



Case study: the COVID-19 outbreak in Beijing's Xinfadi Market and its impact on the food supply chain

BACKGROUND

COVID-19 outbreak

There were seven confirmed local cases (as opposed to imported cases) of COVID-19 in Beijing on 11 and 12 June 2020. Prior to this outbreak, Beijing had not reported any new cases for 56 consecutive days.^{1,2,3} With one exception, these confirmed cases had neither left Beijing during the previous two weeks nor had contacts with foreigners or people from Hubei. Epidemiological investigations revealed that all cases had visited the Beijing Xinfadi Agricultural Produce Wholesale Market (hereinafter referred to as Xinfadi Market) in early June. The Beijing Center for Disease Prevention and Control (BJCDC) immediately organized sampling and testing. On 13 June, the BJCDC announced that some of the results of the nucleic acid tests on environment specimens related to the confirmed cases were positive, and that out of the 517 workers of Xinfadi Market who had undergone oropharyngeal swabs, 45 were positive. In addition, one positive case was found in an agricultural produce market in Haidian District; this case was a close contact of a confirmed Xinfadi case.⁴ Further cases, connected to Xinfadi Market, occurred (mainly workers in the market and in support services, and people who went to the market to purchase food); these cases involved multiple districts in Beijing and five other provinces throughout the country.^{2,5}

¹ 批发市场为何易成疫情暴发点. 14 June 2020. *Xinhuanet*. http://www.xinhuanet.com/politics/2020-06/14/c_1126111712.htm

² **Beijing Center for Diseases Prevention and Control**. 2020. 北京市 6 月 12 日新增报告 6 例新冠肺炎确诊病例. In: *Pandemic updates* [online]. Beijing. [Cited 30 September 2020]. www.bjcdc.org/article/62940/2020/6/1592033802959.html

³ 北京连续确诊 3 例新冠患者 新发地批发市场暂停营业. 12 June 2020. *Caixin*. <http://www.caixin.com/2020-06-12/101566522.html>

⁴ 北京两天 7 例本土 46 人咽拭子阳性, 源头何在? 13 June 2020. *Guancha*. https://www.guancha.cn/politics/2020_06_13_553990.shtml

⁵ **Chinese Center for Disease Control and Prevention**. 2020. 中国疾病预防控制中心新冠肺炎疫情专报 (2020 年 6 月 24 日). Beijing. (also available at www.chinacdc.cn/yw_9324/202006/P020200626557038667020.pdf).

Xinfadi Market

Established on 16 May 1988, Xinfadi Market is located 1.2 km south of the Majialou bridge, near the 4th South Ring Road, Fengtai District, Beijing. It is located to the west of the Fengtai Xinfadi North bridge on the Beijing-Kaifeng expressway (National Highway 106), just next to the Xinfadi coach station. The market currently covers an area of 112 ha, equivalent to more than 150 football fields. It has 1 500 employees, about 2 000 fixed booths and more than 4 000 registered customers. The market handles approximately 18 000 tonnes of vegetables, 20 000 tonnes of fruits and 1 500 tonnes of aquatic products per day, as well as more than 3 000 live pigs, 1 500 sheep and 150 cattle. The market's transaction volume stood at 17.49 million tonnes in 2019, for a value of about CNY 131.9 billion (approximately USD 18.8 billion). Out of over 4 600 agricultural produce wholesale markets in China, Xinfadi Market has reported the highest transaction volumes and values for 17 consecutive years. Although the municipal authorities of Beijing have over the past decade repeatedly indicated their intention to gradually divert the functions of Xinfadi Market to other places, the market currently still supplies 80 percent of Beijing's demand for agricultural products, which consists largely of vegetables. Xinfadi Market accounts for roughly 70 percent of Beijing's market for vegetables, and for 15 to 20 percent of the total supply of beef and lamb products in Beijing.^{6,7,8} About half of the food aggregated and traded on Xinfadi Market is destined for Beijing; most of the other half is shipped to Tianjin and Hebei, with some food travelling even further, to Inner Mongolia and north-east China.⁹

The rise of Xinfadi Market has spurred the development of its surrounding communities. Dozens of apartment buildings have been built in the vicinity of the market. Plenty of logistics and storage companies have set up here, as have a large number of automobile businesses (car dealers, repair shops and dealers of accessories), business spaces, employment services, vegetable production sites, etc.

Xinfadi Market has established agricultural wholesale markets named "Xinfadi" in many other provinces across the country, and has developed overseas production sites in a number of countries in South East Asia, Australia and Chile.⁷

REACTION TO THE OUTBREAK

Market closure

After talking to the patient who was diagnosed on 11 June, BJCDC staff confirmed that he had visited the (underground) hall of Xinfadi Market where beef and lamb are traded on 3 June. Sampling of that location was organized immediately. In the early hours of 12 June, the Center for Disease Control and Prevention (CDC) of the Fengtai District reported that environmental samples from the hall had tested positive for the SARS-CoV-2 virus.¹⁰ On the morning of

⁶ 漩涡中的新发地：亚洲最大菜市场不得不说的往事. 15 June 2020. *Southern Weekly*.

<https://mp.weixin.qq.com/s/B2g1J8X0JoVUKdUGAyMGrg>

⁷ 起底“新发地”：交易额连续 17 年全国第一，有从业人员核酸阳性. 13 June 2020. *Yicai*.

<https://www.yicai.com/news/100666151.html>

⁸ 新发地董事长张玉玺：进口三文鱼切割案板检测出新冠病毒. 13 June 2020. *The Beijing News*.

<https://finance.sina.com.cn/china/gncj/2020-06-13/doc-iirczymk6714380.shtml>

⁹ 瘟疫中心的北京新发地：亚洲最大农产批发市场的意外休克. 22 June 2020. *Initium Media*.

<https://theinitium.com/article/20200622-mainland-beijing-coronavirus-wholesale-market-xinfadi/>

¹⁰ 揭秘！24 小时锁定新发地，北京如何做到的？ 2 July 2020. *Beijing Daily*.

<http://ie.bjd.com.cn/5b165687a010550e5ddc0e6a/contentApp/5b16573ae4b02a9fe2d558f9/AP5efdd24ae4b086b26dfd8ba1.html>

12 June, the beef and lamb hall was sealed off.³ The president of Xinfadi Market, Zhang Yuxi, revealed to *The Beijing News* on the evening of 12 June that he had been notified by authorities in the morning that the SARS-CoV-2 virus had been detected on cutting boards used for imported salmon from Jingshen Seafood Market. He also stated that the vegetable and fruit halls would be open as usual on 13 June.^{4,8} However, the Administration for Market Regulation and the Health Commission of the Fengtai District jointly issued an announcement at 03.00 hours on 13 June, declaring that the entire Xinfadi market would be temporarily closed, effective immediately, for comprehensive environmental cleaning and disinfection.¹¹ Xinfadi Market had never stopped operating before – not even at the beginning of the COVID-19 outbreak, when the risk level was highest.⁹

Some markets with cases connected with Xinfadi, such as Yuquan East Commodity Transaction Market in the Haidian District and Guangwai Tiantao Honglian Fresh Produce Market in the Xicheng District, were also temporarily shut down to sample the internal and external environment. Cleaning and disinfection were also carried out.¹²

On 15 June, the second largest agricultural produce wholesale market in Beijing, Dayang Road Market in Shibalidian, in the Chaoyang District, suspended its retail business operations. The market has a 23-year history, covers an area of 40 ha and has 3 061 merchants. Its meat and poultry trading volume accounts for more than half of Beijing's total. Previously, its wholesale business was carried out at night; transactions conducted during the day were mainly retail transactions.¹³

Outbreak control

The measures implemented in concurrence with the market shutdown include: nucleic acid testing for all persons in the market, sampling of the market's internal and external environment, isolation of the close contacts of the confirmed cases, and closed management (controlled entry and exit) of the relevant communities.¹² According to a news report published on 14 June, there were 98 nucleic acid testing institutions in Beijing, which could test more than 90 000 people every day.¹⁴ By 22 June, testing capacity had increased to over 300 000 samples per day.¹⁵ In addition to the persons connected to Xinfadi Market, the municipal authorities of Beijing also carried out nucleic acid tests for everyone working in the city's fresh produce markets, restaurants and dining services, supermarkets, food takeaways, express delivery businesses, and the hairdressing and beauty services industry. Any other persons could get tested too, if they wanted to.^{5,16} At the same time, the General Administration of Customs conducted tests for SARS-CoV-2 on imported meats, aquatic products, vegetables, fruits and

¹¹ 从业人员及环境中检出新冠病毒核酸阳性 北京新发地批发市场暂时休市. 13 June 2020. CCTV. <http://m.news.cctv.com/2020/06/13/ARTIGQBY2TfVXSgNQ2tamGX200613.shtml>

¹² 北京已关闭十余家农贸市场 严厉打击哄抬价格等行为. 16 June 2020. *ChinaNews*. <http://www.chinanews.com/gn/2020/06-16/9213700.shtml>

¹³ 规模仅次于新发地，朝阳区大洋路市场撤销零售业务. 21 June 2020. *Beijing Daily*. <https://ie.bjd.com.cn/5b165687a010550e5ddc0e6a/contentApp/5b16573ae4b02a9fe2d558f9/AP5eef3bc4e4b01e723d298021>

¹⁴ 蔬菜供应够吗？核酸检测能力如何？北京这场发布会说清了. 14 June 2020. *The Beijing News*. <http://www.bjnews.com.cn/news/2020/06/14/738211.html>

¹⁵ 数据 | 北京核检能力 10 天提升 200%，东城、西城已检结果全阴性. 26 June 2020. *Jiemian*. <https://m.jiemian.com/article/4585424.html>

¹⁶ 北京已完成外卖、快递等人员核酸检测采样 118 万人. 29 June 2020. *Xinhuanet*. http://www.xinhuanet.com/politics/2020-06/29/c_1126174371.htm

even non-food products that have a short shelf life or are transported via cold chains, as well as on their packaging and operating environment.¹⁷

On the evening of 12 June, the Beijing Municipal Administration for Market Regulation (BJMAMR) ordered a city-wide major food safety inspection to be carried out. As far as food types are concerned, the main focus was on fresh produce, meat (including frozen pork, beef and lamb) and poultry (including chicken and duck meat), and aquatic products. As far as types of food operations are concerned, the focus was on various types of food markets trading fresh and frozen meat and aquatic products (including their affiliated refrigerated warehouses), professional frozen and refrigerated warehouses, supermarkets, convenience stores, grocery stores and catering operations using large amounts of meat and aquatic products. BJMAMR also demanded the strict implementation of requirements for record-keeping for incoming goods, and especially for imported products, which must be accompanied by certificates issued by the entry-exit inspection and quarantine authorities.¹⁸

In response to the outbreak, Dayang Road Market developed a new disinfection protocol. Areas under the trading hall were to be disinfected four times a day, and residential and public areas outside the hall twice a day. Thorough coverage was enforced (i.e. no area was to be left undisinfected). In addition, 42 public handwashing stations were set up in the market. More security personnel was hired to ensure a 24-hour on-duty arrangement, and facial recognition and temperature measurement systems were installed at the entrance. All people entering the market must wear masks and gloves, have their temperature measured, and hold a valid health code (a QR code indicating the person's risk level of carrying SARS-CoV-2), which is entered into a database when accessing the market. Two food testing labs were set up to test over 200 types of vegetables and meats every night.¹³

All primary and secondary schools and kindergartens in areas affected by the recurrence of COVID-19 cases were gradually closed from 11 June onwards.¹⁹ On 17 June, all primary and secondary schools in Beijing were closed.²⁰

Guaranteeing the supply of food

At a press conference held at 11.00 hours on 13 June, an official from the Beijing Municipal Commerce Bureau (BJMCB) stated that after the closure of the Xinfadi Market, the trading of vegetables and fruits had been moved to five designated areas, consisting of nearby parking lots and vacant spaces on the market. Vehicles transporting beef and lamb were diverted to other markets, and entrance fees for all temporary trading areas were waived.^{21,22,23} Most of these measures were implemented smoothly. On 13 June, large trucks could already enter the open-air trading spaces after passing a temperature check for drivers at the entrance. Trading

¹⁷ 海关总署：近一周对进口肉类、水产品等货物的新冠病毒检测均为阴性。18 June 2020. *Jiemian*.
<https://m.jiemian.com/article/4549194.html>

¹⁸ 北京启动食品安全大检查，重点监管畜禽肉类、水产等。13 June 2020. *Beijing Daily*.
<http://old.bjd.com.cn/a/202006/13/WS5ee3a831e4b00aba04d217bb.html>

¹⁹ 北京多所中小学再度停课 市教委发布新规应对疫情。15 June 2020. *Whale Media*.
<http://www.jingmeiti.com/archives/46158>

²⁰ 北京中小学今起停课 学生纷纷离校。17 June 2020. *China Daily*.
<https://cn.chinadaily.com.cn/a/202006/17/WS5ee9904da31027ab2a8d0945.html>

²¹ 新发地休市期间蔬菜水果交易在5个区域进行。13 June 2020. *The Beijing News*.
<https://m.bjnews.com.cn/detail/159201957215856.html>

²² 北京新发地临时交易区启用 商户露天交易。16 June 2020. *ChinaNews*.
<https://m.chinanews.com/wap/detail/pic/138686.shtml>

²³ 记者探访新发地临时蔬菜交易区 蔬菜大车已进场交易。13 June 2020. *The Beijing News*.
<http://www.bjnews.com.cn/feature/2020/06/13/737921.html>

prices did not fluctuate much. Due to the sudden closing, many traders' weighing scales were left blocked on the market, so vegetables had to be temporarily sold by bundle.²³ Yuegezhuang Wholesale Market in the Fengtai District, which took over beef and lamb trading from Xinfadi Market, extended its business hours after 13 June to 08.00 to 24.00 hours, opening one hour earlier and closing one hour later.²⁴

After the closure of the Xinfadi Market, trading volumes in other large wholesale markets in Beijing increased. On 14 June, 15 517 tonnes of vegetables were traded in the city's six largest wholesale markets (including Yuegezhuang Wholesale Market and Dayang Road Market). This volume accounted for 64.7 percent of Beijing's vegetable transactions, up sharply from 21.8 percent before the closure of Xinfadi Market. All large-scale supermarkets launched emergency plans and adopted various measures to strengthen the organization and distribution of goods.¹⁴ Since supermarkets mainly rely on direct purchases from producers, they were not greatly affected by the closure of Xinfadi Market. Except for salmon and related products (which were removed from retail shelves), vegetables, fruits, meat, aquatic products, rice, flour, oils and other goods were in normal supply in many supermarkets, and prices were largely stable. Some supermarkets clearly indicated the place of production of their goods, with detailed information on the origin and producer.²⁵

However, many small community shops, markets and other outlets selling mainly fresh produce relied on Xinfadi Market for their purchasing; they were affected to a larger extent by its closure. On 13 June, the day Xinfadi Market closed, some community shops were unable to restock, and their vegetables were sold out by early morning.²⁶ In response to this temporary situation of shortages, the Beijing municipal authorities activated the point-to-point mechanism for the monitoring and replenishing of the supply of daily necessities that was established in February 2020, during the epidemic. Large supermarkets and wholesale markets were ordered by BJMCB to ensure normal supplies to nearby secondary markets. Many districts also prepared on-call "vegetable express" trucks,²⁷ which can rapidly respond to replenishment requests at any time. In addition to monitoring wholesale markets and large supermarkets, BJMCB paid special attention to the supply situation of secondary markets and small shops and solved supply problems in a timely manner.^{14,28} Community workers and volunteers provided contactless delivery services for people under home quarantine, and grocery delivery services for those with special needs (such as communities under closed management).¹²

At the end of February 2020, the Beijing Agricultural Products Circulation Association (BJAPCA) selected 198 companies out of its membership to provide point-to-point food (and especially vegetable) supply and distribution services during the epidemic. The logistics used by these companies changed as a result of the epidemic, and they were now sourcing a larger share of their goods directly from suppliers. After Xinfadi Market was closed, the association ordered

²⁴ 岳各庄肉类大厅营业时间延长，增加猪牛羊肉上市量. 13 June 2020. *The Beijing News*.
<http://www.bjnews.com.cn/news/2020/06/13/738005.html>

²⁵ 探访 | 北京商超正调增货源全力保供，有超市明示直供基地. 13 June 2020. *The Beijing News*.
<http://www.bjnews.com.cn/feature/2020/06/13/737962.html>

²⁶ 北京六大批发市场关闭：大家忙着抢菜，超市称力争保供稳价. 13 June 2020. *Jiemiao*.
<https://www.jiemiao.com/article/4522376.html>

²⁷ 北京设立蔬菜临时销售点 安排便民菜车入社区. 3 February 2020. *ChinaNews*.
<http://www.chinanews.com/sh/2020/02-03/9077286.shtml>

²⁸ 新发地市场将采取“点对点”补货等措施保障菜篮子供应. 13 June 2020. *The Beijing News*.
<https://m.bjnews.com.cn/detail/159202058015870.html>

member companies to mobilize vegetable producers all over China to supply the Beijing market.²⁹

Meanwhile, suppliers of vegetables and meat were encouraged to establish direct links with supermarkets. Government agencies guided and coordinated efforts by large supermarkets to increase their inventory and improve their capacity to guarantee supply. Catering businesses and canteens were encouraged to purchase from other wholesale markets, large supermarkets or nearby community markets during the temporary closure of Xinfadi Market.²⁸

The bigger traders in Xinfadi Market urgently coordinated with upstream and downstream actors in production, transportation and sales to ensure supply. For example, they modified their centralized distribution model to ship supplies directly from their suppliers to their buyers. Some traders said that the biggest difficulty was the shortage of labour caused by the epidemic.^{23,30}

Price control

BJMAMR adopted severe market price control measures. Measures including the inspection of key locations, the issuing of notices and reminders, and administrative penalties were used to crack down on price gouging and on other illegal price-related activities. Chen Yankai, deputy director of BJMAMR, said at press conferences on 14 and 16 June that BJMAMR had issued notices to seven major supermarket chains to remind them to strengthen price control efforts and ensure the stability of prices of daily necessities. Illegal price gouging would be quickly investigated and punished, and major cases would be communicated to the public, Chen said.^{12,14,31}

On 20 June, 18 major supermarket chains in Beijing promised to lock the prices of ten types of essential vegetables for one month.³²

²⁹ 北京蔬菜直通车企业不从新发地进货，今夜大批蔬菜将进京. 13 June 2020. *The Beijing News*. <https://m.bjnews.com.cn/detail/159205560915365.html>

³⁰ 如何保障北京菜篮子 新发地这些“大王”这几天忙晕了. 16 June 2020. *The Beijing News*. <http://www.bjnews.com.cn/feature/2020/06/16/738990.html>

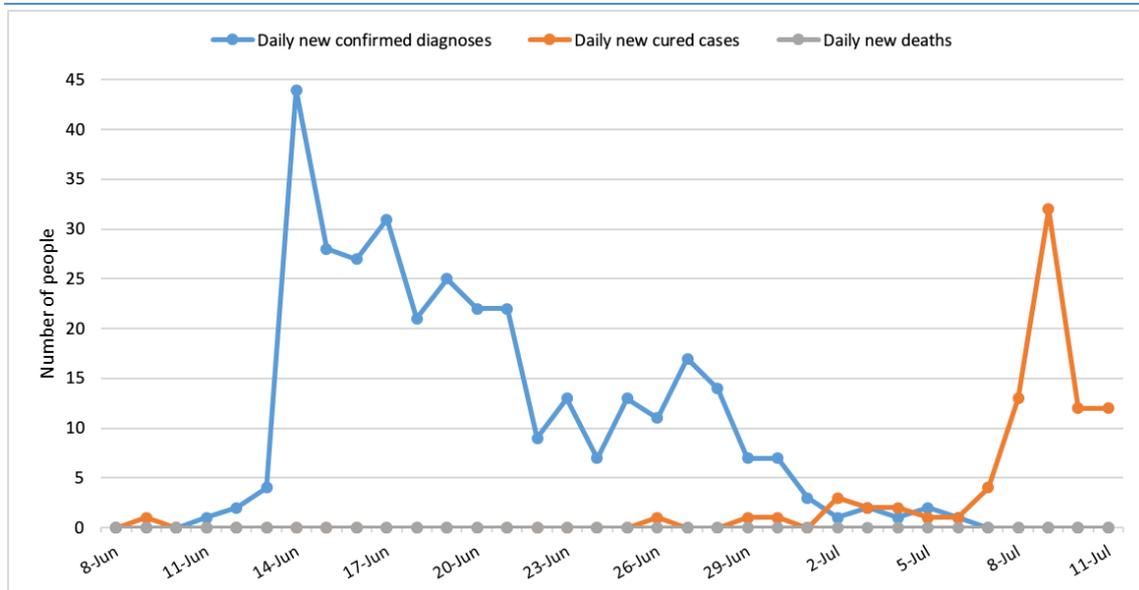
³¹ 北京部分商户涉嫌哄抬物价被查处 记者调查走访商家整改情况. 23 June 2020. *CNR*. http://china.cnr.cn/yaowen/20200623/t20200623_525141041.shtml

³² 北京 18 家连锁超市：对 10 种蔬菜锁定价格 一个月内不涨价. 20 June 2020. *ChinaNews*. <http://www.chinanews.com/cj/2020/06-20/9217710.shtml>

RESULTS

Four weeks after the appearance of the COVID-19 cases, the numbers showed that the epidemic was effectively controlled. The number of daily new confirmed diagnoses returned to zero; there were no deaths recorded during this wave (see Figure 1).

FIGURE 1 | COVID-19 situation in Beijing from 8 June to 11 July 2020



Source: Beijing Municipal Health Commission via <https://github.com/canghailan/Wuhan-2019-nCoV>.

Due to the firm measures to organize supply and distribution, Beijing did not experience an obvious shortage of food supplies, and food prices did not fluctuate significantly.

After the news that the SARS-CoV-2 virus was detected on cutting boards used for imported salmon on the evening of 12 June, salmon was immediately withdrawn by retailers from the shelves of almost all retail outlets in Beijing. It became almost impossible to find any purchasers for imported and domestic aquatic products that need cold chain transportation.³³ Due to the closure of the market, all traders were unable to open their booths, so their source of income was cut off and they faced difficulties to pay their rents and loans.³⁴

In some closed markets, market management allowed traders to enter for one hour each morning and afternoon to sort goods and feed live aquatic animals.³³ Seafood markets in cities as far away as Shanghai and Guangzhou were also affected. Restaurants and fresh markets cancelled orders, thus drastically reducing sales of seafood. Some wholesalers of imported seafood said that their sales had shrunk by 95 percent, causing huge losses. Because of the extremely short shelf life of seafood, traders temporarily stored it in freezers. When the shelf life of the stock expired, the only option was to destroy it.³⁵

On 14 June, the results of tests on samples from Jingshen Seafood Market, which was the source of seafood for Xinfadi Market, were announced. Salmon trading booths and public areas were given special attention during sampling. All 469 samples collected, including 186 human

³³ 三文鱼被证明“清白”，但海鲜商户们已经亏惨了. 17 June 2020. *Jiemian*. <https://www.jiemian.com/article/4539529.html>

³⁴ 疫情创伤三文鱼：一位三文鱼商贩在北京. 18 June 2020. *The Paper*. https://www.thepaper.cn/newsDetail_forward_7879877

³⁵ “遭殃的三文鱼”调查：全链条滞销. 23 June 2020. *The Paper*. https://www.thepaper.cn/newsDetail_forward_7961749

oropharyngeal swabs and 283 environmental samples, were negative for SARS-CoV-2.³⁶ On 16 June, Shi Guoqing, deputy director of the Emergency Response Center of the Chinese Center for Disease Control and Prevention (ChinaCDC), said that there was no evidence to indicate that salmon was a host or intermediate host of SARS-CoV-2. He also said that while tests had revealed that salmon had indeed been contaminated by SARS-CoV-2 at the contaminated sites related to the Xinfadi epidemic, the virus was not detected on salmon that had not reached the contaminated sites.³³ On 19 June, Pang Xinghuo, deputy director of BJCDC, said at a news conference that the results of the tests on the environmental samples of Xinfadi Market showed that the positive samples came mainly from the beef and lamb hall, and especially from areas within that hall where aquatic products and soy products were traded.³⁷ On 24 June, ChinaCDC stated that genetic analysis had shown that the strain of SARS-CoV-2 that caused the epidemic in Beijing was older than the concurrent European homologous strain. As for the mode of transmission, animal-to-human transmission was ruled out. It was suggested that the main mode of transmission was direct contact between people and/or indirect contact through contaminated surfaces.⁹ However, many experts believed that it would be very difficult to follow the chain of evidence and completely reconstruct the entire process of transmission of this epidemic.³⁸

China's cold chain logistics have grown explosively in recent years. This outbreak shows that there is still plenty of work to be done on various fronts, including improving wholesale market logistics, transforming cold chain logistics and upgrading cold storage facilities, adopting information technology and establishing and implementing cold chain and food safety standards.³⁹

The beef and lamb hall and the fruits and vegetables trading area of Xinfadi Market are not connected, and there is quite some distance between them. After the beef and lamb hall had been closed on 12 June, market authorities announced, without any advance notice, the immediate and complete closure of Xinfadi Market at 03.00 hours on 13 July. This caught many dealers by surprise. Some had purchased several million yuan worth of fruits and vegetables on 12 July; these stocks were suddenly blocked inside the market. These stocks had to be discarded, not only because of the hot weather (up to 30 °C), but also because of the many positive cases that had been found among samples from Xinfadi workers and the market environment. After receiving notice that they could no longer deliver goods to Xinfadi Market, some logistics companies had to recall goods that were already on the road, resulting in great losses due to decay.^{40,41}

Most of the infected people in this outbreak were workers in Xinfadi Market and employees of catering businesses who had had direct or indirect contacts with Xinfadi Market, including buyers, waiters, cleaners, drivers, cooks, kitchen helpers, etc. The majority of these are ordinary workers from other provinces who came to Beijing to make a living.⁹ This vulnerable group plays an indispensable role in the food supply chain. Their health was directly threatened by the virus,

³⁶ 京深海鲜 469 样本均阴性，餐企老板朋友圈炸了。14 June 2020. *Beijing Business Today*.

<http://www.bbtnews.com.cn/2020/0614/357163.shtml>

³⁷ 北京新发地市场水产、豆制品售卖区域阳性样本较多。19 June 2020. *Caixin*. <http://china.caixin.com/2020-06-19/101569964.html>

³⁸ 北京新发地病毒序列解码 为何出没于海鲜市场？ 19 June 2020. *Caixin*. <http://china.caixin.com/2020-06-19/101569767.html>

³⁹ 新发地疫情源头待解 冷链物流还靠谱吗？ 22 June 2020. *China Youth Daily*. http://zqb.cyol.com/html/2020-06/22/nw.D110000zgqnb_20200622_5-01.htm

⁴⁰ 新发地突然休市，部分商家损失惨重。16 June 2020. *China Philanthropist*. <https://mp.weixin.qq.com/s/0-EWIRt-8Sn4dg3ohEQJMg>

⁴¹ 损失惨重，北京新发地的商户还好吗？ 28 June 2020. *China Newsweek*.

<http://www.inewsweek.cn/society/2020-06-28/9674.shtml>

and their livelihoods were severely affected by the closure of the market and the imposition of the quarantine. Meanwhile, most Beijing residents who came to Xinfadi to buy food for their own consumption belong to highly price-sensitive groups, such as the elderly. Every morning at about 08.00 to 09.00 hours, after the wholesale buyers left, a group of elderly people from the city center would gather at Xinfadi Market. They travelled by bus (often switching several buses), hoping to buy food at lower prices than in supermarkets in the city.⁶

The southern and northern sections of Xinfadi Market reopened on 15 August and 6 September, respectively, but only to wholesalers; retail consumers were not allowed to enter the market. Underground and semi-underground areas were no longer used for transactions. In addition, the market no longer operated in 24-hour non-stop mode. From 10 September onwards, fruits and vegetables accounted for the bulk of the products traded in Xinfadi Market. The trading of fresh and frozen meat, poultry and aquatic products was not resumed. Since the reopening, goods have only been allowed to enter Xinfadi Market if detailed information about them is reported in advance. People wishing to enter the market to conduct transactions must register in advance; their information is verified, and they have to undergo a temperature and face recognition check before entering.^{42,43} To guarantee the supply of food from the market to nearby residents, a retail market for fresh foods of 1 000 m² was set up outside Xinfadi Market; the products sold on this market are supplied by Xinfadi Market.⁴³

CONCLUSIONS

As far as disease control is concerned, the municipal authorities of Beijing lowered the number of daily new confirmed diagnoses to zero within four weeks from the outbreak, without halting business or imposing massive lockdowns; there were no deaths from the outbreak. As far as market supply is concerned, there were no obvious shortages of the major types of food (including fruits and vegetables) and prices did not fluctuate significantly – despite the fact that the outbreak resulted in the closure of the most important agricultural wholesale market in Beijing. Among the factors that led to the successful handling of the outbreak are the following:

- Controlling the epidemic was a prerequisite to ensure market supply. A set of response plans (including provisions regarding tracing, testing, disinfection, isolation and access restriction) have been implemented since early 2020, with good results. It is particularly important that testing capacity has greatly increased.
- Government agencies coordinated their efforts closely, and implemented swift and effective actions. The speed of response of government agencies to the outbreak, from the shutdown of the market over disease control to guaranteeing market supply, can be measured in hours. The municipal government of Beijing held at least one press conference dedicated to the outbreak each day. Speakers at these conferences included not only officials from BJCDC and ChinaCDC, but also officials from Xinfadi Market itself, as well as from BJMCB, BJMAMR and other agencies. The disclosure of information was thorough and complete.
- Trade associations, and especially BJAPCA and the Beijing Catering Trade Association, played a major role in controlling the outbreak. They demonstrated great capabilities to mobilize and organize members to undergo nucleic acid tests and ensure supply.

⁴² 新发地全面复市，预计国庆前恢复历史供应水平。10 September 2020. *Produce Report*.

<https://m.guojiguoshu.com/article/6140>

⁴³ 北京新发地市场重启：告别零售，批发新模式防疫。14 August 2020. *Caijing*.

<http://m.caijing.com.cn/article/186414>

- A number of effective measures were established during the period of closed management of Beijing from February until April, including vegetable express trucks, mobile vegetable stations, e-selling of fresh products, contactless delivery services, etc. These measures proved effective during the new outbreak, too.
- The closure of Xinfadi Market meant that Beijing lost a major distribution centre for agricultural products. The relevant supply chain actors reacted quickly to this loss. In addition to diverting goods originally destined for Xinfadi to other places, they helped establish direct links between suppliers and retailers in various ways. As the trading volumes of the wholesale markets that were still open surged, markets that had hitherto been secondary branches of supply chains were essentially transformed into primary branches. These measures were realized thanks to good infrastructure and strong logistics capabilities.
- In recent years, large supermarkets have increasingly turned to sourcing supplies directly from producers, thus reducing their dependence on large wholesale markets. As such, large supermarkets remained largely unaffected by the closure of Xinfadi Market.

Shortcomings and deficiencies exposed by this outbreak include the following:

- The shutdown of Xinfadi Market took effect immediately, without any advance notice – even for the fruits and vegetables trading area, which was not closely connected to the site of the initial outbreak i.e. the beef and lamb hall. This left no time for traders to respond optimally. Large quantities of goods in the market could not be picked up and were thus left to rot, resulting in huge losses. Market authorities compensated traders to some extent (with compensations covering 20 to 50 percent of losses), although some dealers forwent the compensation.⁴⁴
- The news that SARS-CoV-2 had been detected on cutting boards used for imported salmon was disclosed before the testing of the environmental samples had been completed. As a result of the announcement, all seafood was suspected to be a virus carrier, and retailers withdrew it from their shelves. The results of the tests in the upstream market and on other environmental samples of Xinfadi Market ruled out the possibility of the infected cutting boards later; however, actors across the whole country had already been greatly affected.
- The outbreak and the closure of Xinfadi Market directly affected the workers of the market and of nearby facilities. These are ordinary workers who come to Beijing to make a living. Their health and livelihoods were greatly impacted upon. In addition, consumers who buy food for their own consumption on the Xinfadi and other wholesale markets mostly belong to relatively vulnerable groups that are sensitive to prices. After the market closure, they had to turn to outlets with higher prices than wholesale markets, such as vegetable shops and supermarkets. There have been no reports or research on whether this affected their lives. How social protection systems can better serve these groups in this kind of situation is a question that is worthy of attention.

⁴⁴ 新发地将按比例补偿商户损失：公开 6 部热线接受反馈 有商户拿到 40%损失补偿. 5 July 2020. *China Philanthropist*. <https://www.yidianzixun.com/article/OPm6xCxK>

APPENDIX: TIMELINE

11 June	There is a new local COVID-19 case in Beijing. Prior to this outbreak, Beijing had not reported any new cases for 56 consecutive days.
12 June	<p>Early hours: environmental samples from the beef and lamb hall of Xinfadi Market test positive for the SARS-CoV-2 virus.</p> <p>Morning: the beef and lamb hall of Xinfadi Market is sealed off.</p> <p>Evening: the Beijing Municipal Administration for Market Regulation orders a major city-wide food safety inspection to be carried out.</p> <p>Evening: the president of Xinfadi Market, Zhang Yuxi, claims that the SARS-CoV-2 virus has been detected on cutting boards used for imported salmon. He also states that the vegetable and fruit halls will be open as usual on 13 June.</p> <p>Evening: salmon is withdrawn immediately from the shelves of almost all retail outlets in Beijing.</p>
13 June	<p>03.00 hours: authorities declare that the whole Xinfadi Market is closed temporarily, effective immediately, for comprehensive environmental cleaning and disinfection.</p> <p>After the closure of Xinfadi Market, the trading of vegetables and fruits is moved to five alternative designated areas. Vehicles transporting beef and lamb are diverted to other markets.</p>
14 June	The results of the tests on samples from Jingshen Seafood Market, the source of seafood for Xinfadi Market, are announced. Salmon trading booths and public areas are given special attention during sampling. All human oropharyngeal swabs and environmental samples turn out negative.
15 June	The second largest agricultural wholesale market in Beijing, Dayang Road Market in Shibalidian, Chaoyang District, closes its retail business.
16 June	Shi Guoqing, deputy director of the Emergency Response Center of the Chinese Center for Disease Control and Prevention, states that there is no evidence to indicate that salmon was the host or intermediate host of SARS-CoV-2.
17 June	All primary and secondary schools in Beijing are now closed.
19 June	Pang Xinghuo, deputy director of the Beijing Center for Diseases Prevention and Control, states that the results of the tests on the environmental samples of Xinfadi Market show that most of the positive samples came from the beef and lamb hall, and especially from areas within that hall where aquatic products and soy products are traded.
20 June	Eighteen major supermarket chains in Beijing all promise to lock the prices of ten kinds of essential vegetables for a month.
24 June	ChinaCDC states that genetic analysis has shown that animal- to-human transmission should be ruled out as the cause for this outbreak in Beijing. It is suggested that the main mode of transmission may be direct contact between people and/or indirect contact through contaminated surfaces.
7 July	The number of daily new confirmed diagnoses in Beijing returns to zero.
15 August	The southern section of Xinfadi Market reopens, but only to wholesalers. Retail consumers are not allowed to enter the market.
6 September	The northern section of Xinfadi Market reopens.

An interactive version of this timeline can be viewed at <https://time.graphics/line/413527>.

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