

# In-kind donations to healthcare facilities during COVID-19: Experiences from a large medical center in northern Taiwan

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## Abstract

**Background:** In early 2020, a global outbreak of 2019 novel coronavirus disease (COVID-19) caused high mortality rates and public panic. Worldwide demand for personal protective equipment has risen, with diminishing supplies and shortages reported. During the pandemic, charitable donations have been made by the public, aimed at helping medical staff. Based on the open data, we investigate the charitable in-kind donations received by a large medical center in northern Taiwan (Taipei Veterans General Hospital [TPEVGH]) in Taiwan during the pandemic.

**Methods:** The period of investigation was the first half of the year 2020. TPEVGH has received various public donations. The list of donations published on the hospital's official website was analyzed. The variables in the analysis were donation category, donation percentage, number of donations, and total donation amount.

**Results:** Most in-kind donations were food and beverages (55.1%), with a monetary value of 3 124 510 New Taiwan Dollars (NTD) (24.3%). Medical equipment accounted for the second-highest number of items (34.8%) but was the highest monetary value (70.6%; 9 275 945 of 12 875 855 NTD). Daily necessities accounted for the lowest number of items (10.1%) and had a total monetary value of 475 400 NTD (3.7%). Over two-thirds were beverages (68.4%), all of which were bottles or cans for easy storage. Despite only five items (13.2%) being juice, the donation size was the largest, accounting for nearly half (47.1%) of the total monetary value. Only one item was fruit, which was high-class organic apples. The monetary value of this item was the highest (7.8%) among all donated food. Most donated snacks were biscuits.

**Conclusion:** During the COVID-19 pandemic, most public donations to TPEVGH were food and daily necessities. While every donation should be appreciated, accepting high volumes of donations might incur donation management problems. Further research could be focused on managerial aspects, for example, quality and safety checking, storage, and distribution.

**Keywords:** 2019 novel coronavirus disease; Charities; Taiwan

## 1. INTRODUCTION

In critical times, such as communicable disease outbreaks and natural disasters, economic and financial ramifications affect global product supply chains, resulting in shortages of various necessities.<sup>1</sup> In early 2020, a global outbreak of 2019 novel coronavirus disease (COVID-19), a highly contagious coronavirus,

caused high mortality rates and public panic.<sup>2,3</sup> Worldwide demand for personal protective equipment (PPE) has since risen, with diminishing supplies and shortages reported. Globally, frontline healthcare workers have faced considerable challenges and psychological stress due to PPE shortages. Thus, implementing effective intrahospital preventive principles to ensure healthcare workers' physical and psychological well-being is crucial.<sup>4</sup> However, adequate production and distribution of PPE has been challenging for governments during the pandemic.<sup>5</sup>

Hospitals fundamentally seek public health and welfare. Thus, volunteers and charitable donations play an important role in hospital operations.<sup>6-10</sup> During the COVID-19 pandemic, various charitable donations have been made by the public, aimed at protecting vulnerable populations and encouraging medical staff; such donations have included food, PPE, and other medical supplies.<sup>11</sup> However, the process of managing donations, including registration, storage, and appropriate allocation, has become a challenge for hospitals and relevant details have been rarely reported.

The purpose of this study was to investigate the charitable donations received by a large medical center in Taiwan during the COVID-19 pandemic. The period of investigation was the

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first half of the year 2020, the most severe period of the epidemic in Taiwan. The findings of our study provide useful information for hospitals that encounter similar situations.

## 2. METHODS

Taiwan is an island country in East Asia, with a population of approximately 24 million. Due to a relative lack of natural resources, the economy relies largely on exports. Taiwanese have close economic ties with Mainland China and many other countries.

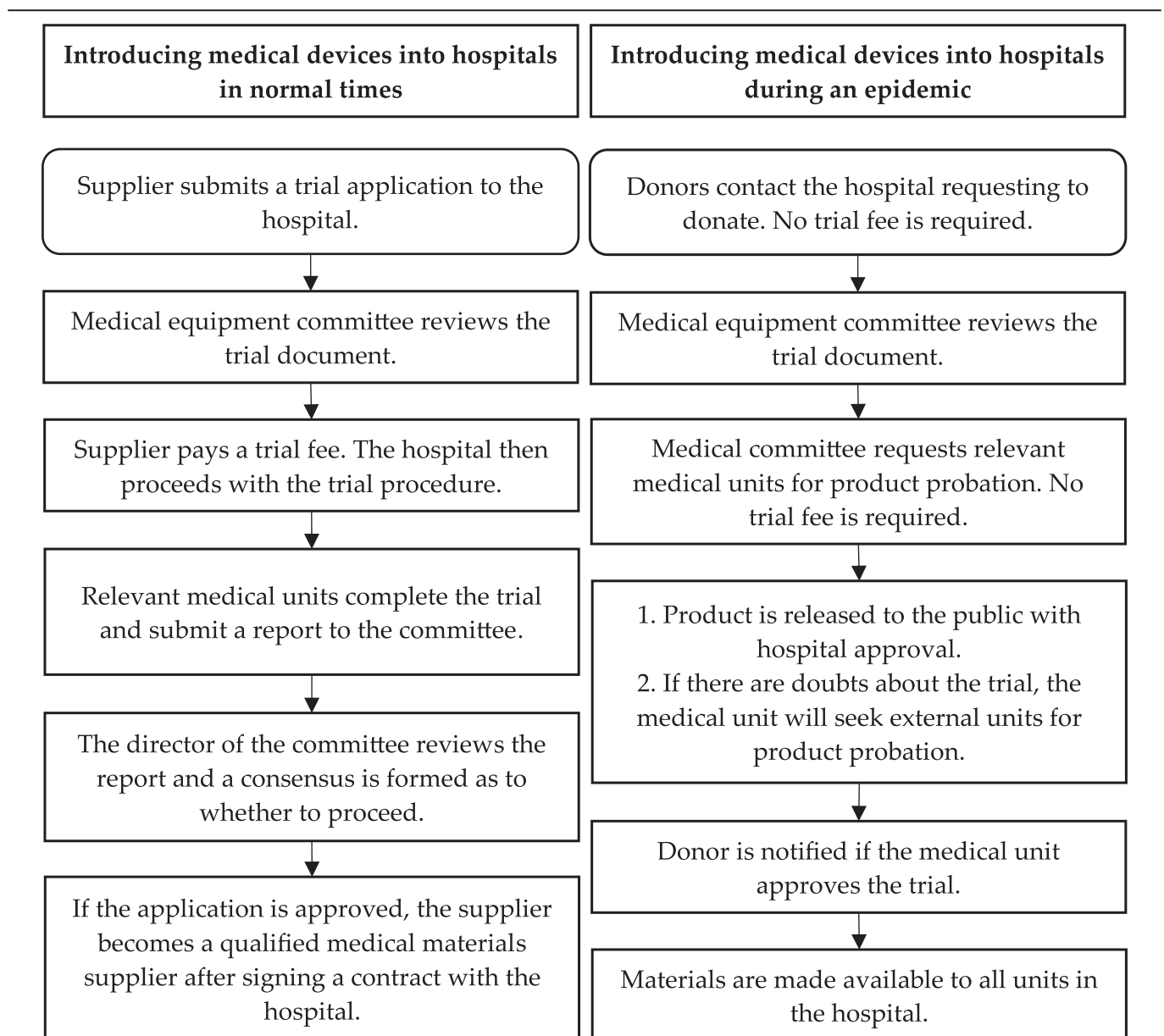
On January 21, 2020, the Taiwan authorities confirmed the country's first imported case of COVID-19 from China. The case was a businesswoman older than 50 years of age, who took a flight from Wuhan to Taiwan.<sup>12</sup> As of the end of June 2020, the total number of diagnosed cases in Taiwan was 447.<sup>13,14</sup>

Taipei Veterans General Hospital (TPEVGH) is a large public medical center in northern Taiwan, with a daily outpatient

attendance of approximately 8000 people. In 2020, the hospital had 2802 beds, 6656 employees, and 2 533 249 outpatient visits.<sup>15</sup>

As shown in the left side of Fig. 1, TPEVGH has established and implemented guidelines on the approval process of medical devices. The process requires medical equipment suppliers to submit a trial application to the hospital. After the trial has been completed, relevant medical units submit a final report to the hospital's medical equipment committee. Several senior hospital directors then decide whether to approve the supplier's application. Once an application is approved, medical units in the hospital may order materials from the supplier according to their clinical needs.

The growing COVID-19 pandemic caused an imbalance between supply and demand in the medical supply market. In addition to TPEVGH continuing to purchase preventative materials from approved suppliers, the hospital also accepts public donations. Under the circumstance of the pandemic, the hospital



**Fig. 1** TPEVGH's medical device trial processes in normal times vs during an epidemic. TPEVGH = Taipei Veterans General Hospital.

had to rapidly adjust its administrative processes in response to the emerging needs of healthcare providers. Thus, TPEVGH has established exclusive regulations for pandemic-related donations. This process is shown in the right side (Fig. 1).

Before accepting donations of medical products (eg, masks, protective clothing, safety glasses, medical gloves, hand sanitizer, and other protective equipment) that are mainly used by medical staff, TPEVGH requests product samples to be tested for quality and to evaluate whether the donations actually meet the needs of medical staff. Only if a product meets the standard will the hospital accept it, thus maintaining quality standards while avoiding waste.

Since the outbreak of COVID-19 in Wuhan, TPEVGH has received various public donations, a list of which is displayed on the hospital's official website (<https://www1.vghtpe.gov.tw/trans/index1.htm>, accessed on August 15, 2020 [in traditional Chinese]). In normal times, the hospital generally accepts public donations; however, most of them are not related to epidemic prevention. During the COVID-19 pandemic, some donations were not related to infection prevention. In this study, we only assessed donations of anti-epidemic supplies. Our study was exempt from approval by the hospital's institutional review board.

Anti-epidemic donations in our study were defined as materials donated to the hospital's medical personnel for the purpose of showing gratitude and appreciation by the public, as opposed to donating to a specific individual or patient. Anti-epidemic donations were divided into three categories: medical supplies, daily necessities, and food and beverages. At TPEVGH, the supply office is generally responsible for leading, coordinating, and supervising donations of medical equipment and devices; the nursing department is responsible for donations of household goods; and the nutrition department is responsible for donations of food and beverages.

Taiwan's Pharmaceutical Affairs Act defines medical devices as any instrument, equipment, apparatus, accessory, or spare part that is used for diagnosing, curing, alleviating and directly preventing human disease, or changing the structure and function of the human body. In the present study, medical devices referred to any device used for clinical purposes; however, some nonmedical items, such as bed quilts, which are used to benefit patients and improve the quality of healthcare, were also classified as medical devices. We defined daily necessities as items that healthcare workers may need outside of clinical use, such as skin-care products and cleaning supplies, which can be purchased by anyone. Relevant authorities do not regulate such items as medical products. Finally, we defined food as including lunchboxes, fruits, and snacks; and beverages as including juice, tea, coffee, or any healthy drinks that could boost nutrition. For comparison, we also surveyed the donation data of another partner hospital (Kaohsiung Veterans General Hospital) of TPEVGH with the same classification.

Descriptive statistics were calculated using Microsoft Excel 2016. The variables in the analysis were donation category, donation percentage, number of donations, and total donation amount. All currency values are reported in New Taiwan Dollar (NTD). The exchange rate as of June 2020 was 29.38 NTD per 1 USD. Since the unit of measurement varied (eg, boxes, bags, sets, and so on), the quantity of donations was not included. All donations were listed on the hospital's official website.

### 3. RESULTS

In the first half of 2020, TPEVGH received 189 donated items. Among these, 12 of them were monetary donations valued at 30,318,804 NTD. Only one of monetary donations was donated to the hospital for the purpose of epidemic prevention. This item had a monetary value of 500 000 NTD and contributed only a

relatively small proportion to the total monetary value of all donations (1.6%). The total number of in-kind donations was 117, with a monetary value of 31 828 258 NTD. Of these, 69 (60.0%) donations were relevant to epidemic prevention, with a monetary value of 12 875 855 NTD.

Among 69 in-kind donations related to epidemic prevention, the largest proportion was given by 61 companies (88.4%), who also contributed the largest cumulative value of donations (96.3%, 12 405 455 NTD). Only a small proportion of donors were individuals (7.2%, n = 5), and they contributed the lowest cumulative value of donations (1.3%, 170 700 NTD). Foundations made up the smallest group of donors (4.3%, n = 3) but contributed the second highest amount in terms of monetary value (2.3%, 299 700 NTD). Regarding donation frequency, 11 companies (18.0%) and one individual made more than one donation.

Most in-kind donations received by TPEVGH were food and beverages (55.1%, n = 38), with a monetary value of 3 124 510 NTD (24.3%) (Table 1). Medical equipment accounted for the second highest number of items (34.8%, n = 24) but was the highest in terms of monetary value (70.6%, 9 275 945 NTD). Daily necessities accounted for the lowest number of items (10.1%, n = 7) and had a total monetary value of 475 400 NTD (3.7%). Among medical equipment, PPE (eg, face masks, gowns, isolation caps, disposable gloves, and safety glasses) accounted for 15.9%. Other medical equipment (eg, quilts, IV stands, intubation kits, and air purifiers) accounted for 5.8%. Although only two items of in-kind donations (2.9%) were quilts, the monetary value of each item was considerably high; as such, this item accounted for nearly 60% of all of the in-kind donated materials.

Food and beverages donations accounted for more than half of the total number of items. Thus, we analyzed this category in greater details (Table 2). Over two-thirds were beverages (68.4%), all of which were bottles or cans for easy storage. Despite only five items (13.2%) being juice, the donation size (ie, the number of total juice boxes) was the largest, accounting for nearly half (47.1%) of the total monetary value. Coffee was given in the form of instant coffee sachets. Tea was given in the form of bottles. Regarding food, most items were lunchboxes. Only one item was fruit, which was high-class organic apples. The monetary value of this item was the highest (7.8%) among all donated food. Most donated snacks were biscuits.

In contrast, Kaohsiung Veterans General Hospital had received 107 in-kind donations related to epidemic prevention, with a monetary value of 8 185 368 NTD. Nearly three-fifths (59.8%, n = 64) of donations came from companies. Similar to the situation at TPEVGH, the largest number of donations

**Table 1**

#### In-kind donations by category

Category	No. of Items (%)	Monetary Value in New Taiwan Dollars (%)
Medical equipment		
Masks	7 (10.1)	264 625 (2.1)
Other PPE	4 (5.8)	208 140 (1.6)
Forehead thermometer	3 (4.3)	75 880 (0.6)
Quilts	2 (2.9)	7 500 000 (58.2)
Other equipment	8 (11.6)	1 037 500 (8.1)
Daily necessities		
Hand cream	4 (5.8)	234 000 (1.8)
Cleaning products	3 (4.3)	241 400 (1.9)
Food and beverages	38 (55.1)	3 124 510 (24.3)
Total	69	12 875 855

PPE = personal protective equipment.

**Table 2**  
**Donated food and beverages in details**

Category	No. of Items (%)	Monetary Value in New Taiwan Dollars (%)
<b>Beverages</b>		
Juice	5 (13.2)	1 473 600 (47.1)
Tea	11 (28.9)	76 900 (2.5)
Water	1 (2.6)	360 000 (11.5)
Coffee	6 (15.8)	520 120 (16.6)
Health drinks	3 (7.9)	194 950 (6.2)
Subtotal	26 (68.4)	2 625 570 (84)
<b>Food</b>		
Lunchboxes	7 (18.4)	66 800 (2.1)
Fruit	1 (2.6)	245 000 (7.8)
Snacks	4 (10.5)	187 140 (6)
Subtotal	12 (31.6)	432 140 (13.8)
Total	38	3 124 510

received by Kaohsiung Veterans General Hospital were food and beverages (39.2%, n = 42).

#### 4. DISCUSSION

Most previous studies on in-kind donations have focused on developing countries or social welfare organizations.<sup>16,17</sup> Few studies have investigated the context of hospitals. Many types of donations are given to hospitals. The management of such donations is an important topic for hospital operations. As such, a clear understanding of the constitution of donations is of considerable value. This is the first study to analyze donations to a hospital in Taiwan during the COVID-19 pandemic. The purpose of this article is to highlight possible management problems by introducing the hospital management process and displaying the statistics of donations.

Most donations that TPEVGH had received were food and beverages for clinical staff. While this could boost the morale of the healthcare teams, it might also raise a food safety issue.<sup>18,19</sup> During an epidemic, hospitals usually suffer from human resource shortages. Any occurrence that might cause injury or illness to patients or medical staff would increase the care burden of a hospital and have further negative impacts on hospital operations. Some donated food needed to be kept fresh. Not all hospitals have food preservation facilities. If the hospital is unable to dispose of excess food immediately, it may cause cleanliness problems. Thus, food donations present a dilemma. Developing quality control processes for donated food to achieve a balance between the goodwill of donors and the safety of medical staff is therefore crucial.<sup>20,21</sup>

Companies proved to be the largest source of donations received by TPEVGH. We assumed that this donor category has more resources and engages in such prosocial behavior to build a positive image and reputation.<sup>22,23</sup> It might be easier for the hospital to negotiate with the companies about the contents of donation and the requirements of quality control. On the other side, if corporate donors request public donation ceremony at hospitals, it may increase the risk of virus infection.

In normal times, the public do not arbitrarily donate items that are not related to medical care. Our study showed that the highest number of donations was food items. We presumed that the public has been acutely aware of the hardships clinical staff have been facing since the pandemic began, likely because of frequent reporting by the media. Due to the progressive seriousness of the pandemic, some clinical staff have even been unable to return home to ensure the safety of their families. Therefore,

donations of daily necessities could be helpful for people who are temporarily forced to stay away from home.<sup>24</sup> If there are too many donations of daily necessities, the healthcare workers may not have enough space to stack them. And they have to try to distribute them fairly. One possible solution is to cooperate with a third party to handle donations.<sup>25</sup> The effects of any new strategies should be further investigated in the future to ensure more efficient usage of anti-epidemic materials.

According to regulations of Taiwan's Ministry of Health and Welfare, "epidemic prevention materials" are defined as drugs and devices that protect against infectious disease. During the pandemic, the demand for protective devices has increased significantly in hospitals. Many people have donated expendable anti-epidemic supplies to clinical staff to protect them from exposure to dangerous pathogens.<sup>26</sup> However, the number of PPE donations was relatively low. In the initial stage of the pandemic, the Taiwan government banned the export of face masks as of January 24, 2020; this was followed by the requisition and rationing of all domestically produced face masks.<sup>27</sup> Under these circumstances, it was not easy for the public to purchase large quantities of face masks.

To ensure the safety of patients and clinical staff, all medical devices and equipment should meet national standards. Therefore, multistage checking processes are necessary after receiving such donations, and each procedure requires extra human resources and much time. Establishing regulations pertaining to donations is important, and such regulations should account for factors such as the type and shelf life of a product. This may lessen the burden of executive process for hospitals while also preventing unnecessary wastage.

There are some suggestions in our study. First, hospital administrators should make and release the regulations about donations to avoid unsuitable donations. Items of supplies in shortage could also be announced in time on the hospital's website to avoid unnecessary donations. Furthermore, health authorities could authorize a third-party organization to coordinate donations, for example, receiving, checking, allocating, and delivering.

Our study had some limitations. TPEVGH has established regulations about charitable donations, but these regulations consider donations during normal times. Donated goods that do not meet these requirements are returned to the donors. Because we only analyzed the accepted goods listed on the official website of the hospital, the whole extent of charitable acts remained unknown. Moreover, we only analyzed the dataset for the first half of 2020, which was the most severe period of the pandemic. Since then, Taiwan has been able to control infection well, with only sporadic indigenous diagnosed cases reported.<sup>28</sup> The donation distribution may change over time if the trend of the pandemic or domestic and international policy change. Future research should therefore consider similar investigations over a longer timeline. In addition, because every hospital has different features and encounters different situations, the external validity or generalizability of our study results might be limited.

In conclusion, during the COVID-19 pandemic, most public donations to hospitals were food and daily necessities for clinical staff. While every donation should be appreciated, accepting high volumes of donations might incur problems regarding donation management. Further research could be focused on managerial aspects, for example, quality and safety checking, storage, distribution, effectiveness and efficiency, cost/benefit analysis, and capacity requirements.

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