injuries Caused 62,387 Deaths in China in 2011"), an apparent transcription error.
- 89 World Organization to Investigate the Persecution of Falun Gong, "WOIPFG Research Notes for Southwest Hospital."
- 90 Zhang et al., "原位全肝移植术后肝内胆管狭窄的病因及诊治 [Etiology and Diagnosis and Treatment of Intrahepatic Bile Duct Stenosis after Orthotopic Total Liver Transplantation]."

- 91 Wang et al., "改良的肝脏移植流出道重建术 [Modified Liver Transplantation and Outflow Tract Reconstruction]."
- 92 Feng et al., "槐耳颗粒对肝癌肝移植术后患者疗效的影响 [Effect of Acacia Granule on the Curative Effect of Liver Transplantation in Patients with Hepatocellular Carcinoma]."
- 93 On the other hand, Bie is a co-author on the Wang paper, which we can infer to mean that they both participated in the surgery. We do not know how much downward adjustments of the figures would need to be made for such cases of joint transplant surgeries.
- 94 World Organization to Investigate the Persecution of Falun Gong, "WOIPFG Research Notes for Southwest Hospital."
- 95 Robertson, "Authentication and Analysis of Purported Undercover Telephone Calls Made to Hospitals in China on the Topic of Organ Trafficking."
- There is some evidence for the KGM assumption of high levels of occupancy by new patients, and turnover times of one month or less. For instance, the Beijing Chaoyang Hospital says it has 10 liver transplant rooms, and that it performs 100 to 150 liver transplants annually. The Chinese phrase used (病房) makes it unclear how many beds are in each room. If there were one bed in each room (i.e. 10 beds total) this would indicate a usage consistent with KGM estimates; if 20 beds total, it would indicate a lower usage. See "FIBANA" (本部)-首都医科大学附属北京朝阳医院 [Hepatobiliary Surgery (headquarters)]."
- 97 "器官移植为生命续约 健康管理助力 '第二生命' [Organ Transplantation & Health Management Helps a 'Second Life']."
- 98 "泌尿外科 [Urology Department]."
- 99 "器官移植 延续生命的精彩 [Organ Transplantation, the Continuation of Life]."
- 100 "济南军区总医院 [Jinan Military Region General Hospital]."
- 101 Liu, Wang, and Kui, "1007 例肾移植病人的护理分析 [Nursing Analysis of 1007 Renal Transplantation Patients]."
- 102 "东部战区总医院(原南京军区总医院)肾脏病科介绍 [Introduction to the Department of Renal Diseases, Eastern Theatre General Hospital (formerly Nanjing Military Region General Hospital)]."
- 103 "黎磊石院士访谈 [An Interview with Academician Li Leishi]."
- 104 "黎磊石:死亡后器官捐献理论上存在 现实中难做到 [Li Leishi: Deceased Organ Donation Exists in Theory, but Is Difficult in Reality]."
- 105 World Organization to Investigate the Persecution of Falun Gong, "18. 南京军区南京总医院 [18. Nanjing General Hospital of Nanjing Military Region]."
- 106 Liu, "共享系统推动中国器官移植进入公益化时代 [Sharing System Moves Chinese Organ Transplantation into the Public Welfare Era]."
- 107 Peking University People's Hospital, "床位信息 [Information on Bed Spaces]."
- 108 "北京大学人民医院 [Peking University People's Hospital Introduction]."
- 109 "天津市第一中心医院 [Tianjin First Central Hospital Introduction]."
- 110 Cf. "器官移植中心简介 -- 解放军总参谋部总医院(解放军第309医院) [Introduction to Organ Transplantation Center — 309th Hospital of the People's Liberation Army]" for 2010 data and "走进全军知名专科中心:解放 军第309医院器官移植中心 [Entering the Military's Specialist Realm: The PLA 309 Military Hospital's Organ Transplantation Center]" for bed expansion as of 2012. Both sources have since been removed.
- 111 World Organization to Investigate the Persecution of Falun Gong, "WOIPFG Internal Working File for Calculations of PLA No. 458 Hospital Transplant Figures 2000-2014."
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- 113 "泌尿外科简介 [Introduction to Urological Surgery]."
- 114 "医院介绍 [Hospital Introduction]."
- 115 "普外器官移植科 [Department of General Organ Transplantation]."
- 116 "医院介绍 [Hospital Introduction]."
- 117 "专家介绍 [Specialist Introduction]."
- 118 "龙腾虎跃正当时: 记中南大学湘雅二医院器官移植中心肾移植科 [Like Dragons and Tigers Leaping at Once: Department of Kidney Transplantation, Department of Organ Transplantation, Second Xiangya Hospital, Central South University]."
- 119 "龙腾虎跃正当时: 记中南大学湘雅二医院器官移植中心肾移植科 [Like Dragons and Tigers Leaping at Once: Department of Kidney Transplantation, Department of Organ Transplantation, Second Xiangya Hospital, Central South University]."
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- 121 "上海仁济医院器官移植中心肝移植团队 [Shanghai Renji Hospital Organ Transplantation Center Liver Transplantation Team]."
- 122 "仁且慧是为强——记第九届中国医师奖得主、附属仁济医院肝脏外科主任夏强 [Humanity and Wisdom Bring Strength: Xia Qiang Is the Winner of the 9th Chinese Physician Award and the Director of the Department of Liver Surgery, Renii Hospitall."
- 123 "上海仁济医院器官移植中心肝移植团队 [Shanghai Renji Hospital Organ Transplantation Center Liver Transplantation Team]."
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- 125 "Southwest Hospital & Institute of Hepatobiliary Surgery."
- 126 Cf. Luo and Wang, "对付终末期肝病这里有'金刚钻' [For End-Stage Liver Disease, There Is a 'Diamond Drill' Here.]." vs "科室介绍 [Department Introduction]."
- 127 "第三军医大学附属西南医院肾科简介 [Introduction to the Department of Nephrology, Southwest Hospital, Third Military Medical University]."
- 128 Luo and Wang, "对付终末期肝病这里有'金刚钻' [For End-Stage Liver Disease, There Is a 'Diamond Drill' Here.]."
- $129\,$  The case is described in Rogers, Robertson, and Lavee, "Engaging with China on Organ Transplantation."
- 130 World Organization to Investigate the Persecution of Falun Gong, "WOIPFG Internal Working File for Calculations of Southwest Hospital Transplant Figures 2000-2014."
- 131 Robertson, "Investigative Report: A Hospital Built for Murder."
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- 133 Useful analysis of transplant volume for this hospital appears in the WOIPFG and KGM reports. See "1. The real number of liver and kidney transplants at Tianjin First Central Hospital was over 5,000 cases per year since 2006, and even achieved 8,000 cases at the peak time" in "The Final Harvest Chapter 6: The Real Numbers: China's Secret Transplant Volumes Revealed" and Kilgour, Gutmann, and Matas, "Bloody Harvest/The Slaughter: An Update," 59–64.
- 134 TV Chosun, "The Dark Side of Transplant Tourism in China: Killing to Live."
- 135 "华中科技大学同济医学院附属同济医院 [Bringing the Most Intimate Service to Each Patient with Our Love and Patience -- Organ Transplantation]."
- 136 World Organization to Investigate the Persecution of Falun Gong, "WOIPFG Internal Working File for Calculations of Tongji Hospital Transplant Figures 2000-2014."
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- 138 National Health Commission of the People's Republic of China, "173家器官 移植医院名单 [List of 173 Organ Transplant Hospitals]."
- 139 Mao and Pan, "卫生副长黄洁夫在全国人体器官移植技术临床应用管理峰会上的话 [Huang Jiefu at the National Human Organ Transplant Technology Clinical Application Management Summit]," 90–96.
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- 141 These figures come from Jiang WS, Zhou ZY et. al, "China Liver Transplant Registry Annual Report 2011" and are thus likely severe underestimates. See also Zheng, "肝移植进展 在院庆 60 周年'院士讲学周'活动中的专题讲座 [Progress in Liver Transplantation: On the 60th Anniversary of the Academy, Special Topic Lecture During 'Academician Lecture Week']." The 'bamboo' line is from Yan et al., "提高肝移植手术效果的探讨 (单个中心连续 200 例肝 移植病例分析) [Discussion on Improving Liver Transplantation Outcomes (analysis of 200 Cases of Liver Transplantation in a Single Center)]."
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- 143 "器官移植中心简介 -- 解放军总参谋部总医院(解放军第309医院) [Introduction to Organ Transplantation Center 309th Hospital of the People's Liberation Army]."
- 144 "走进全军知名专科中心:解放军第309医院器官移植中心 [Entering the Military's Specialist Realm: The PLA 309 Military Hospital's Organ Transplantation Center]."
- 145 "肝胆外科特色科室,医疗特色 [Hepatobiliary Surgery Special Department, Medical Characteristics]."

- 146 "精准、微创、数字化、个体化——解放军总医院肝胆外科主任谈肝胆外科革命性变化 [Accurate, Minimally Invasive, Digital, Individualized: Director of the Department of Hepatobiliary Surgery of the General Hospital of the People's Liberation Army Talks about Revolutionary Changes in Hepatobiliary Surgery]."
- 147 Luo and Wang, "对付终末期肝病这里有'金刚钴' [For End-Stage Liver Disease, There Is a 'Diamond Drill' Here.]."
- 148 "科室介绍 [Department Introduction]."
- 149 "东方器官移植中心昨天投入使用 [Oriental Organ Transplant Center Was Put into Use Yesterday]."
- 150 "昔日拼搏进取 今日重建辉煌——著名移植学专家沈中阳教授 [Worked Hard to Forge Ahead, Rebuilding Glory Today Professor Shen Zhongyang, a Famous Transplant Expert]."
- 151 Cf. Qu, "天津市第一中心医院 [Tianjin First Central Hospital]." The question mark is due to the ambiguity of the announcement. It states that the hospital increased its total bed count by 300, and that bed layout changes were made in the transplant ward and in other wards. We conservatively attribute 50 beds to the transplant center, though it was likely a greater portion of the 300.
- 152 "国家临床重点专科建设项目---普通外科 [National Clinical Key Specialist Construction Project---General Surgery]."
- 153 "国家临床重点专科建设项目---普通外科 [National Clinical Key Specialist Construction Project---General Surgery]."
- 154 "泌尿外科 [Department of Urological Surgery]."
- 155 "泌尿外科 [Urological Surgery]."
- 156 Liu and Zhu, "解放军452医院院长张聪:依托市场保障'战场'[Zhang Cong, Dean of the 452 Hospital of the People's Liberation Army: Relying on the Market to Guarantee the 'Battlefield']."
- 157 Liu and 7hu
- 158 Zhang, "肝移植走向新时代 [Liver Transplantation Enters a New Era]."
- 159 "肝脏外科-中心介绍 [Liver Surgery Center Introduction]."
- 160 Xu, "夏强:肝移植学科的少帅 [Xia Qiang: The Marshal of the Liver Transplantation Department]."
- 161 Xu.
- 162 "肝脏外科 [Department of Liver Surgery]."
- 163 Tan, "妄测 21 世纪肝胆胰外科学的发展 [The Development of Hepatobiliary and Pancreatic Surgery in the 21st Century]."
- 164 Li, "肝病走到终末期 唯有移植能救命——访南京鼓楼医院副院长、肝胆外科主任医师、教授 孙倍成 [When Liver Disease Is End Stage, Only Transplantation Can Save Lives -- Interview with Vice President of Nanjing Drum Tower Hospital, Chief Physician of Hepatobiliary Surgery, Professor Sun Becheng]."
- 165 "肝胆外科 [Hepatobiliary Surgery]."
- 166 Incidentally by way of comparison, WOIPFG's tally assigned the Nanjing Drum hospital an unadjusted total of 314 liver transplants from 1996-2008 and an adjusted total of 584 for the same period, far less than the 120 annually reported by the hospital itself, and with a decade of missing data.
- 167 Zhang, "肝移植走向新时代 [Liver Transplantation Enters a New Era]."
- 168 "Interview with Prof. Dr. Jacob Lavee."
- 169 First Affiliated Hospital of China Medical University, "关于供体者 [About Donors]."
- 170 China Liver Transplant Registry, "中国肝移植注册2005 年度分析报告 [China Liver Transplant Registry 2005 Annual Analysis Report]"; China Liver Transplant Registry, "中国肝移植注册2006 年度报告 [China Liver Transplant Registry 2006 Annual Report]."
- 171 Wang and Zheng, "急诊肝移植治疗良性终末期肝病的临床分析 [Clinical Evaluation of Emergency Liver Transplantation for Treating End-Stage Liver Diseases]"; Tang, "器官移植重续生命乐章 [Organ Transplantation Is a Symphony for Prolonging Life]."
- 172 Rogers, Robertson, and Lavee, "Engaging with China on Organ Transplantation."
- 173 Sun, "25小时两例肝移植手术创纪录 [A Record Two Liver Transplant Surgeries in 25 Hours],"; Pan and Ye, "我国首例自体肝移植手术在新疆获得成功 [China's First Autologous Liver Transplant Is Successful in Xinjiang]."; "中国人体器官买卖的黑幕 [China's Organ Trade Secret]."; Xue, "卫生部副部长主刀, 我国首例自体肝移植手术在新疆获得成功 [With Deputy Health Minister Wielding the Knife, China's First Autologous Liver Surgery in Successful in Xinjiang]."
- 174 That the donor was killed, and thus forced, is inferred from the fact that the transplantation was for a whole liver, which necessitates the death of the donor. China did not have a voluntary deceased organ donation system at the time.
- 175 Qun and Qiu, "世界海拔最高地区首例原位异体肝脏移植手术成功 [The World's Highest Region's First Orthotopic Liver Transplantation Carried out Successfully]."

- 176 "傅彪病况前前后后 [Fu Biao's Illness Before and After]."
- 177 Yi and Wang, "好人傅彪英年早逝 好友亲朋一声叹息 [Good Man Fu Biao Dies a Young Hero; Family and Friends Lament]." "主治医师谈傅彪病情:他与癌症 不停斗争的一年 [Chief Doctor on Fu Biao's Condition: His Relentless Battle With Cancer for a Year]."
- 178 First Affiliated Hospital of China Medical University, "关于供体者 [About Donors]."
- 179 Zhang, Peng, and Gu, "乾坤挪移九小时 [Nine Hours of Moving Heaven and Earth]."; Huang, "37与32的奇迹 [The Miracle Between 37 and 32]."; Tang, "仁济医院肝移植手术连台 医生彻夜走不出医院 [Renji Hospital Does Continuous Liver Transplants: Doctors Can't Leave the Whole Night Through]."
- 180 Robertson, "Deleting a Question and Declining an Answer on Organ Transplant Reform in China."
- 189 Smith, "Doctor Says He Took Transplant Organs From Executed Chinese Prisoners."
- 190 Zhao and Wu, "专访黄洁夫: 中国器官移植事业光明正大地登上世界舞台 [Exclusive Interview with Huang Jiefu: The China Organ Transplant Field Justly and Honorably Steps Onto the World Stage]."
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- 194 Qian and Zhang, "死刑复核 灵魂折磨 [Death Penalty Review: Spiritual Torment]."
- 195 Xiong, "The Death Penalty after the Restoration of Centralized Review: An Empirical Study of Capital Sentencing."
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- 197 Perry, "Challenging the Mandate of Heaven: Popular Protest in Modern China."
- 198 Faison, "In Beijing: A Roar of Silent Protesters."
- 199 Gutmann, "How Many Harvested? A Survey-Based Estimate of Falun Gong Murdered from 2000 to 2008."
- 200 See primarily Matas and Kilgour, Bloody Harvest: The Killing of Falun Gong for Their Organs., and Gutmann, The Slaughter: Mass Killings, Organ Harvesting, and China's Secret Solution to Its Dissident Problem.
- 201 Interview of Falun Gong practitioner Yin Liping conducted by Matthew Robertson in Boston, June 2016.
- 202 Ethan Gutmann makes extensive documentation of such cases in Gutmann, The Slaughter: Mass Killings, Organ Harvesting, and China's Secret Solution to Its Dissident Problem. See also interview of asylee Yu Xinhui: World Focus, "生死之间2013版 (4):活摘器官真相迟早会在中国大陆大白于天下 [Between Life and Death. 2013 (4): The Truth of Organ Harvesting Will Be Revealed in China Eventually]."
- 203 See Chapter 7 of Matas and Kilgour, Bloody Harvest: The Killing of Falun Gong for Their Organs; an extensive library of calls is also held by WOIPFG on its website http://www.zhuichaguoji.org/. VOC's process of authenticating the calls will be described in the forthcoming working paper "Authentication and Analysis of Purported Undercover Telephone Calls Made to Hospitals in China on the Topic of Organ Trafficking."
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- 208 Zheng, "急诊肝移植救治良性终末期肝病 46 例经验分析 [An Analysis of Positive Outcomes in the Experience of 46 Emergency Liver Transplants for End-Stage Liver Disease]."
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- 210 Shih, "China's Mass Indoctrination Camps Evoke Cultural Revolution."; "China: Minority Region Collects DNA from Millions."
- 211 Clarke, "No, New Xinjiang Legislation Does Not Legalize Detention Centers."
- 212 Shih, "'Thank the Party!' Inside China's Muslim Brainwashing Camps."

- 213 Cf. generally Dikötter, The Tragedy of Liberation: A History of the Chinese Revolution 1945-1957.
- 214 "China: Minority Region Collects DNA from Millions."
- 215 Mercy A. Kuo, The Diplomat, "Uyghur Biodata Collection in China."
- 216 "China's Algorithms of Repression: Reverse Engineering a Xinjiang Police Mass Surveillance App."
- 217 Mitalipova, "Submission of Maya Mitalipova to the China Tribunal."
- 218 Gautreaux and Freedman, "Genotypic Variation and Outcomes in Kidney Transplantation: Donor and Recipient Effects"; Mesnard et al., "Exome Sequencing and Prediction of Long-Term Kidney Allograft Function."
- 219 Jelilova, "Statement of Gulbahar Jelilova for the China Tribunal."
- 220 Tursun, "Statement of Mihrigul Tursun for the China Tribunal."
- 221 Bekari, "Submission by Omer Bekari for the Independent Tribunal into Forced Organ Harvesting In China."
- 222 Ayup, "Submission for the Independent Tribunal into Forced Organ Harvesting In China."
- 223 "Database of Xinjiang Victims."
- 224 Chao, "Exposed: China's Surveillance of Muslim Uighurs." "Chinese internment camps are 'torture centers worse than death,' say survivors." Van Brugen, "Former Uyghur Inmates Tell of Torture and Rape in China's 'Re-Education' Camps." There are also anecdotal cases collected by activists, such as Imin, "Tahir Imin on Twitter."
- 225 Ramzy, "'Show Me That My Father Is Alive.' China Faces Torrent of Online Pleas."
- 226 Tursun, "Statement of Mihrigul Tursun for the China Tribunal."
- 227 Robertson, "Hidden from View: Is China Transferring Uighur Detainees to Far-Flung Prisons?"; RFA Staff, "Xinjiang Authorities Secretly Transferring Uyghur Detainees to Jails Throughout China"; Fang, "Rail Cancellations in Xinjiang Province Boost Concerns About Fate of Imprisoned Uyghurs."
- 228 A film director was told in 2018 by contacts in the security services in Xinjiang that such transfers had taken place, but they provided no information about their scale. A recently arrived Falun Gong activist stated that he had been in contact with multiple families of detained Falun Gong practitioners in Heilongjiang, who had been told by their detained relatives that the Tailai Prison in Qiqihar had a recent (as of September 2018) influx of thousands of detainees. These accounts match the timeline of the RFA reports (including the prison in question) and offer a form of corroboration from both ends of the transfer process.
- 229 CAAC, "关于建立人体捐献器官转运绿色通道的通知 [Notice on Establishing a Green Channel for Human Donor Transplantation]."
- 230 RFA Staff, "南航空运活体器官逾500宗 器官来源再受关注 [Renewed Attention Over China Southern Airlines Transportation of Over 500 Organs]."
- 231 TV Chosun, "The Dark Side of Transplant Tourism in China: Killing to Live."
- 232 Wang, "Donation of Organs Continues Rapid Rise."
- 233 Three significant incidents of the kind include those in Hanerik and Siriqbuya (2013) and Alaqagha (2014). Respectively, cf. Jacobs, "Over News of Clash, a Shroud of Silence in Xinjiang"; Beijing, "China Now Says Almost 100 Were Killed in Xinjiang Violence"; RFA Staff, "Eleven Killed in Raid on Police Station in Xinjiang"; RFA Staff, "Xinjiang Police Open Fire at Protest Against Clampdown on Islamic Dress." Thanks to Anders Corr for directing my attention to these cases.
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- 235 Liu, "'杀人盗器官'案 [The 'Murder to Steal Organs' Case]."
- 236 "被挖眼男童回忆被害一刻:那个女人说'跟我走'[Boy Who Had Eyes Gouged Recalled the Moment: The Woman Said 'Follow Me']."
- 237 "割肾党横行武汉 女大学生遇害弃尸 家属大学请愿被殴 [Kidney Harvest Gangs Rampant in Wuhan; Female College Student Killed and Abandoned; University Petition Blocked]."
- 238 RFA Staff, "Chinese Police Detain Journalist Who Wrote About Missing Wuhan Students"; Gu, "Dozens of Youth in Wuhan, China Disappear Without a Trace"
- 239 Robertson, "Chinese Authorities Break Up Organ Transplant Ring."
- 240 Xiangyang, "恐怖的匪国:拐骗了五个,都杀了! [Terrifying Bandit Country: Five Kidnapped (children) Were All Killed!]."
- 241 RFA Staff, "Party Censorship Has Killed Off Investigative Reporting in China: Journalists."
- 242 Ikels, "Kidney Failure and Transplantation in China," 1276.
- 243 Ni and Li, "关于我国人体移植器官的产品化探讨 [Discussion of the Commodification of Human Organs for Transplant in China]," 76.
- 244 Huang, "Official Organ Trade Network in China Revealed."

- 245 Wang Haibo Presentation at The Transplantation Society's 2018 Annual Meeting.
- 246 This and the following several paragraphs draw closely from Robertson, Hinde, and Lavee, "Analysis of Official Deceased Organ Donation Data Casts Doubt on the Credibility of China's Organ Transplant Reform."
- 247 Robertson, Hinde, and Lavee.
- 248 Ding, Hu, and Luo, "以大爱之名——器官捐献与移植事业的中国华章 [In the Name of Altruism: The Chinese Chapter of the Enterprise of Organ Donation and Transplantation]."
- 249 TV Chosun, "The Dark Side of Transplant Tourism in China: Killing to Live."
- 250 TV Chosun.
- 251 Wang Haibo Presentation at The Transplantation Society's 2018 Annual Meeting.
- 252 Yu, "Yu Ming Submission to China Tribunal: Exhibit B."
- 253 Yu, "Yu Ming Submission to China Tribunal: Exhibit C." VOC was able to verify from public records that there is a lawyer in Beijing, originally from Jilin, with an identical name, though could not confirm that it was indeed the same individual.
- 254 Some of this language is taken from a forthcoming report by VOC, provisionally titled: "Authentication and Analysis of Purported Undercover Telephone Calls Made to Hospitals in China on the Topic of Organ Trafficking."
- 255"追查国际调查取证中共活摘器官现场录像 (1-5) [On-Site Video of WOIPFG Investigation of Organ Harvesting (1-5)]."
- 256 "追查国际对中共活摘法轮功学员器官现状调查报告 (三) [WOIPFG Investigative Report on CCP's Organ Harvesting of Falun Gong (III)]." See "哪有那么多呀?那我们有我们的渠道。"
- 257 "郑树森 杭州树兰医院院长郑树森 [Zheng Shusen: President of Shulan Hospital, Hangzhou]," 2.
- 258 "追查国际调查取证中共活摘器官现场录像 (1-5) [On-Site Video of WOIPFG Investigation of Organ Harvesting (1-5)]."
- 259 "追查国际调查取证中共活摘器官现场录像 (1-5) [On-Site Video of WOIPFG Investigation of Organ Harvesting (1-5)]."
- 260 WOIPFG, "杭化莲 上海仁济医院肝移植中心主任 [Hang Hualian: Director of the Shanghai Renji Hospital Liver Transplant Center]."
- 261 WOIPFG, "陈怀周 广西桂林 181 医院移植中心 [Chen Huaizhou: Guangxi Guilin No. 181 PLA Hospital Transplant Center]."
- 262 WOIPFG, "李医生 北京朝阳泌尿外科值班 [Dr. Li: Beijing Chaoyang Hospital Urology Surgery Department Duty Doctor]."
- 263 WOIPFG, "白荣生 天津一中心沈中阳院长助手肝移植医生 [Bai Rongsheng: Assistant to Tianjin First Central Hospital President Shen Zhongyang]."
- 264 Robertson, "Authentication and Analysis of Purported Undercover Telephone Calls Made to Hospitals in China on the Topic of Organ Trafficking."
- 265 Cf. 中华器官移植杂志编辑委员会器官移植登记处 [Organ Transplant Registry of the Editorial Board of the Chinese Organ Transplantation Journal], "1996 年全国肾移植的统计 [National Kidney Transplant Statistics in 1996]."; Qii, "我国器官移植现状与亟待解决的问题 [The Current Situation of Organ Transplantation in China and the Problems to Be Solved Urgently]."
- 266 Joint Standing Committee On Foreign Affairs, Defence And Trade, "Human Organ Trafficking and Organ Transplant Tourism (Jun 08, 2018)."
- 267 That is, unless the death penalty system operates at a far larger scale than official reporting and scholarship suggests. This possibility is considered and rejected in section 9.2.
- 268 The torture in custody and extreme abuses meted out against non-political prisoners should not be forgotten. Cf. Amnesty International, "No End in Sight: Torture and Forced Confessions in China."
- 269 Chapman, Jeremy. Private correspondence, May 2019.
- 270 Liu, Wang, and Kui, "1007 例肾移植病人的护理分析 [Nursing Analysis of 1007 Renal Transplantation Patients]."
- 271 Huang, Liao, and Chen, "循证护理和自我护理对中老年肾移植病人的影响 [Effect of Evidence-Based Nursing and Self-Care on Renal Transplantation Patients in Middle and Old Age]."
- 272 Nie et al., "亲属活体肾移植受者 119 例临床总结 [Clinical Summary of 119 Cases of Relatives Living Kidney Transplant Recipients]." Note that while the paper is focused on related living donors, the data cited above, from Table 2, references the deceased organ recipient comparison group.
- 273 Zhu, Guo, and Hu, "住院期间肝移植患者免疫抑制剂应用情况分析 [Study on Use of Immunosuppressive Agents in 98 Liver Transplantation Patients]."
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- 282 Respectively Lv et al., "同种异体肝移植术后腹腔感染的病原菌分析及特点 [Analysis of Pathogen Characteristics and Drug Resistance for Abdominal Infection after Liver Transplantation]," and Baoqing et al., "不同预防方案 对肝移植受者术后巨细胞病毒感染率的影响 [Effects of Various Prophylactic Solutions on Postoperative Cytomegalovirus Infection in Liver Transplant Recipients]."
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- 285 Minghui Library, "失踪名单 [Name List of Missing Persons]."
- 286 This anecdote comes from an interview with the former supplier of a Falun Gong samizdat network in Dalian from 1999-2006. Boston, March 2019.
- 287 Joint Standing Committee On Foreign Affairs, Defence And Trade, "Measures to Prevent Organ Harvesting (Mar 28, 2017)."
- 288 Ong, "Seeking Justice in a Lawless China," November 6, 2015; Jiang, "Jiang Li Testimony to the China Tribunal."
- 289 Matas and Kilgour, Bloody Harvest: The Killing of Falun Gong for Their Organs, 50–59.
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- 291 Vanderklippe, "Report Alleges China Killing Thousands to Harvest Organs."
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- 293 Denyer, "China Used to Harvest Organs from Prisoners. Under Pressure, That Practice Is Finally Ending."
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- 295 It would, in theory, be possible to probe the matter further by conducting an odds analysis of Chinese transplant data submitted to the Global Observatory on Donation and Transplantation with IMS drug data, to see whether China was the only country, year after year, whose figures for immunosuppressant drug sales as captured by IMS matched those in the database as a portion of the global total of transplants. Questions of data access, cost, use, and ability to publish (due to legal questions surrounding IMS-mandated review of any content prepared for publication using the data) led to the suspension of the project. Such an analysis, however, would still not be dispositive, since it would only show how unlikely and unique it would be for China to stand as the only country exhibiting this relationship. Yet this discovery by itself would not shed further light on the actual size of China's immunosuppressant industry, and nor would it convincingly demonstrate that the data must have been manipulated.
- 296 The former has been made by Campbell Fraser in his Australian parliamentary appearances, and appears in more hedged tones in comments by Dr. Chapman and Dr. Delmonico.
- 297 Mao and Pan, "卫生副长黄洁夫在全国人体器官移植技术临床应用管理峰会上的话 [Huang Jiefu at the National Human Organ Transplant Technology Clinical Application Management Summit]."
- 298 Trevaskes, "The Death Penalty in China Today: Kill Fewer, Kill Cautiously."
- 299 Wang et al., "建议武警医院建立肾移植 HLA 配型网络 [Recommendation: People's Armed Police Hospitals Establish a Kidney Transplant HLA Matching Network]."
- 300 Zhao, "器官移植:要命等待的背后(下)[Organ Transplantation: Behind the Deadly Wait (Part 2)]."
- 301 Ikels, "Kidney Failure and Transplantation in China."

- 302 The work of the China Tribunal is an exception to this lack of clarity. Members of the tribunal used the standard of "proof beyond a reasonable doubt" and articulated their reasoning, and the evidence on which it was based, publicly and carefully. See China Tribunal, "Final Judgement Report," 9-15, 42-49.
- 303 This discussion and the thinking behind it has benefited immensely from the following works: Harman, "The Inference to the Best Explanation"; Almond and Genco, "Clouds, Clocks, and the Study of Politics"; Scott Gordon, The History and Philosophy of Social Science; Lipton, Inference to the Best Explanation; Godfrey-Smith, Theory and Reality: An Introduction to the Philosophy of Science; Carey, A Beginner's Guide to Scientific Method; Nola and Sankey, Theories of Scientific Method: An Introduction; Lewens, The Meaning of Science: An Introduction to the Philosophy of Science; Hacking, Logic of Statistical Inference; Church and Samuelson, Intellectual Humility: An Introduction to the Philosophy and Science.
- 304 Medvedev, "Nuclear Disaster in the Urals," 3-7.
- 305 Medvedev, 27-67.
- 306 Perera and Milne, "Soviet Union Comes Clean on Nuclear Blast."
- 307 Carey, A Beginner's Guide to Scientific Method, 22.
- 308 van Fraassen, The Scientific Image.
- 309 Lateline, "Rudd Backs Calls for Investigation into Organ Harvesting in China."
- 310 At least as is publicly known.
- 311 Wilson, "Prisoners in China Are Still Being Used as Organ Donors, Says Inquiry."
- 312 There are many ways to explain the role played by the medical elites. The most generous might be that while they felt the allegations of crimes against humanity could not be verified one way or the other, they were assured that their support for China's transplant leadership was vital for helping to push through genuine reforms.
- 313 van der Made, "Were Human Organs Stolen in 20-Year Conflict between Beijing and Falun Gong?" Menon, "CBC Still Tinkering with Falun Gong Documentary."
- 314 van der Made, "Were Human Organs Stolen in 20-Year Conflict between Beijing and Falun Gong?"
- 315 NTD on China, "European Parliament Addresses Forced Organ Harvesting in China."
- 316 McGuirk, "Lawyers Take Chinese Organ-Harvesting Claims to Australia."
- 317 McGuirk.
- 318 Cook, "The Battle for China's Spirit: Falun Gong."
- 319 With thanks to Wendy Rogers for highlighting the applicability of this concept and helping to refine its application.
- 320 Kriebel et al., "The Precautionary Principle in Environmental Science"; Zander, The Application of the Precautionary Principle in Practice: Comparative Dimensions; Steel, Philosophy and the Precautionary Principle.
- 321 Or as put by Fisher, Jones and von Schomberg, "At its most basic, the precautionary principle is a principle of public decision making that requires decision makers in cases where there are 'threats' of environmental or health harm not to use 'lack of full scientific certainty' as a reason for not taking measures to prevent such harm." Cf. Fisher, Jones, and von Schomberg, Implementing the Precautionary Principle: Perspectives and Prospects.
- 322 Tatlow, "Submission to the China Tribunal."
- 323 For instance, Chinese authorities would need to provide public access to all of the official transplant registries listed in Table 1, with patient data properly anonymized. They would also need to allow researchers to gain direct access to Hospital Information Systems at relevant institutions, again with transplant data properly anonymized. At the same time, it is unlikely that such access would ever be granted, or, if it were, that any guarantee could be made as to the reliability of the data so obtained.
- 324 Drawn from Christopher R. Browning's discussion of the functionalist/ intentionalist controversy in Holocaust Studies during the 1970s and 1980s. Cf. Browning, Nazi Policy, Jewish Workers, German Killers.
- 325 China Tribunal, "Final Judgement Report."

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Previously he has worked as a reporter, researcher, and translator for several nonprofit organizations, and as an interpreter (from Chinese) for financial services firms. His research using statistical forensics to demonstrate the falsification of Chinese organ donor registry data was published in the leading journal of medical ethics, *BMC Medical Ethics*. Other peer-reviewed publications he has co-authored have appeared in *BMJ Open* and *The BMJ*.

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## A NOTE FROM THE AUTHOR

have been learning and writing about organ transplantation in China for nearly eight years, first as a news reporter and now as a research fellow and political science doctoral student. When I first encountered the issue professionally, I was of the vague sense that the abuses alleged in the original works on the topic by David Matas and David Kilgour had largely ceased, or at least diminished considerably. After much negative attention, how could they not have? The extensive, continued research and writing efforts of David Matas, David Kilgour, Ethan Gutmann, the investigators they worked with (including Grace Yin, now operating the China Organ Harvest Research Center), and the individuals associated with the World Organization to Investigate the Persecution of Falun Gong, from 2014 onwards, particularly through 2016-2017, have collectively demonstrated this not to have been the case. While few people know the scale of China's organ transplantation system, either in the past or currently, it is clear from all of the aforementioned works that it is quite beyond the superficial official representations that have been too readily accepted by established international observers. The current report is my best attempt to make a modest contribution to this literature at a period of rapid change in public and elite understanding of the issue. It owes a great deal to those foundational works and their authors.

This report sits at an awkward intersection between scholarship and advocacy. It does not adhere to any particular methodological approach and does not stake out any theoretical contribution to any field of political science. It proceeds inductively, first providing a series of descriptions, explanations, and "facts" (as best we could figure them) of a highly opaque system, before presenting a positive argument, implicitly modeled on Inference to the Best Explanation, as to how that fact pattern should be interpreted and understood. It ends with hortatory arguments and explicit recommendations for major human rights groups, medical organizations, governments, and media outlets to rethink their approach to this issue based on the precautionary principle.

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