A Costly Illusion? An Empirical Study of Taiwan’s Use of Isolation to Control Tuberculosis Transmission and its Implications for Public Health Law and Policymaking

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Abstract

The resurgence of tuberculosis (TB) and the emergence of multidrug-resistant TB
have resulted in the detention of patients in a number of international jurisdictions since
the 1990s, including in Taiwan. The Taiwanese government adopted isolation as an
official policy to control TB’s spread in its 2006 Ten-Year Mobilization Plan, whose goal
is to halve TB incidence from 66.7 per 100,000 persons to 34 per 100,000 persons. The
isolation program allows treating physicians to nominate patients for isolation while
public health officials may also isolate patients if necessary. Hospitals providing care to
isolated patients would be reimbursed from the budget of the Centers for Disease Control
(CDC) based on payment standards set by the National Health Insurance program (NHI)
rather than from the NHI’s pool based on floated point-values under the NHI’s global
budget scheme.

An empirical study was designed to specify how Taiwan’s stated isolation regulatory
scheme was implemented during its first three years (2006-2008). Results were then
examined for relevant implications for public health law and policy in Taiwan using
Lawrence Gostin’s evaluation framework for public health regulation. Qualitative
semi-structured interviews were conducted between March and July 2009 with two
groups: local health officials (fifteen individuals from ten local health administrations)
and health care workers at hospitals designated for isolation (fourteen individuals from
eight sites).

Interview results revealed that treating physicians played a critical role in initiating
the isolation processes. Treating physicians identified TB patients who had sputum smear
positive test results and consented to hospitalization to the local health administration as
candidates for isolation. A strong correlation was found to exist between treating
physicians’ referrals for isolation and the full reimbursement incentives provided by the
government’s isolation program. Local health officials were found to be deferential to
physicians’ referrals in the review process but were more conservative in initiating
isolation themselves. Only a few isolation processes were initiated by public health
workers to ensure treatment of allegedly uncooperative or non-compliant patients, but
these patients were typically from socially vulnerable groups. Interestingly, some
allegedly uncooperative patients were not pursued for isolation, and those isolated did not
always complete a full course of treatment.

The actual application of TB isolation regulatory scheme raises concerns about the
legitimacy of isolation as a public health policy in view of Gostin’s five-criteria public
health regulation framework: significant risk, the effectiveness, the reasonable cost, the
least restrictive measure and the fairness. The interview results suggested that to
implement successful tuberculosis control while giving consideration to personal burdens,
policy-makers need to pay more attention to the regulatory design to ensure that the
exercise of isolation power is necessary, unbiased, and procedurally guarded. Specialized
hospitals with proper security, personnel and facilities are also crucial in assuring the
effectiveness of isolation by providing a suitable environment and essential medical
services for isolated patients.
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Introduction

Despite decades of efforts, tuberculosis (TB) remains a global health concern. In 2008, an estimated 1.8 million people died from TB (about 4500 deaths a day).\(^1\) Many prosperous countries have experienced a significant reduction in the burden of the so-called “white plague” during the 20\(^{th}\) century, however, TB has reemerged with the HIV/AIDS pandemic and in a more problematic, drug-resistant form.\(^2\) This growth in multidrug-resistant tuberculosis (MDR-TB) incidence, TB that is resistant to two of the most effective first-line drugs, highlights the complexity of eliminating TB because these patients may not have response to effective treatment that has been available for more than half a century. They not only imperiled their own lives since they have higher mortality rates and lower cure rates than those with drug-susceptible TB,\(^3\) but also impose a transmission risk to the public. For example, the incident in May-June 2007 involving a U.S. MDR-TB patient, who allegedly disregarded public health department advice to postpone his travel plans when the patient flew to Italy from Atlanta for a honeymoon, raised the question of individual’s ethical duty not to cause the infection of others and as well as the justifiability of the state’s power to limit individual’s liberty in the era of MDR-TB.\(^4\)

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3 Multidrug-resistant TB (MDR TB) is TB that is resistant to both isoniazid and rifampin. These two drugs are considered first-line drugs and are used to treat all persons with TB disease. Treatment of MDR-TB relies on second-line drugs (amikacin, kanamycin, or capreomycin), which have more side effects, are more expensive and less effective than first-line drugs, and require longer treatment regimens. See U.S. Centers for Disease Control and Prevention, Plan to Combat Extensively Drug-Resistant Tuberculosis: Recommendations of the Federal Tuberculosis Task Force, 58(RR-3) MMWR 1, 2 (2009).
Since the 1990s, personal control measures have surfaced in several international jurisdictions as a part of TB control strategies although reasons for the increasing cases of TB and the emergence of MDR-TB in these countries are multifaceted. Public health policymakers and physicians emphasized the fact that many patients failed to take their pills, resulting in failure and relapsed treatment. Most of the attention is on the management of patients not complying with their treatment regimen, resulting in calling for the use of a therapy administered under direct observation. Directly observed treatment (DOT) refers to the practice where a public health agent physically observes the patients to intake their medications. To add weight to the DOT program, detention was used as a public health intervention not only to prevent transmission but also to ensure patients’ compliance with the treatment regimen even during the time that they were not infectious.

Ethical and legal issues about the legitimacy of detaining noninfectious but non-adherent patients in order to prevent the development of drug resistance were amplified and became more complicated with XDR-TB patients. This was evidenced by the prolonged detention of a TB patient with an extensively drug-resistant strain in a prison cell in Arizona. To prevent transmission of XDR-TB during the initial stage of monitoring their treatment responses, patients may need to be isolated. Because a

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6 See U.S. Centers for Disease Control and Prevention, A Strategic Plan for the Elimination of Tuberculosis in the United States, 38(S-3) MMWR 1 (1989) (reported that almost 12% of patients are not known to be currently receiving therapy, and more than 17% of tuberculosis patients do not take their medication continuously).

7 See id.

8 See Michael D. Iseman et al., Directly Observed Treatment of Tuberculosis — We Can’t Afford Not to Try It, 328 NEW ENG. J. MED. 576, 576 (1993).


10 See Martin Kasindorf, Man with Tuberculosis Jailed as Threat to Health; Judge Orders Isolation for not Wearing Face Mask, USA TODAY, April 12, 2007, at A4.
prolonged treatment regimen is inevitable, they may require extensive isolation even when they adhere to their treatment. Even worse, the appearance of XDR-TB may ironically bring us back to the beginning of TB control in the late nineteenth and early twentieth century, when patients were segregated from the public without being given a promising treatment and the truth behind this is that, there is none. However, these patients might thus be isolated indefinitely. Unfortunately, this situation has already occurred both in the United States and Taiwan.\footnote{See id; Wen-Ji Cai & Chang-Min Wang, A man with XDR-TB isolated indefinitely, \textit{LIBERTY TIMES}, June 3, 2009, at A9.}

In responding to the alarming emergence of XDR-TB cases, the WHO recognized the possibility of restrictions to individual liberty in the interest of safeguarding the public; however, it also acknowledged the significance of setting limitations on the government’s power of detention. In January of 2007, the WHO issued cautionary guidance about the use of detention, and it asserted that restrictions are justifiable if the five criteria defined in the Siracusa Principles adopted by the United Nations Economic and Social Council are met, and restrictions are of a limited duration and subject to review and appeal.\footnote{World Health Organization, \textit{WHO Guidance on human rights and involuntary detention for xdr-tb control}, at http://www.who.int/tb/features_archive/involuntary_treatment/en/index.html (last visited January 14, 2010).}

In Taiwan, the shocking SARS epidemic and the political will to keep pace with the WHO’s global anti-TB efforts triggered the revival of Taiwan’s TB control efforts in 2006. As a parallel project to the Stop TB plan led by the WHO, the Centers for Disease Control (CDC) under the Department of Health of Taiwan (DOH) launched a Ten-Year Mobilization Plan aimed at halving TB incidence from 66.7 per 100,000 persons to 34 per 100,000 persons by 2015.\footnote{Department of Health, Executive Yuan, Mobilization Plan to Halve Tuberculosis Incidence in Ten Years, \textit{available at} http://www.cdc.gov.tw/public/Attachment/85221083271.pdf (last visited February 3, 2010).} The plan adopted multiple control methods, including a comprehensive DOTS (Directly observed therapy, short course) strategy for all patients with smear positive test results as well as a compulsory isolation program authorized in 1999 by the Communicable Disease Control Act (hereafter the Act). The health authorities’ willingness to exercise the legal power of isolation on TB patients represented a departure from previous voluntary control strategies.

Although containing the spread of TB is a legitimate public health concern, the historical use of detention warns that no matter how well-intentioned, restrictive power
has the potential to be abused. After the first year of the Ten-Year Mobilization Plan, CDC data indicated that 1,312 people (out of 15,378 newly registered cases or 8.53 %,) were subjected to mandatory isolation care in 2006.\footnote{See Centers for Disease Control Press Release, Help Yourself and Others Will Help You, Tuberculosis Can Be Cured with DOTS, June 15, 2007, at http://www.cdc.gov.tw/ct.asp?xItem=2011&ctNode=1515&mp=230 (last visited February 3, 2010).} This number is extremely high considering that only 139 people out of 8,000 patients (1.73%) were detained for treatment over a two-year period when New York City (hereafter NYC) was at its historical peak of TB cases in the 1990s.\footnote{See Gasner, et al., supra note 9, at 362.} As a result, this calls for attention to the legitimacy of compulsory interventions.

To justify the adoption of compulsory interventions, scrutiny of its use is indispensable. This article explores the questions of how justifiable the use of isolation on Taiwan’s TB patients is, and whether isolation was warranted to control TB. An empirical study was designed to specify how Taiwan’s stated isolation regulatory scheme was implemented during its first three years (2006-2008). Qualitative semi-structured interviews were conducted with twenty-nine Taiwanese health care workers and officials involved in the implementation of the regulatory scheme. The results are then analyzed to determine whether the isolation was warranted as a strategy to control TB in an effort to inform future public health policymaking.

Explanations of terminology need to be provided for clarification because there is a lack of precise definition of a variety of public health disease control measures in Taiwanese laws and regulations, and a number of improper terms are used in several regulations. For example, while “isolation” is defined as “the separation, for the period of communicability, of known infected persons in such places and under such conditions as to prevent or limit the transmission of the infectious agent” because modern science can usually identify whether a person actually has an infectious condition via testing or physical examination,\footnote{Id. at 210.} English literature commonly uses the term “detention” in discussing personal restrictions on TB patients commonly uses the term “detention.” Also, in NYC’s TB regulations, the term “detention” is used to refer to the physical confinement of a patient with active TB against his/her will in a hospital or other treatment facility. Detention orders may be issued to both patients who are infectious or noninfectious. To avoid confusion, the term “detention” is used instead of “isolation” when quoting bibliographic sources. On the other hand, several terms are used...
interchangeably, such as “isolation care,” “mandatory isolation care,” “compulsory hospitalization,” and “compulsory hospitalization isolation care” in the Act and regulations promulgated by the DOH and CDC. For clarification, this article uses the term “isolation” to denote the legal power of health authorities authorized by the Act to demand that individuals with a communicable disease stay in a designated facility to receive treatment. However, when reporting interview results, the term “compulsory hospitalization” may be used when I quote interviewees’ words.

This article proceeds in three parts. Part I lays out the background information regarding the biological and epidemiological aspects of TB. It also provides an overview of the use of detention power in controlling TB worldwide as well as Taiwanese TB isolation regulatory scheme — including the two channels under which the isolation process can be initiated, the procedural requirements, and the reimbursement system. The second part describes the methods and presents the results from interviews with local health officials, physicians, nurses, and TB case managers. In addition, this section discusses the ramifications for the actual practice of isolation in view of Lawrence Gostin’s five-criteria evaluation framework for public health regulations, including the significant risk, the effectiveness, the reasonable cost, the least restrictive alternative, and the fairness of the regulations (Table 1). After presenting interview results, the third section further elaborate on the contribution of the empirical study to the regulatory design of a legitimate TB isolation program.

<table>
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<th>Table 1. Gostin’s Framework for Evaluating Public Health Regulation</th>
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I. Tuberculosis and Control Strategies

A. What is TB and How is it Spread

TB, historically referred to as consumption in Europe and America, was believed to be a disease acquired as a result of environmental conditions and hereditary predisposition. But Robert Koch’s 1882 discovery of the bacterium that causes TB led to a fundamental change in the understanding of this disease. TB is now known to be an airborne infectious disease spread from person to person, usually through coughing, sneezing, speaking, or singing. The bacterium that causes TB, *Mycobacterium tuberculosis* (*M. tuberculosis*) or *tubercle bacilli*, may infect almost any part of the body, such as the brain, kidneys, or spine. Most commonly, TB attacks the lungs when bacteria enter the airways of a non-infected person. Extra-pulmonary TB is more common in immune-suppressed persons and in young children.

In most cases, those patients infected with TB do not have noticeable symptoms nor are they contagious to others. Usually the body’s immune system can effectively suppress the invasion of the bacteria but a small number of tubercle bacilli may still survive. At this point in time, the disease enters an inactive stage, called latent tuberculosis (LTBI). People with LTBI will develop a positive reaction to a tuberculin skin test. They cannot eliminate the TB bacteria without proper antibiotics. The *tubercle bacilli* may remain dormant for a variable length of time, maybe for life, but infected persons remain at risk of developing the disease at any time, especially if their immune system weakens. If bacteria at some point overcome immune system defenses, they may begin to multiply,

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19 It was named tuberculosis because after the TB bacteria enter the lungs, they remain inactive in the air sacs where they are enclosed in hard grey capsules, called tubercles. See Henry I. Bowditch, *Consumption in America, in From Consumption to Tuberculosis: A Documentary History* 57, 58 (Barbara G. Rosenkrantz ed., 1994).


22 See CORE CURRICULUM, supra note 21, at 7.

23 See CORE CURRICULUM, supra note 21, at 25.
resulting in the progression from a TB infection to a TB disease.\footnote{See CORE CURRICULUM, supra note 21, at 7. In the United States, approximately 5\% of persons who have been infected with \textit{M. tuberculosis} will develop TB disease in the first year or two after infection if not treated, and another 5\% will develop the disease sometime later in life. Persons with competent immune function have approximately a ten percent lifetime risk of developing active tuberculosis after a variable period of dormancy if not treated with preventive anti-tuberculosis drug therapy.} Bacteria become active when a person’s immunity is reduced, such as infection with HIV, advancing age, or diabetes; they can also become active in individuals who are not immune-compromised.\footnote{See CORE CURRICULUM, supra note 21, at 8.}

The risk of transmitting any type of TB depends on several factors, including how advanced the disease is in the patients, the duration of exposure, and the ventilation.\footnote{See CORE CURRICULUM, supra note 21, at 6.} Both regular \textit{tubercle bacilli} and drug-resistant \textit{tubercle bacilli} become aerosolized when a person with TB disease of the lungs or throat coughs, sneezes, speaks, or sings. These bacteria can survive in the air for several hours, depending on the environment.\footnote{See CORE CURRICULUM, supra note 21, at 6.} Although TB can be spread to others without intimate or even physical contact, it is not as contagious as many airborne viral infections, such as measles and chicken pox.\footnote{See OFFICE OF TECHNOLOGY ASSESSMENT, UNITED STATES CONGRESS, THE CONTINUING CHALLENGE OF TUBERCULOSIS, 28 (1993) [hereinafter THE CONTINUING CHALLENGE OF TUBERCULOSIS].} Prolonged, frequent, or intense contact with a person with infectious TB is usually required for the disease to spread to an uninfected individual. As a result, close contacts, such as family members, roommates, friends and coworkers are all at a very high risk of becoming infected.\footnote{See CORE CURRICULUM, supra note 21, at 6.} In contrast, a single or a casual contact with an infectious person in a public place (such as subways, airplanes, or movie theaters) usually does not cause the transmission of TB.\footnote{See CORE CURRICULUM, supra note 21, at 6.} The infectiousness of patients diminishes rapidly once effective treatment is initiated, as long as the patient adheres to the treatment regimen.\footnote{See CORE CURRICULUM, supra note 21, at 6.} Within a couple of weeks of starting medication, the patients may become noninfectious, even though the bacteria may still be seen on a direct smear.\footnote{Generally, most studies agree that two weeks of treatment may render a patient noninfectious. See Ian A. Campbell & Oumou Bah-Sow, \textit{Pulmonary Tuberculosis: Diagnosis and Treatment}. 332 BRITISH MEDICAL JOURNAL 1194, 1197 (2006). However, some have cautioned that the claim that patients are no longer infectious after 2 weeks may be misleading. See Kevin Schwartzman & Dick Menzies, \textit{Tuberculosis: 11. Nosocomial disease}, 161 (10) CANADIAN MEDICAL ASSOCIATION JOURNAL 1271, 1274 (1999) (states that patients who are initially smear positive may remain contagious as long as their cultures are positive even though they may be smear-negative after treatment).}
B. Strategies to Treat TB

Before TB was generally accepted as an infectious disease, its “treatment” focused on building resistance in the patients’ bodies. In Europe and the U.S., private sanatoria, usually located in remote areas, were established to provide fresh air, bed rest, nutritional support, and gradual exercise, which were believed helpful to regain health. For example, Dr. Edward Livingston Trudeau, diagnosed with consumption, pioneered the establishment of sanatoria to treat TB patients in the United States, prompted by his own experience of benefiting from fresh air in the Adirondack Mountains. After his Cottage Sanitarium at Saranac Lake was opened in 1885, similar institutions were established across the United States. Because these facilities were usually located in the mountains, they segregated ill individuals from the community for years and arguably protected the general public from infection.

The introduction of curative antibiotics for TB in the late 1940s brought great hope to eliminate the disease. Although the availability of effective drugs allowed TB treatment to occur on an outpatient basis, drug therapy led to a need to monitor patients’ compliance with the treatment. Currently, TB that is not resistant to drugs can be treated with a six-to-nine month course of “first-line drugs”, including isoniazid and rifampin; this treatment cures over 95 percent of patients. MDR-TB, TB that is resistant to isoniazid and rifampin can be treated by so-called “second-line drugs” by means of a strictly supervised 18-24 month regimen. However, these drugs are far more expensive, more toxic, and less effective, making patient adherence to treatment more challenging.

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33 The concept that tuberculosis patients could be cured by rest in fresh air dated back to 1854, when a German physician, Hermann Brehmer, established an institution for treating tuberculosis patients in the mountains of Silesia. His work gave impetus to the sanatorium movement all over Europe and inspired Dr. Edward Livingston Trudeau, to open a similar institution for tuberculosis patients in the United States. See RENEE DUBOS & JEAN DUBOS, THE WHITE PLAGUE: TUBERCULOSIS, MAN AND SOCIETY 175-180 (1952, reprinted in 1996). See also Medical News, 2 (2869) BRITISH MEDICAL JOURNAL 947(1915)

34 See Medical News, 2 (2869) BRITISH MEDICAL JOURNAL 947(1915); see also Barry R. Bloom & Christopher J.L. Murray, Tuberculosis: Commentary on a Reemergent Killer, 257 SCIENCE 1055, 1099 (1992).


37 See id.

38 See Michael D. Iseman, Treatment of Multidrug-Resistant Tuberculosis, 329(19) NEW ENG. J. MED. 1435 (1993). MDR-TB has an 83-fold greater risk (11.6 percent vs. 0.15 percent) of treatment failure, and a twofold (11 percent vs. 5 percent) greater risk of relapse.
Patients with MDR-TB have higher mortality rates and lower cure rates than those with drug-susceptible TB. Most TB patients can be successfully treated by taking medications regularly, but thoracic surgery may be necessary to treat drug-resistant strains of TB. Extensively drug-resistant tuberculosis (XDR-TB) is a subset of MDR-TB caused by strains of bacteria that are resistant to the most effective first-line and second-line drugs. Reported mortality rates among persons with XDR-TB are extremely high. Treatment failures and subsequent deaths are particularly common among immune-compromised persons.

C. The Exercise of Detention Powers for TB Control Worldwide

At the turn of the 21st century, while TB cases multiplied and MDR-TB emerges in developed countries, measures to ensure treatment became the center of policy discussion. Health authorities placed emphasis on patients’ responsibility to take medication prescribed in order to avoid endangering the health of others. Given that this dominant view of the disease informs control efforts, the use of personal control measures naturally became a weapon of choice to enforce the duty of taking enough pills.

1. The New York City

Confronting the resurgence of TB and the appearance of MDR-TB, NYC revised

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39 But the mortality rate and cure rate of MDR-TB are improving. In a 1993 study of MDR-TB patients treated during 1973 to 1983, the overall cure rate was only 56%, and the overall mortality rate was 37% in spite of intensive hospital-based chemotherapy. See Marian Goble et al., Treatment of 171 Patients with Pulmonary Tuberculosis Resistant to Isoniazid and Rifampin, 328 NEW ENG J. MED. 527 (1993). But in a 2005 study, long-term success rates at the same institution were 75% and death rates were 12%. See Edward D. Chan et al., Treatment and Outcome Analysis of 205 Patients with Multidrug-resistant Tuberculosis, 169 AMERICAN JOURNAL OF RESPIRATORY AND CRITICAL CARE MEDICINE, 1103 (2004). The improvements were associated with surgical resection and fluoroquinolone therapy. See id.


41 XDR-TB is defined as TB that is resistant to isoniazid and rifampin, plus resistant to any fluoroquinolone and at least one of three injectable second-line drugs (i.e., amikacin, kanamycin, or capreomycin). See U.S. Centers for Disease Control and Prevention, Notice to Readers: Revised Definition of Extensively Drug-Resistant Tuberculosis, 55(43) MMWR 1176 (2006).

42 See Edward D. Chan et al., Treatment Outcomes in Extensively Resistant Tuberculosis, 359 NEW ENG J. MED. 657 (2008).


44 The number of reported TB cases in NYC increased by 143% from 1980 to 1991. See BUREAU OF TUBERCULOSIS CONTROL, NEW YORK CITY DEPARTMENT OF HEALTH, TUBERCULOSIS IN NEW YORK CITY: 1992 INFORMATION SUMMARY 1 (1993) [hereafter TUBERCULOSIS INFORMATION SUMMARY]. 19% of individuals with positive TB cultures in April 1991 were MDR-TB. See Thomas R. Frieden et al., The
its TB regulations in 1993 to clarify the authority of the Department of Health to regulate various aspects of TB treatment. To combat the epidemic, NYC introduced traditional control measures, including a continuously updated registry to reflect changes in the patients’ medical status, intensive screening among populations at risk, improved medical services to ensure that patients received adequate treatment, and incentive programs to encourage the voluntary completion of treatment.\textsuperscript{45} Despite the realization that social conditions and public health policy were powerful factors in the reemergence of the TB epidemic, NYC recognized the importance of a legal basis for using coercive measures. Under the 1993 revised TB regulations, detention orders may be issued without prior court approval in three circumstances. First, the Commissioner may issue an order to temporarily detain an individual for the purpose of conducting an examination.\textsuperscript{46} Second, the Commissioner is authorized to seek the detention of patients who are infectious and who present an immediate risk of infecting others.\textsuperscript{47} Third, the health authorities may seek detention is to address the danger posed by patients who are not currently infectious but are likely to become infectious again and to develop a drug-resistant strain.\textsuperscript{48} Retrospective research data shows that from April 29, 1993, through April 29, 1995, there were more than 8000 patients with active TB, and 139 detention orders were issued, representing less than 2 percent of all patients with TB.\textsuperscript{49}

2. Israel

Israel faced increased incidents of TB due to mass immigration from Ethiopia and the former Soviet Union since 1990.\textsuperscript{50} Health authorities adopted a new TB control program in 1997 to implement DOT which is recommended by the WHO as well as to provide free, accessible and complete ambulatory services for all TB patients. In addition, health officials exercised the legal power of compulsory hospitalization on recalcitrant patients as authorized under Section 15(b) of the Public Health Ordinance. Retrospective review of the use of compulsory detention of TB patients reveals that between 1994 and


\textsuperscript{46} \textit{See NEW YORK CITY, N.Y., HEALTH CODE, § 11.47(d)(1)(1993)}.

\textsuperscript{47} \textit{See NEW YORK CITY, N.Y., HEALTH CODE, § 11.47(d)(4)(1993)}.

\textsuperscript{48} \textit{See NEW YORK CITY, N.Y., HEALTH CODE, § 11.47(d)(5)(1993)}.

\textsuperscript{49} Gasner, M. Rose et al. \textit{The Use of Legal Action in New York City to Ensure Treatment of Tuberculosis}, 340(5) NEW ENG. J. MED. 359, 362 (1999).

2001, 13 patients were brought to court proceedings and 11 were detained either in a hospital, a prison hospital or prison. Fewer patients were brought to trial after the new TB control program were launched (6/943, 0.64% in 1994-1996 compared with 7/2113, 0.33% in 1997-2001).  

3. England

Although there was no clear evidence of the resurgence of TB in England, a survey of all 99 health authorities in England and Wales conducted in February of 2000 found that between 1994 and 1999, thirty detention orders authorized under sections 37 and 38 of the Public Health Act 1984 were issued (0.2%); the year of issuance was given for 29. Survey results also show a significant increase of TB detention orders since 1994. The reasons for the increase of detention orders are unclear, but it is believed that “TB outbreaks in health care settings and the scourge of drug resistant and multidrug resistant strains” may play a role.

4. Ireland

Concerning of the legality of the detention power, a survey of respiratory and infectious disease physicians practicing in public sector in Ireland in 2007 reveals that the power of detention of TB patients authorized under Section 38 of the Health Act 1947 continues in active use despite of concerns of the constitutionality of Section 38 and practical difficulties in ensuring security and suitable accommodation for long-term detention patients. A majority of respondents (70 %) had considered seeking a detention order while only 6 people had made proceed and an order was actually issued only in one case. Surprisingly, 70 % of physicians respondents had made use of threats of formal detention in dealing with patients’ compliance problem, and this strategy was successful in 87% of these cases.

These examples of TB detention program worldwide shows the continuing interest

51 Id. at 52
53 Id.
55 Id. at 82.
of public health officials in using personal control measures on TB patients. However, depriving an individual’s liberty as a TB control measure affects substantial personal interests: the loss of freedom, privacy, and autonomy in deciding to receive treatment and the side effects of prejudice and discrimination directed at people subject to isolation. Continuing examination of the legal basis and investigation of the actual practice are needed to assure the reasonable exercise of detention power.

D. Taiwan’s Tuberculosis Isolation Program

1. Epidemiological background

In the last few decades, Taiwan has made substantial progress in reducing the burden of TB, as evidenced by a drastic drop in TB mortality rates, from 294.44 per 100,000 population in 1947 to 3.3 per 100,000 population in 2008.56 This achievement has been construed as evidence of the specialized TB control system’s success at detecting and educating patients as well as improving access to treatment. After the World War II, with aid from the United Nations International Children’s Emergency Fund, the WHO, the Sino-American Joint Commission on Rural Reconstruction, and the Council on U.S. Aid,57 a bureaucratic infrastructure was developed to implement TB control policies, including the Bacille Calmette-Guérin (BCG) vaccination, X-ray and sputum screening, and free medication programs. Patients with serious conditions or in need of surgeries might be admitted to TB control centers, which were previously sanitoria founded during the Japanese colonial era, for hospitalization. By 1985, TB was no longer among the top 10 causes of death in Taiwan.58 Consequently, the publicly-funded TB control system waned and was gradually replaced by a medical system under the National Health Insurance program (NHI), launched in 1995.

Nonetheless great achievements in reducing death rates of TB, the incidence rates remains relatively high. In 2008, Taiwan’s TB incidence rate is 62 per 100,000 population, while the United States rate is 4.8 per 100,000 population and that of Japan’s is 22 per

58 See TUBERCULOSIS CONTROL ANNUAL REPORT, 2001, supra note 56, at 42.
100,000 population.\textsuperscript{59} Moreover, drug resistant forms of TB have become a new public health problem. Since MDR-TB was added into the CDC’s surveillance system in October of 2007, there are more than 150 new registered cases each year.\textsuperscript{60}

In response to the political agenda of strengthening connections with the WHO’s global anti-TB efforts, Taiwanese government launched a Ten-Year Mobilization Plan, aimed at halving incidence rates from 66.7 per 100,000 persons to 34 per 100,000 persons by 2015.\textsuperscript{61} The DOTS (Directly observed therapy, short course) program, recommended by the WHO as an international standard to control TB, was adopted in efforts to provide supervised treatment from government agents — vie, the DOTS care workers. Moreover, the government demonstrated its willingness to use a more coercive form of measure in the Plan: It planned to provide infectious TB patients with “mandatory isolation care,” a public health intervention authorized under Article 44 of the Act. This is the first in Taiwan’s TB control history that the health authorities adopted personal control measures as a strategy.

2. The Regulatory Framework for TB Isolation

The Act and related regulations allows treating physicians to nominate patients for isolation while public health officials may also isolate patients if necessary. Patients subject to isolation orders should be treated at designated hospitals which would be reimbursed from the government’s budget based on payment standards set by the NHI. Under the authorization of Article 44 of the Act, competent authorities (i.e., the DOH, the municipality and county governments) may isolate TB patients in designated hospitals if


necessary. To guide the implementation of the isolation measure, the DOH promulgated the “Procedure of Operation for Isolation Care and Reassessment of Patients with Notifiable Communicable Diseases” (hereafter the Procedure) and related forms, allowing the isolation process to be initiated by sending a referral to nominate patients for isolation under either of the following two scenarios: (1) treating physicians may send a referral bearing the seal of the hospital to local health administrations if, in their opinion, a patient needs isolation, or (2) workers at township health centers may fill out a referral to their local health administrations to request an isolation order if they come across patients who are not compliant with treatment. If local authorities approve the referral, Article 44 Paragraph 2 of the Act requires issuance of a notice for isolation to the patient, requesting submission to a designated treatment institution (Figure 1). As of 2008, 136 hospitals equipped with qualified isolation facilities were appointed by the DOH as responsible institutions for providing inpatient care for patients with notifiable communicable diseases.

At the launch of the isolation program, on March 1st of 2006, the CDC sent local health administrations an official document, requiring local health administrations to enforce isolation on smear-positive patients and those who were homeless, living in congregate facilities or uncooperative. The CDC also issued guiding principles to specify conditions under which patients with sputum smear-positive test results could be exempted from mandatory isolation and to define discharge requirements. According to the “Principles for Tuberculosis Compulsory Hospitalization Isolation Care,” and “Conditions of exemption from Compulsory Hospitalization Isolation Care” (hereafter the Guidelines), patients with sputum smear-positive test results who have been subjected to mandatory isolation should not be discharged unless: (1) patients have taken standard

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62 These documents were previously adopted in a manual published by the CDC for public health workers. See CENTERS FOR DISEASE CONTROL, DEPARTMENT OF HEALTH, EXECUTIVE YUAN, TUBERCULOSIS CONTROL MANUAL, 32-33 (1st ed. 2002) [hereafter TUBERCULOSIS CONTROL MANUAL 2002]

63 Centers for Disease Control Department of Health, Administrative Yuan, Notice number 0930021540, December 21, 2004; Department of Health, Administrative Yuan, Notice number 0960000722, September 6, 2007.

64 Centers for Disease Control, Department of Health, Executive Yuan, Notice number 0970000435, August 8, 2008. The Department of Health’s power to designate hospitals is currently authorized under Article 14 Paragraph 4 of the Communicable Disease Control Act.

65 See Centers for Disease Control, Department of Health, Executive Yuan, Notice number 0950003403, March 1, 2006 (copy on file with author). The document stated: “To eliminate the source of infection in communities, and to achieve the goal of halving the tuberculosis rate in ten years, those who are confirmed TB cases with sputum homeless, residents of congregate facilities (such as nursing homes or psychiatric hospitals), or uncooperative cases should be given preference — shall be forcibly sent to ‘Designated Hospitals for Infectious Disease Isolation Care’ for isolation. They cannot be discharged until two weeks after the hospitalization or until they have sputum smear-negative test results.”
anti-TB medication for two weeks, (2) there have been three sequential sputum smear-negative test results, and (3) clinical conditions have improved. Homeless patients or “uncooperative cases” should not be discharged until completing their treatment. Moreover, patients with sputum smear-positive test results can be exempted from mandatory isolation if: (1) their treatment can be monitored by public health nurses, (2) they started to take standard anti-TB medication and the DOTS program has been offered and accepted, (3) there are no children under 4 or immunosuppressed persons living in the same household, (4) there will not be any new contacts in the patients’ households, and (5) patients agree not to go out for other than medical-related matters and to wear masks.

**Figure 1: Two Scenarios for Referrals to Request Isolation Orders**

The treating physician sends a referral

Workers at township health centers fill out a referral

Referral approved by Local health administrations

Isolation notice served to patient, requiring submission to a designated hospital

3. The Reimbursement Scheme

Although the Act requires the DOH to cover the cost of treating patients subject to isolation orders, it was not until 2006 that the CDC set a budget to establish the reimbursement system. To save the NHI from bankruptcy, in 2005, the government adopted the “multiple micro-adjustment plan,” allowing the costs of preventive care, the treatment for patients with reportable communicable diseases, and subsidies to teaching hospitals — all of which were previously covered by the NHI program — to be paid out.
of the public budget rather than from the NHI pool. From 2006 onward, CDC’s budget covers expenditures for TB isolation cases, but reimbursement is processed by the Bureau of National Health Insurance (BNHI), the single-payer insurer of NHI, which may periodically bill the CDC for repayment.

Compared to reimbursements from the NHI’s pool, CDC reimbursements may have some financial advantages for the hospitals. First of all, claims for services related to isolation are reimbursed at 100% of the payment standard set by the BNHI from the CDC’s budget rather than floated point-values under the NHI’s global budget scheme. To control costs, the NHI has been using a global budget scheme under which medical services are reimbursed through the fee-for-service model within the limit of the global budget determined by the BNHI. Because of the cap’s constraints, reimbursements are based on floated point-value multiplied by the price set by the BNHI, and the point-value is negatively associated with the total service volume. As a result, if the nationwide service volume increases, the point-value goes down. Since this system was applied to hospital services in 2002, the point-value has always been less than a dollar per point. However, CDC reimbursements guaranteed full payment of covered services related to TB isolation cases. For example, one isolation bed may receive 1,786 points/per day for reimbursement according to the BNHI’s payment standard. Hospitals could receive 100% of the 1,786 points/per day if qualified for CDC reimbursement. Under the global budget scheme, however, the point-value for inpatient services of hospitals was on average 0.8886 in 2006. Hospitals could be reimbursed for only 1,587 point/per day (88.86% * 1,786). In addition, even if hospitals increased the volume of CDC-covered services, this growth of expenses would not have a negative impact on the point-value of other services covered by the global budget scheme.

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67 See Shou-Hsia Cheng et al., Hospital Response to a Global Budget Program under Universal Health Insurance in Taiwan, 92 (2) HEALTH POLICY 107 (2009).
68 Since the increased service volume covered by the CDC’s budget would not have negative impact on the point-value, hospitals would have less incentive to “police” inappropriate practices taken by others, which is a significant advantage of the global budget scheme in reducing expenses.
II. Implementation of Taiwan’s TB Regulation

A. Methods:

After receiving approval from the Human Subjects Division of the University of Washington, the author conducted a series of semi-structured interviews with two groups of informants between March and July 2009 in order to investigate how the TB isolation regulations have been applied: (1) officials from local health administrations who were charged with implementing the isolation regulation, and (2) health care workers at designated hospitals, including physicians, nurses and TB case managers. Interviews with physicians helped me understand their decision-making process for sending referrals. I chose to interview nurses and TB case managers.

Officials were recruited with the assistance of letters and referrals by a DOH official to seven local health administrations in the top ten counties/cities with the highest number of newly registered TB cases in 2006. The reference letter, in addition to a supplementary letter explaining the purpose of the research and showing sample interview questions, was faxed to the director or deputy director’s offices. The author arranged interviews with officers who agreed to be interviewed. Additional interviewees were recruited through referrals through mayors’ offices in three county/city governments who identified officials responsible for TB control in local health administrations.

A total of eleven interviews were conducted with fifteen officials from ten local health administrations (referred to as county/city A to J), which accounted for 62.03% (9,540 out of 15,378) of all newly registered cases in 2006 in Taiwan. Because the process for approving a referral involved obtaining signatures from the responsible official (i.e., those who first review referrals), the head of the local disease control division, and the director or deputy of the local health administration, this group of interviewees included officials with these three job titles. Among them, eight were responsible officials, four were heads of the disease control division of their local health administration, one was a deputy director, and two were directors of local health administrations.
The second group contained health care workers at designated hospitals, including physicians, nurses and TB case managers. Interviews with physicians helped me understand their decision-making process for sending referrals. I chose to interview nurses and TB case managers because they were likely to have the most direct contact with TB patients subject to isolation. Head nurses at the isolation wards manage all patients admitted into the ward; TB case managers are the contact people in the hospitals for TB-related matters. The BNHI requires hospitals reporting over one hundred TB cases a year to have TB case managers. Usually, they are senior nurses who receive additional training and education about TB control. They track patients’ revisits, educate patients on health matters, update patients’ information in the central database, and coordinate patient management with public health nurses and local health officials. Essentially, TB case managers are responsible for all TB-related matters in the hospitals.

To recruit this group, I asked local health officials after I conducted interviews with them if they could refer me to health care workers at designated hospitals. When officials agreed, they called the potential interviewees to determine if they were willing to be interviewed. I then faxed or emailed a letter explaining the purpose of this research and provided sample interview questions. A total of eleven interviews were conducted with fourteen health care workers from eight designated hospitals. The interviewees consisted of chest and infectious control physicians (n=6), head nurses of the isolation wards with more than fifty beds (n=2), and TB case managers (n=6). Of the eight designated hospitals visited, two were private and six were public hospitals, located in eight counties/cities.

These twenty-two interviews were all conducted in person. Most (17/22) were done on a one-on-one basis; the rest were conducted with two or three interviewees at once due to limited available time. Interviews lasted one hour on average (range 45 to 120 minutes). Prior to the interview, informants were given a copy of the informed consent form, explaining the purpose of the interview and stating that their conversation would be kept confidential, and their remarks anonymous. To do so, they are referred to by code instead of their names and titles if I quote their words when I report interview results. Written consent from the interviewees was received before the start of the interview. Interviewees were then asked to respond to a series of questions (Appendix A). Although a list of interview questions was prepared to ensure all areas of interest were covered, all of the questions were not asked, depending upon the flow of the interview. There was follow-up on interesting responses when interviewees revealed some new information or interesting
perspectives. To ensure that these interviewees felt comfortable enough to talk candidly, no interviews were recorded but notes were taken on interview transcripts prepared in advance. Because these interviewees were purposely selected, the results may not necessarily be generalizable to other local health administrations and hospitals. There is no guarantee that this purposive sample was an accurate representation of the whole public health and medical care communities.

B. Interview Results

1. Process Prompted by Treating Physicians

Number of Notices

Except for the reported 1,312 patients subjected to isolation care orders in 2006, no figures regarding the number of isolation notices issued have been published since the law came into effect in 1999. To know how frequently isolation measures were used, I requested local health officials regarding the number of notices issued. A few interviewees provided me with the number by looking it up on their computers. But more commonly, they needed to find old files and count the copies of notices. During some occasions, the files were either stored in warehouses or could not be tracked down; this made it difficult to compile complete data. Based on the available data from 2006-2008, on average over 95% of isolation processes were prompted by treating physicians’ referrals (96.89%, 2006; 97.16%, 2007; 93.32%, 2008)

Grounds for Physicians’ Referrals

To understand the physicians’ basis for sending referrals, I asked local health officials about the referral content. Most officials (6 out of 9) mentioned the sputum smear-positive test result and some description of the patient’s clinical condition. Other answers included chest X-ray results and comments about patients’ noncompliance with

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69 In the updated Tuberculosis Control Manual of 2009, local health administrations are required to report isolation cases to the CDC monthly. If this requirement is enforced, the CDC should have complete statistics regarding isolation cases for tuberculosis patients after 2009.

70 Interview with LHOB4 92-93-42, March 18, 2009; Interview with LHOD23-91-94, March 13, 2009; Interview with LHO42-72-72, March 27, 2009; Interview with LHO1 93-61-93, April 14, 2009; Interview with LHO2 53-23-73, April 14, 2009; Interview with LHO53-41-62, April 15, 2009; Interview with LHO1 41-93-42, June 3, 2009; Interview with LHO2-23-61, April 1, 2009; Interview with LHO1 53-93-91, June 9, 2009.
In spite of these general answers, seven interviewees’ comments suggested that physicians’ decisions in sending referrals might have been motivated by the financial incentive provided by the government’s reimbursement policy. For example, during my interview with an official with over twenty year’s experience in TB control, s/he brought out a stack of files and put them on the desk, then, s/he suddenly raised her/his voice and said: “You said you want to know why physicians send these referrals? Then, you do not need to ask physicians. It is the hospital administrative managers’ idea to send these referrals.” S/he explained with anger that since the cost of isolation was paid by the CDC instead of being covered by the Global Budget scheme of the National Health Insurance program, treating physicians’ referrals were ‘as numerous as snowflakes.’

Six other respondents’ answers to the question in relation to the conditions under which treating physicians would send referrals also indicated that a correlation exists between physicians’ decisions to send referrals and the intention to receive reimbursement from the government. The respondents replied that the physician would generally send a referral if “the physician and the patient had reached a consensus on admission; sending the referral is for payment purposes.” Because the reimbursement for isolation comes from the CDC’s budget rather than the BNHI, claims for isolation care would not be reviewed and/or denied; hospitals liked the 100% reimbursement from tax money for isolation since they had to find a way to use their idle isolation rooms anyway. But “not every hospital sent referrals, even though they had negative-pressure facilities for the isolation of infected patients. Some physicians were worried about the risk of cluster infections in hospitals.” In addition, one respondent, in answering the question “On what grounds did physicians send referrals?” gave a detailed account of the isolation policy. S/he stated that “After SARS, we think we need to preserve the resource and capacity of disease control and focus on TB and AIDS at peace time. We are concerned that these two diseases may converge in the near future; therefore, we

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72 Interview with LHOF 42-72-72, March 27, 2009; Interview with LHOA53-41-62, April 15, 2009; Interview with LHOG1 41-93-42, June 3, 2009; Interview with LHOJ42-74-61, June 29, 2009; Interview with LHOH42-93-23, May 13, 2009; Interview with LHOI1 93-61-93, April 14, 2009; Interview with LHOC42-23-61, April 1, 2009.
73 Interview with LHOF 42-72-72, March 27, 2009. In Taiwan, physicians working in hospitals are hospital employee, rather than independent contractors.
74 Interview with LHOF 42-72-72, March 27, 2009.
75 Interview with LHOA53-41-62, April 15, 2009.
77 Interview with LHOC42-23-61, April 1, 2009.
encourage utilization of negative-pressure isolation rooms, so we reimburse the isolation care from the public budget to encourage physicians to use isolation measures. The physicians are the most difficult to manage, so we need to put an incentive on the table. Physicians are looking for financial benefits that comply with the state’s public health policy as well. If the criteria are met, patients may be admitted into the isolation room….The isolation policy might not be perfect, but the government is learning by doing.”

On the other hand, the physicians I interviewed had diverse answers concerning how they decided whether or not to send a referral. Two physicians revealed that they had never filled out a referral. Respondent HCWP53-41-91, who is an infectious disease specialist, explained that usually s/he would be called for medical counsel when a hospitalized patient was suspected of having TB. Whether to send a referral was the attending physician’s call, not hers/his. S/he also revealed that medical centers usually do not like to admit TB patients due to concerns about cluster infections and high demand for beds for acute patients. The other physician, who reported that s/he never sent a referral, gave a detailed explanation for her/his reluctance to do so. S/he firstly expressed her/his doubt on the adequacy of the isolation policy by criticizing that targeting sputum smear-positive patients for isolation is meaningless because usually these patients have been infectious for quite a long time before being diagnosed with TB; those who are at high risk of being infected, such as family members in the same household, might have already been infected. Under these circumstances, isolating patients in a hospital for weeks upon diagnosing until their smear test turns negative is unlikely to prevent the spread of infection. In her/his opinion, admitting TB patients for isolation makes no difference; it is much more important to ask patients to start taking medications immediately because once they start treatment, the infectiousness can be largely reduced dramatically. For most outpatients, s/he usually would not suggest hospitalization. S/he further explained that some patients might be sent to the emergency room and diagnosed with TB. Normally, under this condition, these patients usually have other more severe medical conditions and often are too sick for outpatient care. In these cases, s/he had never seen any patients who refused to be admitted to the isolation ward,

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78 Interview with LHOB1 93-61-93, April 14, 2009.
79 Interview with HCWP53-41-91, May 19, 2009; Interview with HCWP91-94-72, May 19, 2009.
80 Interview with HCWP53-41-91, May 19, 2009.
81 Interview with HCWP91-94-72, May 19, 2009.
82 Interview with HCWP91-94-72, May 19, 2009.
and that is why there is no need to send a referral for isolation. 83

Four other physicians expressed how they decided whether to send a referral. Physician HCWP53-94-73 said that the use of referrals was extremely discretionary. “It depends on physicians’ conscience and moral standards because the laws are vague, and the purpose of isolation is unclear.” 84 Physician HCWP53-74-91 said s/he prefers to isolate uncooperative patients — such as patients who do not acknowledge their TB disease, patients who would lose contact after discharge, and those whose infectiousness was unlikely to be reduced in two weeks. S/he also revealed that s/he knew that some hospitals took advantage of the payment system in order to shift the cost, but the CDC had recently declared that CDC officials would pay close attention to these cases.

Physician HCWP51-74-83 commented on the use of referrals after asking me about my motivation for doing this research. After I explained the purpose of this study and the interview, s/he asked me: “What motivated you to do this research?” I stated that the isolation program is the first time that the government decided to pursue TB patients for isolation, and the CDC’s news release stated that there were 1,312 patients subject to mandatory isolation care in 2006 according to the CDC news. This raises my interest and curiosity about how the program worked. S/he then told me with an outspoken tone that “a large portion of the 1,312 patients did not meet the criteria for isolation….To my knowledge, most of the isolation cases were due to consideration of receiving full reimbursement from the CDC because under the NHI’s global budget scheme, the payment is less than a dollar per point.” 85 S/he explained that the CDC intended to prevent the spread of infection after diagnosing for two weeks; to do so, it certainly needed to use the payment system to support its isolation policy. In his/her opinion, “the isolation policy is an issue of resource distribution and allocation.” “During the first few years of the isolation program, physicians would send a referral as long as the patient needed to be hospitalized or agreed to be hospitalized.” “In order not to get themselves into trouble, physicians would only send a referral when the patient was in fact willing to be hospitalized.” But the isolation policy might have an adverse effect because “patients stayed home in the past caused an infection of their family members; now patients are admitted to the hospital and may transmit the disease to the people in the hospital.” 86

83 Id.
84 Interview with HCWP53-94-73, April 22, 2009.
85 Interview with HCWP51-74-83, July 13, 2009.
86 Id.
Interesting enough, when the physicians were answering the question regarding factors considered when sending a referral, one physician revealed that s/he had sent two referrals at the request of the responsible official. On one occasion, the patient was a parolee with no money, housing or medication. The responsible official called and asked if s/he could send a referral and admit the patient. With the intention to help, s/he agreed. On the other occasion, the patient was sent to the hospital by the responsible official with assistance from the police. S/he also agreed to send a referral at the request of the responsible official. Besides these experiences, s/he told that s/he had heard peers talking about sending the referral and how it could be beneficial by augmenting the hospital’s revenue.  

Four nurses and TB case managers that I interviewed also provided me with their observation on how physicians decide when sending referrals. Respondent HCWM 94-74-72 said that “I know that hospitals X and Y used to send a referral as long as a patient came. Here, we follow the reimbursement rules.” One nurse said that “our physicians do not like to send referrals but I do know that some people used it a lot. Most of our isolated patients were sent by responsible public health nurses.” S/he further explained that “isolating patients needs patients’ cooperation; if patients do not want to be admitted, we let them go.” Respondent HCWM31-93-92 said, “I don’t know why other people sent a lot of referrals; our physicians are very careful about using [referrals]; isolation represents public power, after all.” One TB case manager, however, revealed that physicians in her/his hospital never sent a referral to local health administrations. Because “at the very beginning of the isolation program, the chief of the chest department of the hospital had made it clear that if patients need to be admitted, persuasion is enough; it is not necessary to use compulsory measures.” But s/he knew some hospitals used referrals for reasons of reimbursement since “under the constraints of the global budget, the reimbursement is less than a dollar per point; but if you meet the criteria of isolation, you get full reimbursement.”

How were Physicians’ Referrals Reviewed?

87 Interview with HCWP31-42-61, June 18, 2009.
88 Interview with HCWM 94-74-72, June 19, 2009. The respondent specifically mentioned the names of two private hospitals nearby. To preserve the respondent’s anonymity, I use X and Y instead of the names of the hospitals.
90 Id.
91 Interview of HCWM51-93-73, June 29, 2009.
92 Id.
Under Article 44 of the Act, patients with notifiable communicable diseases may be isolated in designated hospitals if necessary. According to the Procedure, local health administrations have to review physicians’ referrals and decide whether to approve them. In doing so, the CDC’s Guidelines require officials to take into account several factors when they make decisions regarding isolation; these include whether or not the patient’s treatment can be supervised either by public health nurses or the DOTS program and whether further infection of close contacts can be prevented by taking infection control measures.

When I asked local health officials how they reviewed physicians’ referrals and what factors they would consider in making decisions, four respondents replied to the question by saying that “we respect (trust) physicians’ opinions.”93 Respondent LHOC42-23-61 said that “in principle, we approved all the referrals.”94 Four other respondents, in replying to this question, mentioned the criterion of test results.95 For example, respondent LHOA53-41-62 said that when they are reviewing referrals, the responsible official would first look at medical test results to see whether there was a sputum smear-positive test result. S/he explained that the responsible official and the hospital would communicate via phone calls and reach a consensus before the hospital sent the referral. “Otherwise, our relationship with hospitals would be jeopardized,” s/he said.96 In her/his opinion, “the reviewing process is more like a route to help hospitals complete the administrative requirements.”97 Respondent LHOF42-72-72 answered the question in a straightforward manner by stating, “To be honest, I would not dare to refuse them. As long as the referral indicated that the patient had had a sputum smear-positive test result, I would approve it.”98

Nine officials were asked whether they had ever refused to approve physicians’ referrals, and only two replied that they had done so on a couple of occasions.99 Respondent LHOH42-93-23 recalled that s/he had refused to approve one or two referrals sent by physicians. S/he emphasized that s/he would not blindly approve these referrals, therefore, s/he would call the hospital to find out the degree to which the patient had been

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94 Interview with LHO42-23-61, April 1, 2009.
96 Interview with LHOA53-41-62, April 15, 2009.
97 Interview with LHOA53-41-62, April 15, 2009.
99 Interview with LHO 42-72-72, March 27, 2009; Interview with LHO42-93-23, May 13, 2009.
uncooperative with treatment. If the patient had been admitted and did not show any sign of non-compliance, s/he would tell the hospital staff that the referral would not be approved. Respondent LHOF42-72-72 revealed that she had refused to approve on very limited occasions for the reason that there was not even a sputum smear-positive test result recorded in the referral. S/he complained that when s/he called the hospitals to inform them that s/he intended to disapprove their referrals, s/he would have to argue with physicians. S/he specifically recalled that on one occasion, the treating physician argued that although the patient’s test result was negative, however there is a possibility that s/he might have positive test result next time. Despite this obvious contradiction with the regulatory requirement, s/he did not directly refuse to approve, but simply asked the hospital to provide the supplementary documents or the follow-up test results later.

Procedure for Notice Issuance

The Act and the Procedure require that upon approving a referral, “local health authorities shall fill out the Notice for Isolation Care and send the original copy to the patients or their family through confidential mail and another copy to the isolation care institution.” If patients refuse to comply with isolation orders, the manual states that local health authorities may impose a fine and/or seek assistance from the police. However, interviews revealed that the regulatory notification procedure was seldom followed.

Four officials indicated their practices: (1) hospitals faxed referrals to the local health administration offices; (2) upon approval, notices were faxed to hospitals; (3) patients were asked to sign the notice by TB case managers or nurses; (4) after doing so, notices were faxed to the responsible official. Two officials revealed that hospitals would fax both the referral and the notice with the patient’s signature that proves the receipt of the notice, to the local health administration office; the faxed notice would be

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100 Interview with LHOH42-93-23, May 13, 2009.
101 Interview with LHOF42-72-72, March 27, 2009. Respondent LHOE 74-93-22 indicated that the requirement of sputum smear-positive results in deciding isolation orders is intended to change physicians’ practice of diagnosing tuberculosis. Physicians in Taiwan used to depend on X-rays for tuberculosis diagnosis, which are less reliable than sputum smear test results and inconsistent with the WHO’s guidelines. The CDC, therefore, makes sputum smear test results a criterion for isolation and reimbursement with the expectation of changing the standard of diagnosis for tuberculosis. Interview with LHOE 74-93-22, March 19, 2009. Interview results show that most isolation cases were supported by the sputum smear test results, with very rare exceptions.
faxed back to the hospital after the approval. Nonetheless, they “hardly ever follow the procedural requirement of sending the order through confidential mail to the patient.”

Two other counties/cities simplified the procedure for reasons of convenience. One official revealed that the referral was not used in county/municipal B; they used the Notice only. S/he explained that in the beginning of the isolation program, once patients were admitted for isolation, public health nurses would go to the hospital to ask the patient to sign the notice. But “this paperwork was too exhausting.” Therefore, they asked the hospital to fax the notice with the patient’s signature to the responsible official. After approval, the notice would be faxed back to the hospital. In contrast, official LHOJ42-74-61 reported that the notice form was not used in county/municipal J. S/he explained that upon receiving physicians’ referrals, officials would sign for the approval; “notifying the patient was dealt with by the hospital.”

Health care workers whom I interviewed described a similar practice. TB case managers or nurses at the isolation ward would usually be required to obtain the patient’s signature, although they generally disliked in doing so. For example, one nurse complained that “if physicians would like to isolate their patients, they should go talk to their patients and explain the rules to them.” S/he said that most patients would just sign the notice without asking questions. But if patients did ask what the notice is for, then she/he may employ the most useful tactic in obtaining patients’ signatures by telling them: “Please help me with the form and sign it, so that you can get free hospitalization and meals.”

Grounds for Discharge

The CDC’s guiding principles require evaluation of three conditions before discharging patients with sputum smear-positive tests and are subject to isolation orders: (1) they have taken standard anti-TB medication for two weeks, (2) there have been three sequential sputum smear-negative test results, and (3) there has been improvement shown in their clinical conditions. However, when local health officials were asked how patients

106 Interview with LHOJ42-74-61, June 29, 2009.
108 Id.
subject to isolation orders could be released, their answers revealed that the discharge decision is solely on the decision of the treating physician. In most cases, if the patient had one sputum smear-negative test result, the treating physician would approve for discharge. On some occasions, patients would ask to leave the hospital before their sputum smear tests turned negative, and physicians would agree to discharge them if they have already taken the medication for 14 days on a regular basis. Moreover, some patients were released because of changes of diagnosis or death. Upon discharge, patients would be asked to sign the “Notice on the Removal of Mandatory or Isolation Care of Patients of Notifiable Communicable Diseases,” which would then be faxed to the local health administration.

2. Process Prompted by Public Health Workers

Number of Notices

As noted earlier, because there is no official data available regarding the number of orders issued, therefore, I asked interviewees if they could provide me with the numbers of notices for isolating TB patients and notices prompted by treating physicians’ referrals. I also asked them whether notices had been issued in the absence of a physician’s referral. Three respondents told me that notices issued which are not based on physicians’ referrals are called notices from “Ju Duan” (the administration). They revealed that these notices were not necessarily initiated by referrals sent by the chief of the township health center; notices might also be issued in the absence of any referral. On the other hand, three respondents reported that notices would always be issued based on a referral, either


112 Interview with HCWM31-93-92, June 10, 2009. Also, interviewee LHOI5 53-93-91 was proud to tell me that there had been no patients subject to isolation orders in her/his charge being discharged because of a changing diagnosis.

by physicians or by the chief of the township health center.\textsuperscript{114} A similar result is shown when two respondents reported that all notices issued were based on physicians’ referrals.\textsuperscript{115} On average, approximately 4\% of isolation processes were initiated by public health workers (3.11\%, 2006; 2.84\%, 2007; 6.68\%, 2008).

*Grounds for Imposing Isolation*

When isolation processes were initiated by public health workers, the notices were based on different grounds. Nine officials from nine local health administrations (out of ten) called these cases where patients were “non-compliant” or “uncooperative.”\textsuperscript{116} Respondents described several behaviors they deemed to be uncooperative, among which the most frequently mentioned was “not obedient in taking their medications.” Patients with the following behaviors might also be deemed non-compliant or uncooperative: patients who had positive smear or culture results but no reported treatment record, who were not willing to receive treatment, who were not compliant with scheduled revisits to their treating physicians, who are reluctant to join the DOTS program, who were difficult to locate for responsible public health nurses or DOTS care workers, or who had a history of leaving hospitals prior to discharge were also deemed non-compliant or uncooperative. Respondents also referred to these patients as “difficult cases,”\textsuperscript{117} or “real compulsory cases,”\textsuperscript{118} or patients who “had difficulties or were in need of real compulsory [measures].”\textsuperscript{119}

In explaining how they tackled the patients’ compliance problem, several officials mentioned a common tactic and that is to increase the frequency of home visits.\textsuperscript{120} First, responsible public health nurses would visit patients to persuade them to go see a doctor, to take medication as prescribed, or to join the DOTS program. If not successful in

\textsuperscript{114} Interview with LHOA53-41-62, April, 15, 2009; Interview with LHO5G 53-42-53, June 3, 2009.

\textsuperscript{115} Interview with LHOD23-91-94, March 19, 2009; Interview with LHOB3 53-74-81, April 14, 2009.


\textsuperscript{117} Interview with LHO4B2-93-42, March 18, 2009; Interview with LHO4C2-23-61, April 1, 2009.

\textsuperscript{118} Interview with LHO4J2-74-61, March 27, 2009.


\textsuperscript{120} Interview with LHO4B2-93-42, March 18, 2009; Interview with LHOA53-41-62, April, 15, 2009; Interview with LHO4C2-23-61, April 1, 2009; Interview with LHO11 53-93-91, June 9, 2009. Respondent LHO11 53-93-91 revealed that the tactic of frequent home visits was also used to persuade patients to join the DOTS program.
securing the patients’ cooperation, the physician or chief of the township health center would visit the patient. If the patient remained uncooperative, municipal/county health officials would pay the patient another visit. If necessary, CDC officials at local branches would also visit the patient. During home visits, public health workers would try to persuade patients with “gentle warnings” or threaten to inflict punishments, such as pecuniary punishment or isolation, from time to time. One official revealed that some public health nurses who had connections with local policemen would ask them to help. With the police authority, the uncooperative patients may more likely show compliance. For some patients, they would agree to cooperate with officials because they could not stand the multiple home visits strategy anymore. But for others, they may remain uncooperative after all these visits. In these cases, two officials reported that they would send the patient an official governmental document requesting them to revisit the doctors and to comply with the treatment regimen otherwise they are under the risk of being fined. Sending a warning document to them usually worked, especially for the elderly or economically disadvantaged patients.

Although threatening to impose a fine might be used during home visits and was stated on the warning document when public health workers tried to earn patients’ compliance, officials were in fact reluctant to pursue a fine-based compliance strategy, which is allowed under Article 69 of the Act. The main reason was that these patients were usually impoverished and not in a position to pay the fine. Only two (out of eight) respondents reported that they had actually imposed fines on uncooperative patients, despite that they are reluctant to do so. Based on her/his unpleasant experience, one official gave a detailed explanation of her/his unwillingness to actually impose a fine. S/he reported that despite the CDC instructions for health administrations to impose fines on uncooperative patients, s/he thought that imposing a fine could cause a lose-lose situation. S/he said that “These patients could not possibly afford to pay the fine; if they do not pay the fine, the official would have to send the case to administrative enforcement

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121 Interview with LHOI 53-93-91, June 9, 2009.
123 Interview with LHOI 53-93-91, June 9, 2009.
125 Interview with LHOH42-93-23, May 13, 2009; Interview with LHOJ42-74-61, June 29, 2009. Interestingly, when these two respondents were asked about the situations, they told that because these patients had caught the CDC’s attention and became “indices.” They had no choice but to pose fine.
agencies for collection; the administrative enforcement process would definitely anger the patient and make the patient refuse to cooperate even more firmly.”

As LHOC42-23-61 commented, “From the public health perspective, the most important thing is to resolve the problem.”

As for the use of isolation, five officials asserted that they preferred to keep persuading and continue to keep visiting the patient without any further action. Two officials stated that mandatory isolation measures would be pursued if patients were deemed uncooperative where all persuasion, threats, or warning letters tactics had failed. Officials’ unwillingness to impose mandatory isolation against uncooperative patients is because of their concerns about possible future legal disputes that may jeopardize the relationship with patients. For example, one official said: “I don’t want to use the mandatory isolation measure; I have many other matters that need to be dealt with; if I issue the order, it would be endless; you could not possibly endure arguing with or having a quarrel with the patient.”

Two other officials, on the other hand, were concerned that isolation would ruin the cooperative relationship with patients during the months-long treatment; if patients were angry at public health workers, it would be difficult to locate patients for the follow-up visits and not to mention to ask them to behave compliantly or cooperatively.

Other than previously mentioned concerns, one official questioned the necessity of isolation due to the risks of the public health posed by these patients may not be enough to confine them, particularly when they were elderly people whose activity areas were limited. In contrast, respondent LHOF 42-72-72 believed that patients’ non-compliance or uncooperativeness must be related to a “social factor.” Trying to resolve patients’ difficulties is preferable to compulsory measures to enhance patients’ willingness to take their medications properly.

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127 Interview with LHOH42-93-23, April 1, 2009.
129 Interview with LHOI1 53-93-91, June 9, 2009; Interview with LHO42-23-61, April 1, 2009.
133 Interview with LHOF42-72-72, March 27, 2009.
Officials’ reluctance to impose isolation prompted the question: Who were the patients actually isolated? Answers of informants who have the experience of initiating or approving the isolation process revealed a tacit definition of non-compliance or uncooperativeness. They disclosed that these so-called “uncooperative cases” were sent for isolation in order to take advantage of the free treatment provided by the isolation program. Respondent LHOF42-72-72 disclosed that s/he had initiated the isolation process herself/himself several times because s/he had no choice. S/he revealed that those patients were not actually uncooperative; they did not purposely refuse treatment, their uncooperative behaviors are due to “complicated problems.” Most of them are socially marginalized people in lack of family support, homelessness, unemployment, mental illness, or suffered with alcohol abuse. For example, s/he told a story about a jobless patient who was a domestic violence offender and had been prohibited from contacting with his family by a court order. The patient later could not be relocated for follow-up after being reported by a hospital. At last, the workers at the township health center found the patient living in an abandoned building. After persuasion and negotiation, “the patient agreed to submit himself to a designated hospital for mandatory isolation” so that “he could have a shelter and stop suffering from starving.” S/he further elaborated that in her/his two decades of working experience with TB patients, when s/he tried to persuade patients to receive treatment or take medications, the first thing that came to patient’s mind about receiving the treatment is the money. These indigent patients did not really refuse to receive treatment but they were just too poor to go to the clinics because they could not even afford even the “gua hao fei” (check-in fee). The check-in fee is usually 100 NT dollars (approximately 3 USD) in most clinics and 200 NT dollars (approximately 6 USD) for hospital outpatient service, and these fees are not covered by the NHI. Sometimes, these patients did not even have a NHI card. “I have little choice but issue notices to resolve their economic difficulties. If they are deemed uncooperative cases and admitted under an isolation order, they do not need to pay a single dime.”

Two other officials’ comments also revealed the financial factor in labeling a patient as uncooperative. One official stated in her/his opinion, TB patients do not need to be isolated for care, except for those who are not obedient about taking their medications. However, if patients had economic difficulties, s/he would approve orders even though

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134 Id.
135 Id.
136 Id.
137 Interview with LHOF42-72-72, March 27, 2009.
these patients did not actually refuse to be cooperative. S/he thought that what s/he did was helpful for these patients. The other official expressed similar considerations. S/he insisted that isolation notices should be issued only when patients had been uncooperative; that is why s/he refused to approve physicians’ referrals blindly. Meanwhile, s/he admitted that she/he would take patients’ economic status into consideration when initiating the isolation process. If the patient could not afford related fees for treatment, s/he would speak with the treating physician and then issue an order to the patient. For example, s/he once initiated an isolation process against a patient who had just been released from prison. The parolee had no money, housing or medication. In order to keep the patient under supervision while he was still infectious as well as to provide him a place to stay, s/he initiated the isolation process in order to keep the patient in a designated hospital’s isolation room for a month. Other than economic difficulties, s/he recognized that patients with alcohol abuse problems are the most difficult cases. S/he said that these patients could only be persuaded to take medications when they were awake, but “Once they are on the drink, they do not know anything.” Therefore, by admitting patients with alcohol abuse problems could limit their access to alcohol, as well as allow hospital workers to monitor their medication compliance.

Two TB case managers shared their experience in taking care of “uncooperative” patients. Their answers echoed those of the other respondents that officials used isolation as a method to resolve practical problems in some cases. Respondent HCWM51-93-73 observed that among these so-called “uncooperative cases” sent for isolation, the majority are either homeless or from a low-income family. They were issued isolation orders so that they could take advantage of the free treatment. Respondent HCWM31-93-92 indicated that patients who were sent to the designated hospital as “uncooperative cases” are mostly suffering with poverty. “We knew in our minds that these patients were unable-to-be-cooperative,” s/he said. S/he explained that if patients were deemed uncooperative cases, the CDC would cover all the costs for treatment, for the use of the

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139 Id.
142 Id.
143 Id.
144 Id.
145 Interview with HCWM51-93-73, June 29, 2009.
146 Interview with HCWM31-93-92, June 10, 2009.
147 Id.
negative-pressure isolation room, and meal fees. Moreover, they could decide to stay even if their test results turned negative. “For some patients, they had nothing,” but during the isolation period, they were provided with food and a place to stay. S/he told me that once there was an indigenous patient sent to the hospital for isolation because of an “unable-to-be-cooperative” condition. The family had nothing, and the baby did not have diaper to wear. One parent was issued the notice, but the whole family end up all staying in the isolation room for weeks.

**Procedure for Notice Issuance**

As to “uncooperative” patients, the admission procedure described by respondents revealed that patients were usually persuaded with gentle warnings, or threatened by calling the police, and escorted by public health nurses to the designated hospitals. Only very few cases were patients sent to designated hospitals with police assistance. After admission, the referral signed by the chief of the township health center, if any, would be faxed to the local health administration for approval. The notice would then be either faxed or mailed to the hospital and served to patient by nurses or TB case managers. Uniquely, official LHOB4 92-93-42 said s/he asked hospitals to fax the notice with the patient’s signature to the local health administration, and, after approval, the notice would be faxed back to the hospital. Official LHOH42-93-23, on the other hand, had asked physicians to send referrals for approval, and notices were then issued to patients. Official LHOJ42-74-61 said that only a total of three notices had ever been issued in the absence of physicians’ referrals by her/his office. In all three cases, patients were sent for isolation by the CDC; issuance of the notices was made at CDC request.

When police assistance was needed to enforce isolation, though seldom, the responsible official would contact the local policemen, and they would be assigned to locate and bring in the patient with the responsible public health nurse. After admission, the notice would be faxed or mailed to the hospital, and nurses or TB case managers were asked to get the patients’ signatures. The notice would then be faxed back to the official’s

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148 *Id.*
149 *Id.*
150 Interview with LHOA53-41-62, April, 15, 2009; Interview with LHOF42-72-72, March 27, 2009; Interview with LHOI1 53-93-91, June 9, 2009.
153 Interview with LHOJ42-74-61, June 29, 2009.
Health care workers whom I interviewed shared similar comments about the practice: most “uncooperative” patients were escorted by public health nurses to designated hospitals for isolation and were likely to receive isolation notices after admission. However, they expressed the concerns of patients’ right to know the isolation process. One nurse mentioned that “Every time public health nurses send patients in for isolation, our nurses are asked to explain what isolation means to patients. The notice only shows the governing law without explaining the contents of the law and the following rules that patients should obey. As a result, many patients are not aware of that their rights been restricted. Patients would angrily argue with us and ask for discharge. Sometimes, I have to ask patients to write down the rules that they should follow.”

Nurse HCWN23-94-53 expressed similar complaints by saying that “To say it in a bad way, some patients were deceived to come for admission.”

S/he revealed that while patients were mostly persuaded by public health workers before going to the hospital for isolation without any physical enforcement by the police, some patients had complained that they did not know they were being admitted under isolation orders and this prohibited them from leaving at will. Often public health workers tended to use vague words because “if the patients know about the situation, then, they would not have come to the hospital.” In her/his opinion, “there should be someone from the local health administration who is responsible for informing patients that they are being admitted under mandatory isolation orders, similar to the informed consent processes.” Otherwise, “patients do not know under what conditions they can be discharged which may result with an argument.”

Physician HCWP51-74-83 conveyed the same concerns regarding the procedure for notice issuance by saying that “many public health workers deceive patients in order to take them in; they didn’t tell patients that they could not leave…For them, once they send patients in, the burden from their responsibility is dramatically reduced.”

**Grounds for Discharge**

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154 Interview with LHOI 53-93-91, June 9, 2009. County I had the highest percentage of isolation cases initiated by public health workers among ten counties/cities covered in this study. 13 out of 18 Notices issued in county/municipal I in 2008 were initiated by public health workers, and 3 out of the 13 were enforced with assistance from the police.
157 Id.
158 Id.
159 Interview with HCWP51-74-83, July 13, 2009.
For “uncooperative” patients, the CDC requires completion of treatment before the discharge. However, interview results suggested that even though this discharge standard was recognized by a majority of officials (five out of seven), in practice only a few so-called uncooperative patients actually stayed until the completion of treatment in the hospital (albeit they were initially persuaded to be hospitalized). For example, one official revealed that of 13 isolation cases based on referrals sent by the chief of township health centers in 2008, only one was discharged after completion of treatment.\textsuperscript{160}

Officials explained that the failure to retain “uncooperative” patients was mainly due to practical difficulties in managing patients’ different problems and characteristics. TB case managers would complain to officials about how patients’ behaviors lead to management problems: patients would leave the isolation ward at will, go out to drink, lock themselves inside their rooms, or sexually harass the nurses in the isolation ward. Under these circumstances, if patients’ sputum smear turned negative and they have shown some cooperative attitude, such as taking medications as prescribed, the physician and the official would agree to discharge them and rescind the order.\textsuperscript{161} As one TB case manager put it: “We hope that patients who cause disturbances do not stay.”\textsuperscript{162}

Respondent LHOF42-72-72 also revealed the difficulties in ensuring treatment until completion. S/he reported that usually, if the patient had been compliant during isolation and had a regular place to live, the order could be rescinded. But for patients who are homeless, who have financial difficulties or who are hard to locate due to the lack of a fixed residency, s/he would “negotiate and made a deal with them.”\textsuperscript{163} Although patients promised to stay until completion of treatment, quite often they would leave the hospital before their discharge. “They simply go in and out of the hospital. But based on my experience, once they can’t survive on their own, then, they will show up in front of us again,” s/he said.\textsuperscript{164} Moreover, in some cases, if the patient is too aggressive in asking for discharge, such as causing a damage to the hospital’s facilities, the hospital would just let the patient go.\textsuperscript{165}

\textsuperscript{160} Interview with LHOI1 53-93-91, June 9, 2009.
\textsuperscript{161} Interview with LHOI53-23-61, April 1, 2009; Interview with LHOI1 53-93-91, June 9, 2009.
\textsuperscript{162} Interview with HCWM53-23-53, June 22, 2009.
\textsuperscript{163} Interview with LHOI53-23-61, June 9, 2009.
\textsuperscript{164} Id.
\textsuperscript{165} Id.
Interviews with health care workers echoed officials’ descriptions about discharge decisions for “uncooperative” cases, which were likely to be made on a case-by-case basis and depended exclusively by the physicians’ discretion. Two physicians, both of them worked at public hospitals, indicated that patients’ willingness to stay was an important factor in her/his practice.\textsuperscript{166} For example, when I asked under what conditions “uncooperative” patients could be discharged, respondent HCWP53-94-73 frankly said that “It depends on my discretion.”\textsuperscript{167} S/he mentioned that if the sputum smear test result turned negative, the patients is willing to join DOTS, and if the family support is available for the patient, in that case, s/he would discharge the patient. However, if the patient insisted on leaving, s/he told me that “I do not like to force my patient. If you force them to stay, the relationship would be ruined, thus they will not listen to your advice….They just won’t die and won’t get well.”\textsuperscript{168} The other physician, in reporting how to make discharge decisions, expressed that “We can only decide whether the patient is infectious or not. We do not know whether her/his promise is trustworthy or not. We can’t tell whether the patient can comply with the treatment or whether the local health administration can handle it.” Therefore, “it really depends on whether the patient wanted to stay or not.”\textsuperscript{169}

In addition, one nurse working at the isolation wards revealed a number of management problems in discharging patients. S/he told that “generally if patients’ sputum smear results turn negative, after that, they can go home, usually in a month. Those who are homeless need to stay until completion of treatment, usually at least 180 days.”\textsuperscript{170} But not everyone would comply with this requirement. For some patients, the isolation rooms have everything they needed such as air-conditioning, cable TV, personal bathrooms, and food. But some people still can not stand the isolation. They may continuously ask to be discharged.\textsuperscript{171} S/he further expressed that “Usually if the weather is cold, they would stay because being outside wouldn’t be better than being here.” However, “for those who had ever run away from the hospital and got caught, we would impose access control in order to force them to stay until completion of treatment.”\textsuperscript{172}

\textsuperscript{166} Interview with HCWP53-94-73, April 22, 2009; Interview with HCWP51-74-83, July 13, 2009.
\textsuperscript{167} Interview with HCWP53-94-73, April 22, 2009.
\textsuperscript{168} Id.
\textsuperscript{169} Interview with HCWP51-74-83, July 13, 2009.
\textsuperscript{170} Id.
\textsuperscript{171} Id.
\textsuperscript{172} Id.
Local Health Officials’ Views about Using Isolation

The isolation regulatory scheme drew both praise and criticism from officials when they were asked about their opinions or thoughts about the isolation program. Regarding to the physicians’ role in initiating the isolation process, three officials expressed admiration for the system. They commented that the system was good because hospitals would be willing to admit infectious TB patients, which would help to eliminate spread of the infection into the community. As respondent LHC42-23-61 stated: “We think it is good; it is easier for us to manage.”

However, four officials criticized the way in which referrals were used. One respondent said, “In the past, the procedure of imposing compulsory hospitalization measures was very strict….You had to first give the patient an official governmental document to warn him/her and then you could consider whether to impose compulsory hospitalization measures. After 2006, the use of compulsory hospitalization measures became abusive…The CDC was giving out money to the medical care system… If this is the way CDC preferred, we would have to play with it.” Another official also stated that hospitals used referrals system incorrectly; as long as a patient had a sputum smear-positive test result, hospitals sent a referral in order to apply for reimbursement; local health administrations did not care much about these cases since it was the central government’s money. Two other respondents questioned the adequacy of granting physicians the ability to instigate the isolation process. Respondent LHOD23-91-94 said, “The procedure is odd. Why should the physicians be granted the power to submit referrals for approval?” Respondent LHOE74-93-22 doubted the legitimacy of granting physicians the authority because only those who cannot adhere to the treatment regimen need to be hospitalized for monitoring. “Whether to isolate a TB patient should belong to the decision of the public health case manager, and not doctors.”

As to isolation pursued by public health workers, some interviewees provided their thoughts and concerns. Respondent LHOD23-91-94 said that “We are more suitable to do

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173 Interview with LHC42-23-61, April 1, 2009; Interview with LHO1 41-93-42, June 9, 2009; Interview with LHC42-74-61, June 29, 2009.
174 Interview with LHC42-23-61, April 1, 2009.
175 Interview with LHC42-72-72, March 27, 2009.
the work of visiting, persuading and convincing the patient; locking a person up is a serious thing… We, who are responsible for enforcing it, need a better mechanism.”

“CDC asked us to forcibly put the patient into isolation as long as the patient is a confirmed TB case and s/he is not cooperative with treatment, but being uncooperative is hard to define. We local officials think something is missing here.” In her/his opinion, if the isolation could be decided by an impartial third party and enforced by the police, there will be fewer issues. “It is just odd to ask a public health nurse to detain patients.”

Respondent LHOG1 41-93-42 echoed the concerns about the appropriateness of local officials’ role in making and enforcing isolation measures, their ability to comply with all procedural requirements, and possible legal disputes with patients. S/he reported that in order not to give patients any excuses, local officials have to follow all procedural requirements when imposing an isolation measure. S/he further elaborated that s/he did not have legal counsel to ask for an opinion although there was a legal affairs office in the local health administration. “The staffs of that office are very busy because they have to take care of all divisions of administration,” s/he said.

Other than procedural concerns, LHOF42-72-72 was critical of mandatory measures as being possibly effective and quick, but too arbitrary. S/he expressed that “Compulsory hospitalization is a violation of human rights; that is the worst measure.” “The CDC asked the public to accept patients with TB, but ironically, its policy reflects the opposite,” s/he said.

C. Discussion of Results

1. Physicians’ Practices in Initiating Isolation

Granting physicians the ability to initiate the process of isolation for TB patients, while well-intended, has a tendency to be misused. Research on physicians’ practice in Ireland in initiating detention powers has shown that physicians used the threat of detention as a strategy to obtain TB patients’ compliance. A majority of responding

180 Id.
182 Interview with LHOG1 41-93-42, June 3, 2009.
183 Id.
184 Id. Interview with LHOF42-72-72, March 27, 2009.
185 Id.
186 Id.
physicians indicated that they had threatened the patient with seeking formal detention to achieve the patient “consent” for hospital admission, and this strategy was deemed successful in achieving compliance in most cases. However, this approach may expose physicians to the liability of false imprisonment since the validity of patients’ consent to admission may be in doubt.\footnote{188}

In Taiwan, interview results tell a different story. Under its isolation regulatory scheme, treating physicians can send a referral to local health administrations to propose an isolation order. This regulatory design is based on the rationale that physicians have the knowledge and ability to determine whether the patient has active and infectious TB in the first place. If the treating physician thinks that a patient needs to be isolated, their referrals may work as a reminder or warning of the risk of the patient to public health and prompt local health authorities to evaluate the necessity of imposing isolation. For example, physicians may find that their patients do not adhere to their treatment regimen or fail to take infection control measures. If the local health administration decides to impose isolation, the notice would be issued to the patient requiring submission to isolation. However, the interview data suggests that the referral was probably not used as intended. While physicians’ referrals indicated evidence of patients’ infectiousness, physicians’ decisions to send referrals might not be based solely on their judgment of the risk the patient posed. Rather, they were likely to be used as necessary paperwork in order to meet the criteria for receiving full reimbursement from the CDC. Although physicians did not directly benefit from the CDC’s reimbursements, their employers — the hospitals — did.

The physicians’ customary practice in sending referrals has several implications. From the patients’ perspective, if physicians advised inpatient care for patients in order to qualify for the guaranteed 100% reimbursement rather than out of the belief that they needed to be admitted, physicians probably failed to act in the best interest of their patients; this could potentially constitute a breach of fiduciary duty to their patients. Within the patient-physician relationship, physicians, as fiduciaries, are obligated to protect the interests of, and do what is best for, patients who seek their assistance. In cases of TB treatment, physicians interviewed generally agree that the standard of care in clinical settings is to prescribe appropriate medications and send patients home.\footnote{189}

\footnote{188 \textit{Id.}}

\footnote{189 Interview with HCWP91-94-72, May 19, 2009. Interview with HCWP31-42-61, June 18, 2009. Interview with HCWP51-74-83, July 13, 2009.}
Reasons included: (1) the infectiousness of TB patients can be greatly reduced once they start to take their medications,\textsuperscript{190} (2) if the patient wears a face mask or stays home to be separated from others, the risk of transmission can be minimized,\textsuperscript{191} and (3) inpatient care for infectious TB patients increases the risk of hospital-acquired infection for health care workers and other patients.\textsuperscript{192} If patients should have been treated as outpatients but were instead advised by physicians to be admitted to hospitals in order to receive reimbursement for the benefit of hospitals’ revenue, physicians failed to give medical advice based on the profession’s standard of care and the patient’s best interests. On the other hand, if physicians thought that their patients needed to be admitted, which may be desirable in some cases due to concerns about medication side effects or the patients’ preexisting conditions, and the patients agreed, but the referrals were filled out as routine paper work for the purpose of receiving full reimbursement from the government, it is hard to imagine that physicians would have disclosed their attempts to patients. Patients were possibly not fully aware of the meaning of signing the notice. In these circumstances, physicians may have also breached their fiduciary duty to patients due to concealment of important information regarding their patients’ interests.

From the third party payer’s point of view, physicians sending referrals to local health administrations out of the desire to be qualified for the guaranteed 100% reimbursement may be committing civil and criminal fraud against the state. Interview data suggests that physicians’ referrals might nominate patients who had already consented to be admitted, rendering isolation orders unnecessary. Physicians and hospitals might have billed the government with the knowledge that their claims were not qualified for reimbursements. Despite the procedural hurdles of proving the elements of fraud, physicians should be wary of this practice; if proven, it may warrant their criminal prosecution.

2. Local Health Officials’ Practices in Reviewing Physicians’ Referrals

To evaluate whether a public health regulation is warranted in intruding upon the rights of individuals, Gostin proposes aforementioned five criteria, including significant risk, effectiveness, reasonable cost, the least restrictive alternative, and fairness.\textsuperscript{193} When applying these important elements to analyze the use of isolation initiated by physicians’

\textsuperscript{190} Interview with HCWP91-94-72, May 19, 2009.
\textsuperscript{191} Interview with HCWP31-42-61, June 18, 2009.
\textsuperscript{192} Interview with HCWP91-94-72, May 19, 2009.
\textsuperscript{193} Lawrence Gostin, PUBLIC HEALTH LAW, POWER, DUTY, RESTRAINT, 53-70 (2008).
referrals, local health officials’ practice of approving physicians’ referrals shed doubt on the justification of isolation. First of all, despite the evidence of possible infectiousness, i.e. a positive sputum smear test result, patients subject to isolation orders did not necessarily pose significant risks to others. If patients could take proper infection control measures, separate themselves from others, and take medications as prescribed, they posed limited risks to public health. However, officials seemed to treat physicians’ referrals deferentially and issue orders without actually identify the risks that warrant intervention, failing to exercise their legal power to the full extent to which they were allowed.

Second, patients were generally isolated until their sputum smear result turned negative (with some exceptions) and, as a result, the isolation measure was presumed to be effective at preventing transmission. However, isolation measures entail economic costs, including those to the government, to individuals affected, and to opportunities to intervene with a different method. The government needs to justify the use of isolation by demonstrating the effectiveness of reducing the risk at a reasonable cost compared with benefits. Taking the cost into consideration, the expenditure of isolation was probably excessive since less-costly measures, such as wearing masks and staying home from work or school, might also be effective in preventing transmission. Moreover, the tax money spent on isolated patients based on physicians’ referrals seemed to be unnecessary since patients nominated by physicians for isolation might in fact have consented to be admitted, rendering isolation orders needless; the costs of treating these patients should thus have been borne by the NHI rather than by using extra tax money from the CDC. Other than the possible waste of public money, Taiwanese society also lost the opportunity to address a more significant factor contributing to the risk of transmission. As one physician emphasized in the interview, patients with active TB in Taiwan were infectious long before they were diagnosed and prescribed the anti-TB drugs. An epidemiological research study based on national data found that patients in Taiwan with active TB remained untreated for 53 days. See Wen-Lin Lai, Epidemiological study of diagnostic and treatment delay among tuberculosis patients in Taiwan: a population-based study using National Health Insurance claims data, at 20, Master thesis, Graduate Institute of Public Health, National Cheng Kung University (2007). This research is based on patients’ data in the National TB Notification Registry in 2005 and National Health Insurance program’s claims data. This research found that the median healthcare system delay is 53 days (Inter-quartile range, 12-147) (healthcare system delay is defined as the interval between the first date of a patient’s visit with a respiratory-related diagnosis and the date on which the anti-TB medication is prescribed). It also found that the median physician delay is 43 days (Inter-quartile range, 7-138) (physician delay is defined as the interval between the first date of patients’ visit with respiratory-related diagnosis and the date of the sputum
transmission, isolation of infectious patients upon diagnosing imposed opportunity costs on taxpayers: while public money was spent on isolation, the chances for addressing delays in diagnosing infectious patients were lost. Comparing the 53 days of delay with the 14 to 21 days of isolation upon diagnosing, the former is undeniably a more critical factor in preventing transmission. Resources devoted to cover the cost of isolation should have been converted to improve prompt testing, diagnosis and treatment.

Furthermore, officials seemed neither ground their decision-making on individualized risk assessments nor explore less restrictive measure to avert the threat patients posed on others in the review process. As to the fairness of the practice, it is unknown whether certain groups of patients were disproportionately nominated by physicians due to the lack of data. But interview results suggest that the burden of isolation was placed on those who consented to be hospitalized, resulting in distributing burdens on those who in reality presented less risk to others.

Other than the five important elements for justification of isolation, patients’ basic procedural right to prevent the abuse of power — the right to be informed — is probably in jeopardy. In the notification process, orders were served to patients by hospital nurses or TB case managers. The practice suggests that patients might not be fully informed about the purpose of isolation, the duration of isolation and grounds for release. The altered and simplified procedure might endanger the important procedural safeguard intended to protect patients’ rights to be notified of the isolation order.


In scenarios where isolation processes were initiated by public health workers in the absence of physicians’ referrals, interview results also suggest unwarranted implementation of the regulatory scheme in view of the five criteria. While officials commonly claimed that “non-compliant” or “uncooperative” patients were the main targets for isolation and described several behaviors that could be deemed uncooperative (including not taking medications, refusing treatment, failing to keep appointments with physicians, and refusing to join the DOTS program), how patients were labeled

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\[\text{smear test order} \]. \text{See id. Another study on healthcare system delay using a patient interview method in southern Taiwan found that median healthcare system delay was 23 days. See C.T. Chang, et al., } \text{Patient and Health System Delays in the Diagnosis and Treatment of Tuberculosis in Southern Taiwan,}{9}\text{ 9 (9) INTERNATIONAL JOURNAL OF TUBERCULOSIS & LUNG DISEASE, 1006 (2005).} \]
“uncooperative” was probably discretionary. Absent a working definition of “uncooperativeness,” a requirement to undergo a risk assessment process, and a document that indicates the possibility and severity of risk, the isolation decisions were not fully supported by evidence of a significant risk.

Assuming patients with these identified behaviors presented dangers to others, the actual application of isolation did not always effectively reduce the risk of transmission and development of MDR-TB. Officials reported that in managing patients’ compliance issues, they tended to be unenthusiastic about using punitive measures, including fines and isolation. They worried about the backlash from isolation, which might discourage patients’ compliance and cause legal disputes. Therefore, patients who consistently refused treatment or failed to comply with it were in practice not actively pursued for isolation. Despite uncertainty about the size of this group, these patients may continue to pose health risks to others either because of their infectiousness or the possibility of their developing MDR-TB and subsequently transmitting it to others. On the other hand, interview results revealed that uncooperative patients who were issued notices for isolation initiated by public health workers were not always cured. These patients could be persuaded or threatened and possibly induced by the benefits they could receive to go to the hospital for isolation, but only a small number of them stayed for the entire period of treatment. Despite efforts to convince patients to stay, they often left the hospital prematurely until they did not feel well again or until they needed a shelter on hot summer days or cold winter days. Because the reasons for their noncompliance – including barriers to medical care, financial constraints, mental illness, homelessness and alcohol abuse – were not addressed, these patients might continue to fail to be compliant with their course of treatment upon discharge. As a result, they will probably become infectious again and possibly develop MDR-TB.195

Even though confinement of uncooperative patients until completion of treatment is theoretically an effective method to prevent transmission and development of MDR-TB, the government needs to justify the intervention by proving the reasonable cost of the intervention. As noted earlier, because of practical difficulties in managing patients with different problems and characteristics, few so-called uncooperative patients completed their treatment after isolation; the public money spent on isolating these patients did not

195 More than 60 % of MDR-TB patients in Taiwan have histories of default, treatment failure or relapse. See Shu-Hua Hunag et al., An introduction to Taiwan’s MDR-TB medical care system, 25 (2)TAIWAN EPIDEMIOLOGY BULLETIN 86, 91 (2009).
yield the benefits originally expected. Moreover, interview results reveal that these isolated “uncooperative” patients were conceived more correctly as “unable” to be compliant because they were haunted by various social and economic problems. That is why officials tended to take advantage of the financial benefits built into the isolation program, which covered not only treatment but also room and board to help these patients. The practice suggests that to reduce the risks these patients pose to public health, public money could have been spent on providing essential social services and a wide-range medical care to remove barriers that prevent patients from adhering to therapy. To the government, it may be arguable that such a system is equally costly to isolation of patients in treating facilities. But to these susceptible patients, it is surely less costly than months of isolation.

Moreover, if patients’ non-compliance or uncooperativeness was mainly stemmed from economic or health problems that prevented them from adhering to their treatment, such as the poor, the homeless, and the alcohol abusers, the use of isolation may be unacceptable since less restrictive measures were not attempted first. Interview results show that in managing uncooperative patients, public health workers might have made stronger attempts to adopt less-restrictive measures, such as home visits and providing DOTS. But in confronting patients who were unable to be compliant due to numerous problems, public health workers seemed to opt to use isolation measures. This practice does not stem from ignorance of the highly restrictive, last-resort nature of isolation, as claimed in the CDC’s Manual, but rather from a lack of practical and less-restrictive alternatives. Without a system to provide access to psychiatrists, social workers, alcoholic abuse treatment services or other supportive services that can possibly change patients’ conditions and improve compliance, public health workers have opted to use the isolation measure as a stopgap solution to temporarily alleviate patients’ problems. These practices strongly suggest if the DOTS program were accompanied by a social welfare system providing necessary services and support, such as housing or funding, the extreme measure of depriving liberty through isolation could possibly be unnecessary.

Furthermore, the isolation measure initiated by public health workers seemed to be disproportionately used for socially marginalized people, probably because this vulnerable group was easily persuaded to be hospitalized. However, patients who consistently refused treatment, despite being smaller in number, were not adequately convinced to receive treatment. This reveals failures in targeting real hazards to public health and providing assistance to people in need, instead placing the burdens of liberty
restriction on disadvantaged persons.

III. Implications for Tuberculosis Public Health Law and Policymaking

The overall picture that emerges from the interview results is that the regulatory scheme is not being implemented as designed. There is a significant mismatch between the government’s confidence in isolating TB patients and the goal of reducing the burdens of the disease. This empirical study of the implementation of TB isolation regulatory scheme highlights several lessons for TB control public health law and policymaking.

A. The Necessity of Imposing Restrictive Measures

Public health interventions should be no more restrictive than necessary to achieve its intended purpose. To contain the spread of TB and the rising cases of drug-resistant TB, public health authorities should be delegated a variety of powers to reduce public health threats. But they need clear lines of authority when limiting people’s liberty might be required. To ensure that removal of an individual’s liberty is not beholden to mere speculation, health authorities bear a legal duty to prove that the person poses a significant risk to others and to present solid evidence that isolation is effective in reducing the risk. To these ends, legislation should first differentiate between limiting individuals’ liberty in an emergency situation and doing so in a non-emergency one. It also needs to specify criteria that must be met when issuing emergency commitment orders, orders for isolation during the period of infectiousness, and orders for detention of noninfectious patients for the purpose of treatment. Health authorities should be required to conduct risk assessment and show a significant risk that amount to necessary restriction on the individual’s liberty.

Accordingly, an emergency isolation order may be issued if officials can provide proof that the person has active TB and is engaging in at-risk behavior that poses an imminent threat to the health of others, such as a documented history of failure to adhere to a prescribed course of treatment or the patient’s expression of unwillingness to comply with prescribed treatment. Orders for isolating a patient during the period of infectiousness may be justified if the public health authority can demonstrate that the patient has infectious TB, i.e., a sputum smear-positive test result, and there is a
substantial likelihood of transmission (i.e., difficulties in adequately separating the patient from others or the patient’s failure to take proper infection-control measures). Once the element of infectiousness is removed, continuing limitation of liberty to ensure treatment completion should be permitted only when the public health authority demonstrates that the patient is unlikely to complete treatment as an outpatient based on his/her behaviors (i.e., a documented history of leaving a hospital prior to discharge, refusing or failing to follow a treatment regimen, failing to keep scheduled appointments for treatment, or unsuccessful repeated efforts to have the patient treated through DOTS). The requirement of presenting a record of the patients’ past or present behavior is intended to help prevent a quick and easy option for using isolation and detention measures. It will also ensure that patients have been given the opportunity to complete treatment through less-restrictive alternatives.

**B. Non-Discriminatory Practice**

Public health measures often target “high risk populations” due to cost-effectiveness concerns. At a minimum they need to be supported by evidence proving the risks presented by the individuals or groups. Unfortunately, it is too often that public health intervention measures tend to use social status or characteristics as evidence of danger to others even though these are unreliable, unreasonable, and illegal basis for restriction. The Taiwan CDC’s isolation policy and practice of targeting certain groups of TB patients, i.e. residents of congregate facilities or homeless people illustrates the danger of insensitivity to social justice and an attitude based on pursuing simple answers in response to public calls to segregate sick people.

The current Taiwan’s as well as global TB epidemic reflects long-neglected barriers to care by vulnerable groups of people and treatment failures of the system. The rise of drug-resistant TB is not solely the product of the “irresponsible” behaviors of TB patients. It is the state’s responsibility to fund cost-effective alternatives, such as improving ventilation controls in congregate settings, and provide effective services to facilitate treatment completion, such as housing. The law should acknowledge patients’ rights to essential medical and social services and incorporate a working definition of “significant risk.” Furthermore, health authorities should complete more epidemiological studies to provide a fuller understanding of the prevalence of the TB infection and the risk of developing or reactivating the disease among different populations. In this way, public health efforts may be undertaken that are more suitable to the needs of the victims of the
disease.

C. Procedural Safeguards

Persons subject to isolation should be entitled to procedural protection against illegal or abusive application of the measure. To begin with, the regulatory scheme should assure that the right to be informed is provided to patients. Despite the legal requirement of written notification, interview results suggest that patients were often not fully informed or explained to about the purpose of isolation. If they are not fully aware of the legal order, patients have a little chance to defend themselves.

In addition, to ensure that decisions to restrict individuals’ movement conform to evidentiary requirements and are not unnecessarily lengthy, the regulatory scheme needs to provide patients with an appropriate review system through which the court may have prompt control over the isolation process. As shown in the interview results, local health administrations retain jurisdiction over the 30-day interval re-examination procedure. But they are unlikely to actively pay attention to possible errors or inappropriate isolation decisions. Patients subject to isolation or dentition orders need to have timely access to the courts to initiate a review procedure and ask for discharge and/or appeal.

D. Isolation and Detention Sites

Deprivation of TB patients’ liberty is not for punishment since patients are not detained based on the seriousness of their crimes but because of a calculation of risks or harms. It will raise serious ethical and legal concerns if involuntarily committed patients are confined in prisons rather than specialized hospitals dedicated to treating them. Moreover, to legitimize isolation and detention measures, health authorities need to guarantee that isolation and detention may successfully reduce spread of infection and ensuring completion of treatment. To assure the effectiveness of isolation and detention measures, designated institutions need to be able to not only provide adequate care but also enforce restrictive orders. Unfortunately, Taiwan’s hospitals designated for TB isolation fall short of the expectation due to practical difficulties in managing patient with various characteristics.

Under Taiwan’s TB regulatory scheme, health authorities established an Infectious Disease Control Medical Network, in which currently 136 designated hospitals are responsible for providing treatment to those subject to isolation orders. These hospitals
are equipped with isolation rooms with negative pressure facilities built during the SARS epidemic as response the emergency outbreak and urgent need to provide care. Despite the capacity to treat patients with communicable diseases, interview results suggest that hospitals in this TB “isolation network” failed to ensure the effectiveness of isolation: some patients would persistently request to go outside for “fresh air” despite the legal requirement of remaining in isolation rooms; patients would also bargain and negotiate with on-duty nurses at the isolation wards, threaten to hurt themselves or hospital staff, break equipment, or even set fire to their rooms. For nurses working in the isolation ward, who are actually charged with much of the day-to-day management of patients, enforcing isolation for patients with such problems exceeds their capability and job requirements. It is financially impossible for these hospitals to maintain 24 hour security guards on wards, not to mention that the isolation wards are for patients both voluntarily and compulsorily admitted. More importantly, some patients’ length of stay is not days or weeks, but months or perhaps years. If they are not infectious, restricting their movement to the isolation rooms without opportunities for outdoor activities or educational and rehabilitation programs makes the isolation site prison-like.

To sustain the legitimacy of confining TB patients, regulations need to pay attention to the suitability of isolation sites to assure effectiveness of restriction measures. For example, when NYC revised regulations for detaining TB patients in the 1990s, it founded specialized hospitals dedicated to treating involuntarily committed patients. Two hospitals with secured wards were used to admit infectious and noninfectious patients, respectively, avoiding serious ethical problems raised by the prospect of confining patients with TB in jail. Bellevue Hospital, a public city hospital, opened a 21-bed unit with negative pressure facilities for the isolation of infectious patients. Patients involuntarily admitted were confined in a standard isolation room on the guarded ward.196 A civil detention ward at Goldwater Memorial Hospital was designated for noninfectious patients when all other efforts, including Commissioner’s orders for directly observed therapy, were exhausted; thus, the most difficult-to-treat patients could still complete a full course of treatment.197 The hospital provided patients with exercise classes, escorts to off-ward activities on hospital grounds, and programs addressing substance abuse, education and recreational therapy.198 In light of NYC’s approach, health authorities need

196 See RICHARD J. COKER, FROM CHAOS TO COERCION: DETENTION AND THE CONTROL OF TUBERCULOSIS 100 (2000); Gasner et al., supra note 9, at 360.
197 See Gasner et al., supra note 9, at 360.
to provide suitable places for: (1) isolating infectious patients during the period of infectiousness, and (2) detaining noninfectious patients during the chronic stage of the disease. In consideration of the number of patients who may need to be isolated during the period of infectiousness, only a few treating facilities should be designated for short-term isolation. For long-term detention, the government should establish one specialized facility to improve care and offer an environment suitable to patients’ needs. The mission of the facility would be to promote compliance with medical regimens in an appropriate environment. Patients should have ample opportunities for recreation, exercise, and other activities as well as have access to educational and social programs. For example, alcohol addiction is the most frequently mentioned problem when managing patients under isolation. Without addressing this problem when treating TB patients, it is difficult to cure them.

A final point is that post-commitment coercive powers, patients’ rights during isolation and detention, and standards for the operation of isolation facilities should be clarified. The statutes should acknowledge patients’ right to privacy, communication, and having visitors; medical institutions may not limit these rights without considering the patients’ condition or as required for effective treatment; limitations on the patient’s movement or restraints of the body should not exceed the period of time necessary for preventing harm, and patients should be free of the use of instruments of restraint or improper forms of physical or movement restriction. Despite the possibility of indefinite

199 Some hospitals, such as the Chest Hospital at Rende township in Tainan County, have been designated for treating “chronic infectious tuberculosis patients” for a decade. Since April of 1995, the Department of Health’s “Operational Guidelines on the Detention Management of Chronic Infectious Tuberculosis Patients” and “Guidelines on Subsidies to Tuberculosis Control of the Department of Health of the Executive Yuan” have encouraged these patients to be hospitalized voluntarily in designated hospitals by using monetary incentives. Still, in view of their long-period of infectiousness and medical needs, a specialized facility dedicated to these patients rather than general hospitals is a more appropriate venue. In fact, facing hospitals’ complaints about patient management problems, local health officials have been sending patients to “preferred hospitals.” Four officials I interviewed said that patients who had history of leaving hospitals or were deemed possible threats to leave the hospital before discharge would more likely to be sent to designated hospitals in remote areas, such as Fonglin Veterans Hospital at Hualien County, Hsinwu Branch of the Taoyuan General Hospital at Hsinwu township, and the Chest Hospital at Rende township in Tainan County. Because these hospitals are located in relatively remote areas, patients have fewer incentives (such as going out to buy drinks) and more difficulties (due to lack of transportation) to leave the hospital. On the other hand, patients may be allowed to have outdoor time within hospital walls to reduce the stress of isolation. Interview with LHOB4 92-93-42, March 18, 2009; Interview with LHOF 42-72-72, March 27, 2009; LHO42-23-61, April 1, 2009; Interview with LHOI 53-93-91, June 9, 2009. One head nurse reported that she found that the patient had ordered a box of alcoholic drinks delivered to the isolation room. The other head nurse said that patients would invite each other to share drinks in their rooms.

200 Interview with HCWN23-74-62, May 23, 2009; Interview with HCWM31-93-92, June 10, 2009; Interview with HCWN23-94-53, July 13, 2009. Interview with HCWP53-94-73, April 22, 2009. One head nurse reported that s/he found that the patient had ordered a box of alcoholic drinks delivered to the isolation room. The other head nurse said that patients would invite each other to share drinks in their rooms.
confinement as long as the patient continues to pose a significant risk to the public, the person subject to isolation should not be physically forced to take medications or receive surgery against his/her will. In addition, regulations must be made to ensure the safe and therapeutic nature of the facilities.

**Conclusion**

The use of coercive measures has been an indispensable strategy to contain communicable disease in human history. As the globalization and the emergence of MDR-TB, restricting people’s movement is more likely to be an important tool in the future. This article focused on the implementation of TB isolation program in Taiwan to shed lights on the proper design of regulatory scheme. Compared with other developed countries, TB poses a public health problem in Taiwan as evidenced by its relatively high incidence rates. The government is right to act on the problem. However, as this article has presented, isolation measures are probably not an important factor that contributed to the decline of TB cases. Learning from centuries-long efforts to reduce the burden of TB, the achievement of valid health goals requires society’s desire and commitment to develop a model that addresses socially produced health disparities, which are too often the sources of epidemics of serious communicable diseases. Rene Dubos and Jean Dubos have written that “Elucidation of the mechanisms of tuberculosis disease will long continue to require analysis by the methods of medical sciences. And the care of the stricken tuberculosis patients calls upon all the resources of medical practice. But the complete control of tuberculosis in society goes beyond medicine in its limited sense. It is

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203 Respondent LHOE 74-93-22 suggested that the decline of the incidence rates in the first few years of the Plan was probably due to stricter case definition. S/he criticized the CDC for being too eager to claim success for the Plan. In her/his opinion, it takes at least five years to evaluate whether control measures lead to a decrease of incidence rates. Interview with LHOE 74-93-22, March 19, 2009. Moreover, respondent HCWP51-74-83 stated that the decline in incidence rates since 2006 was mostly because of the DOTS program, not the isolation program. Interview with HCWP51-74-83, July 13, 2009.
a problem in social technology.\textsuperscript{204} With this vision, to bring this disease to an end requires continuous exploration of its underlying social causes and the development of strategies for helping society’s most vulnerable populations resist the disease and complete treatment.

Appendix A: Interview Questions

A: Questions to Local health officials (translated to Chinese)

1. How long have you been in charge of tuberculosis control affairs in your department?
2. Could you tell me about the use of isolation to control tuberculosis in your county?
3. Had your department issued any isolation order prior to 2006? If yes, could you tell me how it happened?
4. The regulation regarding the procedure of isolation provides that medical care institutions may submit a referral to local health departments for a decision of issuance of an isolation order. Are isolation orders always issued accordingly?
5. Has your department ever issued an isolation order in absence of a physician’s referral? If yes, could you describe the circumstances?
6. When you review the referrals, what factors are considered in deciding to issue an isolation order or not?
7. Do you give priority to any factors?
8. If patients receive isolation orders but refuse to submit to the designated hospital, what would happen to them?
9. Does every patient have a chance to join the DOTS program prior to issuance of an isolation order?
10. Prior to issuance of an isolation order, would any measures be taken to reduce the spread of the disease or improve compliance?
11. What factors would be considered when your department decides to rescind an isolation order?
12. From your experience, what do you think are the keys to reduce the incidence of tuberculosis in your county?
13. From your experience, what do you think are the greatest obstacles to successfully reduce patients with TB?
14. From your experience, do you see any legal problems in using isolation on TB patients?
15. The newly amended Mental Hygiene Act adopts a court review process in cases of emergency compulsory hospitalization. What do you think if compulsory hospitalization under the Communicable Disease Control Act adopts the same procedure?
B. Questions for health care workers at designated hospitals (translated to Chinese)

1. When a patient presents symptoms of active TB, how do you proceed?
2. What factors would you consider in submitting a referral to the local health department?
3. What factors would you consider in discharging a patient under an isolation order?
4. What is the average length of hospitalization of patients who were subject to isolation orders?
5. In your experience, do patients compulsory hospitalized share any characteristics?
6. Could you tell me the treating process of these patients compulsory hospitalized in your hospital?
7. To what do you attribute the current status of epidemiology of tuberculosis?
8. In your opinion, what are the obstacles to patients’ full compliance with the drug therapy?
9. What do you think about the use of isolation against patients with tuberculosis?
10. Do you have any comments about the law and regulations about isolation?