

# Impact of the medical care act amendment on the medical malpractice litigation in Taiwan

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## Abstract

Medical malpractice leads to medical criminal liability and claims. The national data of medical criminal liabilities across various specializations, before and after the Medical Care Act amendment, was lacking in Taiwan. The aim of this study is to clarify the impact of the law amendment. A comprehensive retrospective analysis of medical crimes was conducted from January 2001 to December 2020 in Taiwan. The number of medical criminal litigation, defendants, people who plead guilty, conviction rate, and punishment sentences were analyzed. Additionally, the number of practicing physicians in the year was used as the baseline to determine the rate of the accused and guilty rate per 10,000 physician-years, respectively. From 2001 to 2020, there were 249 criminal litigations of medical professionals, which gave rise to 335 defendants. The proportion of defendants by specialization was 19.1% in internal medicine, 26.3% in surgery and orthopedics, 11.9% in obstetrics and gynecology, 3.3% in pediatrics, 25.7% in physicians (who were not related to the aforementioned 4 specializations), and 13.7% in non-physician staff. After the amendment to the Medical Care Act in 2017, the accused rates per 10,000 physician-years decreased significantly in aggregate and by specialization between 2016 and 2020; the guilty rate per 10,000 physician-years during 2016 to 2020 was the minimum, compared to the past. The amendment to the Medical Care Act in 2017 reduced the number of vexatious criminal proceedings. The amendment also reduced criminal liabilities by reducing the guilty rate during 2016 to 2020, compared to the previous period.

**Keywords:** law amendment, medical criminal litigation, medical malpractice, medical risk

## 1. Introduction

Medical malpractice causes adverse outcomes for patients, leading to criminal and civil proceedings. In many countries, such as the United States, many prior studies have focused on medical malpractice claims, but only a few have focused on medical criminal outcomes.<sup>[1,2]</sup> In the United States, 7.4% of physicians are accused of malpractice every year, and 22% of all claims have resulted in the claimants receiving monetary compensation.<sup>[3]</sup> People from various medical specializations have analyzed the factors related to malpractice in their particular department, identified methods to reduce litigation risks and payments,<sup>[2]</sup> and minimized the expenditure of time and money on malpractice litigation. In France and England, less than 5% of medical disputes chose criminal litigation.<sup>[4]</sup> Patients in Taiwan, Hong Kong, Japan and Italy utilized both criminal and civil action lawsuits for the violation of their rights, and to receive compensation for their injury.<sup>[5]</sup> Therefore, the analysis of medical malpractice in Taiwan may result in an increased amount of data on medical criminal liability.

Criminal litigation is 1 of the means for patients to win civil litigation in Taiwan. The grounds for the prosecution of medical malpractice are injuries caused by negligence and

involuntary manslaughter. Injury is an adverse effect of the given medical treatment, with insufficient communication pre-intervention leading to dissatisfied patients and malpractice risks.<sup>[6]</sup> Considering their professionalism, healthcare providers were burdened to produce proof during criminal litigation in Taiwan. However, prolonged litigation created a tangible fear and pressure on medical personnel, resulting in their practice of defensive medical practice. Defensive medicine refers to the practice of recommending a test or treatment that is not necessarily the best option for the patient, but is mainly used to protect the physician against the patient as the potential plaintiff. During such circumstances, the healthcare providers' primary intent was to avoid criminal and civil proceedings.<sup>[7]</sup> Defensive medicine resulted in higher medical expenses and increased the likelihood of over-diagnosis and over-treatment.<sup>[8]</sup> Order computed tomography, magnetic resonance imaging, and X-ray were the most common tools for practicing defensive medicine among the high-risk specialties, except among obstetricians and gynecologists.<sup>[9]</sup> Male healthcare providers, the department of surgery and lack of communication had higher probabilities of causing medico-legal actions.<sup>[10]</sup> Neurosurgery ranked the highest in medical malpractice claims, along with a high risk of recurrent claims.<sup>[11]</sup>

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The datasets generated during and/or analyzed during the current study are publicly available.

This study did not constitute human participants research and therefore institutional review board approval was not needed.

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### Key points

1. The criminal defendant rate per 10,000 physician-years has dropped after the Medical Care Act amendment in Taiwan.
2. The amendment reduces the guilty rate per 10,000 physician-years to the minimum during 2016 to 2020 across medical specializations, leading to a decrease in criminal liabilities.

Hence, lawmakers in the United States proposed communication-and-resolution programs, or a damages cap, to improve patient safety and reduce liability risk. A higher restrictive cap (\$2,50,000) reduced average payments by 20%, compared to no cap at all.<sup>[12]</sup> In Taiwan, the medical communities strengthened the communication between physicians and patients, and promoted amendments to the Medical Care Act, to rationalize medical criminal liability and claim monetary compensation.

The National Health Insurance Act was implemented in Taiwan in 1995, covering most medical expenses. Medical malpractice claims increased after the implementation of the National Health Insurance Act. Civil and criminal lawsuits were filed to resolve medical disputes. In Taiwan, it is a special phenomenon that people opted for medical criminal litigation, instead of civil litigation, to deal with medical disputes. This is due to prosecutors assisting in the judgment of medical negligence, and the proceedings increasing the pressure regarding medical malpractice settlements. This led to the Medical Association and medical personnel urging to amend the Medical Care Act, to reduce indiscriminate litigation. The draft amendment to the Medical Care Act was passed in December 2017, and officially implemented in January 2018. The amendment to Article 82 of the Medical Care Act added: “only in the event that medical personnel negligently cause injury or death to patients in conducting medical practices due to a breach of medical due care, which goes beyond the reasonable exercise of professional clinical discretion, the medical personnel shall assume criminal responsibility.” With respect to criminal liability, the amendment introduced the concept of “allowed risk” during diagnosis and treatment.<sup>[8]</sup> Allowed risk emphasized that the injury or death caused during medical practices, following adequate medical care, is an allowed risk in the society. The effects of this amendment remain unclear. Therefore, in this article, we analyzed the rate and characteristics of medical criminal liability among various specializations from 2001 to 2020, to investigate the impact of the amendment.

## 2. Materials and methods

A comprehensive retrospective study was conducted on all medical criminal liabilities of healthcare providers in Taiwan from January 1, 2001, to December 31, 2020. The Judicial Yuan Global Information Network provided a public judgment inquiry system to access the judgment results. The keywords used to search the judgment decision number were medical, medical-related terms, malpractice, and Article 82 of the Medical Care Act. The Medical Care Act was applicable to all medical professionals, including physicians, dentists, nurse practitioners, nurses, technicians, therapists, and pharmacists; all of them were involved in the analysis, with physicians forming the majority of participants.

A single case of medical malpractice may have resulted in multiple appeals. In this analysis, the year of the first prosecution hearing was determined as the point of occurrence of the medical dispute, and the final judgment result was the conclusion. One medical criminal litigation may involve multiple

defendants. We collected data on both the number of litigations and the number of defendants. The criminal liabilities of physicians were obtained from the verdicts. The conviction rate was calculated by dividing the number of the guilty by the number of defendants. Physician specializations could also be identified from the verdicts. Healthcare providers were categorized into the following 6 groups: internal medicine; surgery and orthopedics; obstetrics and gynecology; pediatrics; physicians (other than the aforementioned 4 medical departments); and non-physicians. Since cardiologists and emergency physicians had a higher number of criminal litigations, their data were calculated and described separately in this analysis. With respect to the residents who did not belong to a single specialization during the medical disputes, the specialization of the entire medical team was considered to be under litigation. Data on the accusers who were involved in self-financed medical treatments (their expenses are not covered by Taiwan’s National Health Insurance), such as aesthetic medicine, cosmetic surgery, dental implants, or weight loss treatment were also collected. Allegations in medical malpractice were categorized as errors related to diagnosis and treatment. To simplify the categorization, causes other than diagnosis-related errors were defined as treatment-related errors. The severity of the patient’s adverse consequences included injury, disability and death, with patients considered disabled only when their condition corresponded to the national physical or mental disability criteria. If the defendants pleaded guilty, the punishment sentences and their types were recorded.

This analysis focuses on medical crimes. To analyze the accusation rate and the guilty rate per 10,000 physician-years, the number of prosecuted physicians and the number of guilty physicians were divided by the number of physicians who practiced that year. The Taiwan Medical Association provided detailed information on the number of practicing physicians in each specialization from January 1, 2001, to December 31, 2019. The number of physicians increased from 30,232 in 2001, to 49,791 in 2019. Data on the number of physicians in 2020 were unavailable and imputed based on the specialization’s average from 2016 to 2019. Group 6, comprising non-physicians, was not analyzed for every 10,000 physician-years.

To resolve annual fluctuations, we calculated the accusation rate and the guilty rate per 10,000 physician-years, in aggregate and by specialization, in 4 periods: 2001 to 2005, 2006 to 2010, 2011 to 2015, and 2016 to 2020. The analysis was conducted from February to April 2021. The results of criminal proceedings are public knowledge and play a fundamental role in educating society and maintaining its structure. This study did not include human participants; therefore, approval from an institutional review board was not required.

## 3. Results

From January 1, 2001 to December 31, 2020, a total of 249 criminal litigations were documented in the judgment inquiry system of the Judicial Yuan Global Information Network, reported in aggregate and according to the physicians’ specialization (Table 1). Medical criminal cases might go through multiple trials, with multiple appeals from the defendants. The medical criminal litigation that consumed the highest amount of time was a case of drunk driving-related epidural hematoma that experienced 13 trials in 15 years. However, this dispute was not used for the analysis because the first prosecution occurred in 1999, well before this study was conducted. It took an average of 3.0 years for each case of medical malpractice to receive its final judgment.

Among the 249 medical criminal litigations, 335 healthcare providers were prosecuted for negligent injury (113/335, 33.7%), involuntary manslaughter (219/335, 65.4%), violation of the Physicians Act (2/335, 0.60%) and criminal

homicide (1/335, 0.30%). The Physicians Act stipulates the qualifications, rights and punishments of physicians. According to their specializations, the proportions of the defendants were as follows: 19.1% (64/335) were in internal medicine, 26.3% (88/335) in surgery and orthopedics, 11.9% (40/335) in obstetrics and gynecology, 3.3% (11/335) in pediatrics, 25.7% (86/335) were physicians in departments other than the 4 aforementioned departments, and 13.7% (46/335) were non-physicians. The average conviction rate was 23.58% (79/335). Further analysis revealed that emergency medicine accounted for 11.3% of the defendants, but the conviction rate was 18.42%, which was lower than the average. The conviction rate for non-physicians was 41.3%, which was higher than the average, because they tended not to appeal after the first trial. The average sentence duration was 6.88 months. While 20.25% (16/79) of the guilty were sentenced to more than 6 months of imprisonment, 11.39% (9/79) of the guilty were sentenced to the same, but without probation. Members of group 5 (physicians in departments other than the 4 aforementioned medical departments) were likely to receive longer sentences because they offered more self-financed treatment that did not follow the adequate amount of care. Group 6 (non-physicians) received longer sentences, because they tended not to appeal after the first trial. Diagnosis-related malpractice and treatment-related malpractice accounted for 19.7% and 80.3% of the allegations, respectively. According to the severity of the patients' adverse consequences, 17.3%

(58/335) were injured, 14.6% (49/335) were disabled, and 68.1% (228/335) faced death.

The government launched the National Health Insurance Act in 1995. The number of medical defendants increased from 92 in 2001 to 2005, to 127 in 2006 to 2010. This increasing trend was noted in most of the specializations (Table 2). After the amendment to the Medical Care Act in 2017, the number of medical defendants during 2016 to 2020 reduced to 15 people in aggregate significantly, compared to the defendant numbers in 2001 to 2005, 2006 to 2010 or 2011 to 2015. This trend of reduction in the number of defendants was also observed among all the specializations. The number of defendants deemed guilty decreased from 26 in 2001 to 2005, to 4 in 2016 to 2020. Compared to the previous 20 years, the number of the guilty was also the lowest during 2016 to 2020, across all specializations. The conviction rate and the sentences differed among the various time periods and across various specializations, which requires further observation and discussion.

On average, the rate of the accused per 10,000 physician-years was 28.66 per 10,000 physician-years during 2001 to 2005, 34.30 during 2006 to 2010, and 23.94 during 2011 to 2016. The rate declined significantly to 3.17 per 10,000 physician-years during 2016 to 2020, post-amendment. The accused rate per 10,000 physician-years also declined across the specializations (Fig. 1). Emergency specialization (part of group 5) had 38 (11.3%) defendants during the previous

**Table 1**  
The medical criminal litigations by specialization, 2001 to 2020.

Specialty	Medical criminal case	Defendant	Guilty	Conviction rate (%)	Sentence duration (months)
All	249	335 (100.0%)	79	23.58	6.88
1. Internal medicine	46	64 (19.1%)	12	18.75	5.50
Cardiology	9	10 (3.0%)	1	10.00	4.00
2. Surgery and orthopedics	75	88 (26.3%)	17	19.32	5.40
3. Obstetrics and gynecology	34	40 (11.9%)	7	17.50	6.86
4. Pediatrics	10	11 (3.3%)	0	0.00	0.00
5. Physicians (other than the aforementioned four medical departments)	71	86 (25.7%)	24	27.91	8.42
Emergency medicine	27	38 (11.3%)	7	18.42	4.19
6. Non-physician	38	46 (13.7%)	19	41.30	7.39
Self-financed treatment	27	28	7	25.00	9.31

**Table 2**  
Details of medical crime every 5 years from 2001 to 2020.

Specialty	Defendant				Guilty				Conviction rate (%)				Sentence duration (months)			
	2001–2005	2006–2010	2011–2015	2016–2020	2001–2005	2006–2010	2011–2015	2016–2020	2001–2005	2006–2010	2011–2015	2016–2020	2001–2005	2006–2010	2011–2015	2016–2020
All	92	127	101	15	26	26	23	4	28.26	20.47	22.77	26.67	6.29	4.17	8.28	20.46
1. Internal medicine	25	20	17	2	6	4	2	0	24.00	20.00	11.76	0.00	6.00	5.00	5.00	0.00
Cardiology	2	4	4	0	0	0	1	0	0.00	0.00	25.00	0.00	0.00	0.00	4.00	0.00
2. Surgery and orthopedics	23	38	24	3	7	6	4	0	30.43	15.79	16.67	0.00	4.19	3.97	9.67	0.00
3. Obstetrics and gynecology	11	15	11	3	4	0	3	0	36.36	0.00	27.27	0.00	5.50	0.00	8.67	0.00
4. Pediatrics	3	5	2	1	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5. Physicians (other than the aforementioned four medical departments)	15	36	31	4	5	9	7	3	33.33	25.00	22.58	75.00	5.40	3.48	8.83	25.61
Emergency medicine	8	17	13	0	2	4	1	0	25.00	23.53	7.69	0.00	6.25	3.75	1.83	0.00
6. Non-physician	15	13	16	2	4	7	7	1	26.67	53.85	43.75	50.00	12.00	4.76	7.71	5.00
Self-financed treatment	3	10	12	3	1	2	3	1	33.33	20.00	25.00	33.33	1.33	4.00	19.33	1.83

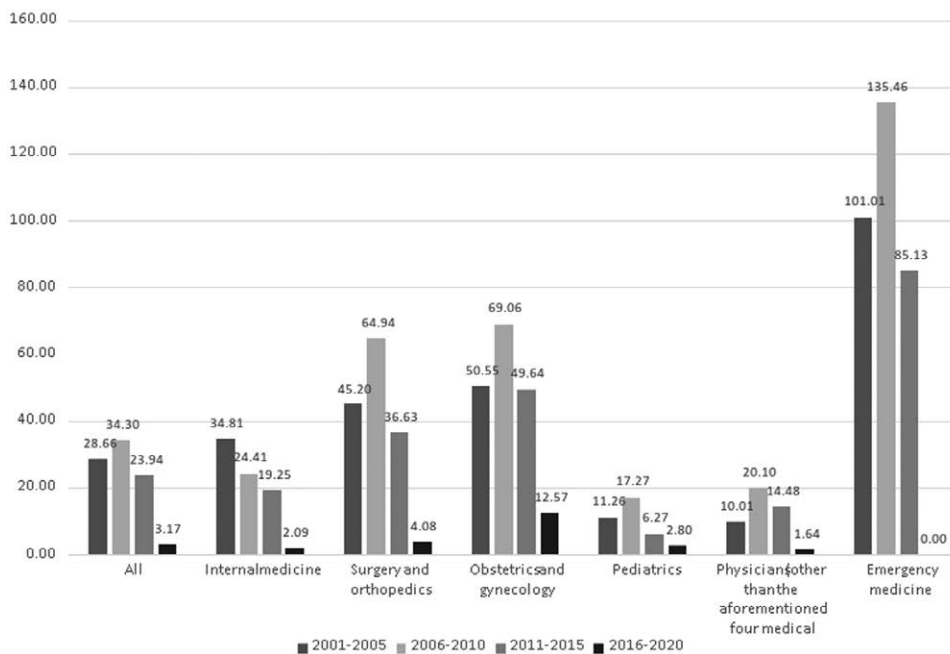


Figure 1. The accused rate per 10,000 physician-years by specialization, 2001 to 2020.

20 years, and the accused rates per 10,000 physician-years were the highest between 2001 and 2015 across various specializations.

On average, the guilty rate per 10,000 physician-years showed a decreasing trend: it was 8.10 per 10,000 physician-years during 2001 to 2005, 7.02 during 2006 to 2010, 5.45 during 2011 to 2016, and 0.85 during 2016 to 2020. The guilty rate in the previous 20 years also showed a steady declining trend in the group of internal medicine, surgery and orthopedics, but not in the pediatric group (no pediatrician was convicted) (Fig. 2). Although emergency specialization was a subgroup among group 5, it had the highest guilty rate during 2001 to 2010, after adjusting every 10,000 physician-years. However, it decreased to 0 during 2016 to 2020, post the amendment. In summary, in

aggregate or among all the specializations, the guilty rates per 10,000 physician-years during 2016 to 2020 were the minimum or 0, compared to the guilty rates in 2001 to 2005, 2006 to 2010 or 2011 to 2015.

#### 4. Discussion

This analysis revealed the details of medical criminal litigation and provided objective data on the impact of law amendments in Taiwan. Between 2001 and 2020, 249 medical malpractice related criminal cases existed, leading to 335 defendants with an average conviction rate of 23.58%. Most of the judgments led to imprisonment sentences that were less than 6 months in duration and might be commuted to fines or suspended sentences.

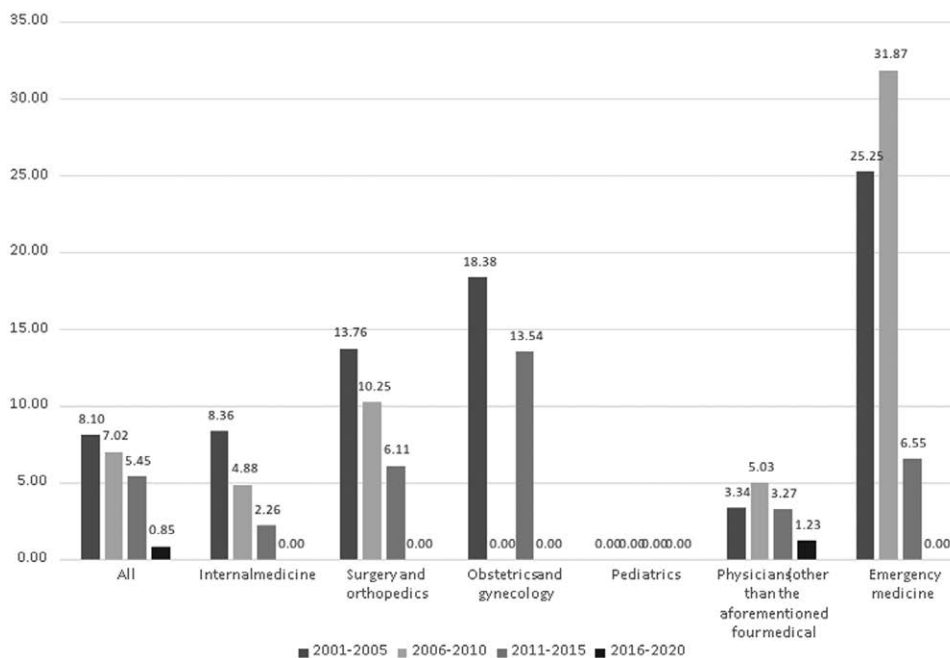


Figure 2. The guilty rate per 10,000 physician-years by specialization, 2001 to 2020.

However, 11.39% (9/79) of the guilty were imprisoned directly and could not get suspended sentences. Rumors regarding non-imprisonment for medical crimes existed in the past; however, this analysis helped affirm its false nature.

In this analysis, 63.45% of the accused's patients faced death, resulting in medical criminal proceedings. Greater than half of medical compensation or litigation was related to the death of a patient, considering that death is an important risk factor in litigation.<sup>[13]</sup> Medical malpractice due to diagnosis-related errors accounted for 19.7% of the total number of allegations. This is similar to the rate of diagnosis-related errors in medical claims in the United States, which is about 28.6%.<sup>[14]</sup> However, the characteristics of the specialization often determine the reason for prosecution. For example, prosecutions in the radiology department were, in general, significantly related to diagnosis-related errors.<sup>[15]</sup>

In the past, the incidences of medical malpractice in surgery, obstetrics, and gynecology were relatively high. In group 2 and 3, the accused rate per 10,000 physician-years was higher than the average across different periods, thereby supporting the aforementioned statement. During 2001 to 2015, compared to the first 4 groups, emergency specialization had the highest defendant rate per 10,000 physician-years. This result corroborated with previous analyses, which showed that emergency specialization was the 1 with the highest risks in Taiwan.<sup>[5]</sup> In criminal proceedings, the number of pediatric defendants is the smallest, and the conviction rate is 0. This also highlights the fact that medical malpractice claims settled by pediatricians are also rare.<sup>[16]</sup> Corresponding the number of defendants with the number of practicing physicians in each specialization of the previous 20 years, we can see that the medical accused rate per 10,000 physician-years has declined during 2016 to 2020. The medical association and society focused on the increasing number of malpractice suits before 2017, and urged for the amendment. The amendment of the Act in 2017 also changed society's response to medical malpractice. The average decline in the number of defendants and the guilty rate from 2016 to 2020 reflects the impact of the amendment. The rate of accused per 10,000 physician-years in the emergency department showed the highest decline, from 134.46 people in 2006 to 2010 to 0 person in 2016 to 2020.

The guilty rates across specializations reached the lowest or zero, after adjusting every 10,000 physician-years in the previous 20 years. From the perspective of criminal law, this means that law amendments can transform the judicial environment and reduce vexatious criminal proceedings, and will affect the accused rate and reduce criminal liabilities. Certain amendments or legislation cannot achieve the expected results. For example, in China, the introduction of the recent Tort Liability Law reduced the average time to complete a civil lawsuit; however it had less impact than was expected.<sup>[17]</sup> Therefore, the amendment can alleviate the pressure on healthcare providers due to malpractice litigation. However, the conviction rates during 2016 to 2020 are not low, and the court's judgment is based on proof and factual information. Therefore, patients should not be concerned about their rights even if they file a medical criminal lawsuit.

The law plays an important role in patient safety. The law helps create a professional and institutional culture, encourages staff to recognize and report adverse events, and reduces the adversity rate through legal safeguarding of patients.<sup>[18]</sup> For example, in Italy, the medical liability reform was implemented in 2017 through the "Gelli-Bianco Law," aiming to reduce the practice of defensive medicine by defining the criminal liability of doctors, civilians, and hospitals. Article 6 of the "Gelli-Bianco Law" stipulated that healthcare professionals shall only bear the criminal responsibility in the event of gross negligence, and the behavior standard was the adoption of the guideline or the best accredited medical practices.<sup>[19]</sup> The law amendments

in Italy and Taiwan depict the importance of the behavior standard and emphasize the allowed risk of medicine. The allowed risk of medicine is the possibility of death or injury despite following guidelines and best medical practices. However, medical practice is highly complex, and the most appropriate treatment plan needs to consider the characteristics and specific circumstances of each clinical case.<sup>[20]</sup> This is the subject of an ongoing dispute between the medical and legal professions. The goal of medical liability reform is to promote safe and high-quality medical care.<sup>[21]</sup>

Medical malpractice involving the government, healthcare providers, insurance companies, the legal system and patients, is both a legal and health system issue. Medical malpractice research will improve the quality of medical care and strengthen health systems.<sup>[22]</sup> Death and disease are natural processes of life, and healthcare cannot completely reverse these processes. Healthcare workers provide assistance with the lowest risks and greatest benefits; however, medical treatment is prone to risks. When receiving treatment, allow the existence of medical-related risks so that patients can obtain the benefits of medical care.

The purpose of amending the Medical Care Act is not for the guilty to be acquitted, but to improve the medical environment. The decline in the rate of the accused and the guilty rate per 10,000 physician-years, means that healthcare providers should not be highly concerned about vexatious proceedings and opt for defensive medical services. Medical criminal litigation is not the best way to resolve medical disputes. Improving patient safety and comprehensive interpretation can also help reduce medical litigation, although this research cannot prove this fact. In summary, the amendment to the Medical Care Act reduced the number of unreasonably accused and medical criminal liabilities. The amending process also clarified the allowed risk, which is inevitably a part of the medical system.

## 5. Limitations

This study has some limitations. First, there were various judgment decision numbers. Many different keywords in the judgment inquiry system were entered, to reduce search omissions. Second, we used the number of registered practicing physicians of the Taiwan Medical Association to determine the number of physicians in each specialization in a certain year. However, these data did not consider the clinical volume of the physicians, which might have affected the physician's liability exposure. Third, we used the first trial year as the statistical basis, but patients might undertake legal actions 1 to 2 years after the occurrence of the medical disputes. Therefore, the amount of litigation in 2016 to 2020 might have been underestimated. Fourth, the number of medical criminal proceedings was significantly lower than the number of medical malpractice claims. Therefore, this research did not conduct a sub-specialization analysis, nor can it provide further data on the criminal liability related to that sub-specialization.

## 6. Conclusion

From 2001 to 2020, the number of medical personnel accused in Taiwan remained high at the beginning of the stated period. However, after the amendment (in 2017), the number of defendants dropped on average, and with respect to certain degrees of specialization, showed a downward trend in the rate of the accused per 10,000 physician-years. The guilty rate per 10,000 physician-years decreased on average, and reduced to the minimum across various medical specializations during 2016 to 2020. Law amendment reduces the risk of unreasonable medical criminal litigation. The amending process transforms the final judgment of medical criminal

proceedings and reduces medical criminal liability by clarifying the allowed risk.

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