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Methods of "Integral Grid" Management in Major Public Health Events: Remodelling of Social Governance in Districts and Communities of Hong Kong

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ABSTRACT
Since the outbreak of COVID-19 in early 2020, the epidemic has spread in Hong Kong for one and a half years. The Hong Kong government's management level of epidemic prevention and control is also constantly improving. The epidemic has been effectively contained recently. The government's measures to "prevent the external import and internal proliferation" have achieved good results. Relying on the community grid-based epidemic control and digital platform, the Hong Kong government divides the administrative areas into unit grids according to certain standards. By strengthening the inspection of components and events in the cell grid, supervision and disposal are separated. For the government, the main advantage is that the government can take the initiative to find and deal with the epidemic in time and strengthen the government's management ability and processing speed of the epidemic. It was found that: methods of "Integral Grid" management in major public health events is the core feature of the social prevention and control of the COVID-19, and it is also the comprehensive upgrade and strengthening of the "life grid" in remodeling of social governance in districts and communities of Hong Kong, which the HKSAR can learn in responses of COVID-19.

Keywords: *Integral Grid Management, Remodeling, Social Governance.*

1. INTRODUCTION

Methods of "Integral Grid" management in major public health events have been highlighted in the process of controlling the fourth wave of the epidemic. Since November 19, the fourth wave of epidemics has hit Hong Kong. The dancing group triggered this wave of the pandemic, showing the trend of super spread. The confirmed cases are scattered in different regions and involve multiple groups, including dancing groups, taxi drivers, homemakers, etc. Among them, the dancing group is the largest infected group so far. At the same time, there are multiple invisible transmission chains in the local area.

Grid management is essentially an information and digital management mode. It mainly uses modern Internet technology and databases to implement dynamic, refined, and all-round management for each grid to meet community governance and residents' needs effectively. In combating the spread of coronavirus, the application of Internet information technology is very important. Due to the characteristics of human to human transmission of the virus, the state puts forward prevention and control requirements such as less

gathering of urban residents and not going out. Therefore, part of the prevention and control work can be completed through the digital function of the grid. First of all, realize the dynamics of epidemic grid prevention and control. The community grid management system is not an independent and closed digital platform but the linkage and cooperation between grids to achieve the dynamic management of multi-network. For example, the government builds a digital prevention and control platform to connect with streets (towns), communities (villages) and grids. Grid members directly report the epidemic situation in the grid through terminals. Secondly, it realizes the accurate service and management of grid residents. In order to reduce the number of grid members entering the house, we can understand the situation of residents through the digital grid platform. For community patients and the elderly, we can also timely feed relevant information to the platform by wearing smart bracelets, dynamically grasp the situation of the elderly and patients, and provide accurate anti-epidemic services in time. It can reduce the work intensity of community cadres and grid members, reduce the chance of virus infection, and accurately understand residents' situations. Thirdly, through community grid big data reporting, the government can comprehensively and systematically understand and analyze the epidemic situation and make a scientific epidemic judgment and anti-epidemic decision.

The Hong Kong government's "assault-style" block down of the "severely affected areas" has effectively prevented the virus's rapid spread in the community and the region in late January and February 2021. The enclosing operations in Jordan, Yau Ma Tei, Tseung Kwan O, and Tung Chung successfully identified hidden patients and transmission chains. As the chart shows, although the trend of cases with unknown sources of the fourth wave is various, the epidemic in late February and March began to ease, the benefits of remodeling social governance can be reflected in these major public health events.

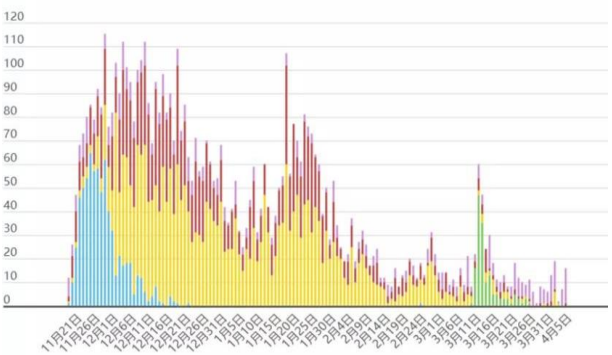

Figure.1- Trend of cases with unknown source of the fourth wave

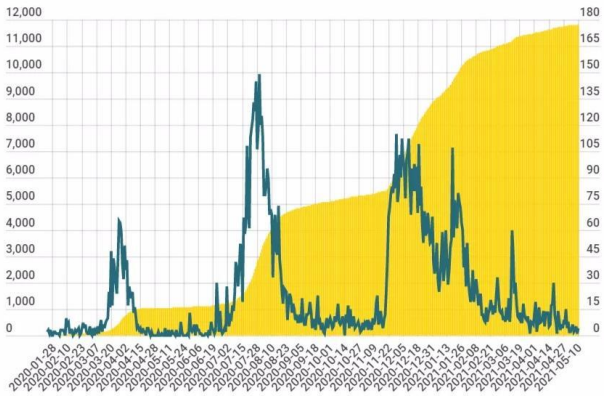

Figure.2- Hong Kong's trends of COVID-19

Add in a single day ■ Cumulative diagnosis

In this action, responding to major public health incidents is a complex project involving the remodeling of social governance. "Early detection, early diagnosis, early isolation, and early treatment", the process of remodeling of social governance is better in making epidemic prevention measures, which can cut off the source of the infection quickly and improve the level of community emergency management capabilities based on community "grid management" mechanism.

2. RESEARCH METHODS

The quantitative research project uses statistical methods in all stages; the sample data of Hong Kong's trends of COVID-19 are analyzed using descriptive statistical analysis.

Qualitative research in this policy process, including deductive study and inductive processes, has formed a systematic theoretical framework of community, inductively identifying the uncontrollable epidemic's root cause and pain points.

A randomized controlled trial (RCT) is an experiment conducted in which an intervention is tested by randomly assigning some individuals, groups or regions to receive the intervention. The Hong Kong government's "assault-style" block down of multiple districts successfully identified hidden patients and transmission chains. When evaluating the effectiveness of social policy interventions, the interest is usually in identifying causal intervention effects. Randomization can be seen in this epidemic prevention and control, which is the foundation of RCT scientific reliability, responding very powerfully to causality issues.

In Hong Kong, Smart City Blueprint 2.0 uses big data to count the epidemic situation, which is effective in epidemic prevention and control. The construction of the big data map of smart cities assists in epidemic prevention and control; the demand for epidemic prevention and control will promote the development of smart cities. Massive data has landed from the "cloud". In this case, it played a key role and improved the overall efficiency of the fight against the epidemic. In the context of the global fight against COVID-19, big data has responded quickly in the fields of medical care, data statistics, and contactless services in Hong Kong, Apps such as "home anti-epidemic", "travel with peace of mind", and "health code" have also emerged. The unprecedented close integration of big data with other industries has verified the true value of big data to society as an important driving force for a new round of technological revolution and transformation.

3. BASIC THEORY:

3.1 *Community "Grid Management" Mechanism*

The community "grid management" mechanism is an important method in social governance. In the prevention and control of the COVID-19 pandemic and the leading role of the government, it can be done differently through the community "grid management" mechanism, which is an important method in epidemic prevention and control.

Through in-depth analysis of the operating mechanism and internal logic of community grid management during the prevention and control of the COVID-19 pandemic and about its enlightenment to social governance from the perspective of social “reorganization.” As a result, it was found that: the “holistic grid” with this mechanism as the operating logic is the core feature of the social prevention and control of the COVID-19, and it is also the comprehensive upgrade and strengthening of the “life grid” in the emergent state of emergency.

“Integral grid” refers to a holistic life based on basic grid units, supported by information technology means, with refined management and control and resource organization as the main content, integrating mobilization, service, management, linking, and other multidimensional functions unit and its management mechanism. “Integral grid” is a rapid upgrade and expansion of grid management under abnormal conditions of major outbreaks.

Stages of Community “Integral Grid” can be reflected in the collaborative governance of closure operations. Leadership, knowledge, and resources are the three essential elements in these stages: (1) The manifestation of comprehensive, coordinated governance; (2) Indicators of comprehensive, coordinated governance; (3) Advantages of comprehensive, coordinated governance; (4) Motives and conditions of comprehensive, coordinated governance.

The biggest feature of community grid management is to divide the streets and communities of the city into several "grids" according to certain standards to realize strip and block management and improve the refinement level of community service management.

First, grid prevention and control need to be equipped with complete grid personnel. Community grid members are staff who undertake specific tasks in a community grid management organization. They are street cadres, community leaders, general community staff, police, social workers, and volunteers.

Second, further, densify the grid according to the actual needs of epidemic prevention and control tasks. If the previous grid division is not enough to deal with the existing epidemic tasks, the grid can be further refined to achieve no omission and no blind area in the epidemic prevention and control service management.

Third, in order to achieve good prevention and control, fully implementing the grid responsibility is important. In grid prevention and control in some places, the five levels of responsibilities of grid chief instructor, grid chief, grid instructor, grid chief and grid member are defined. Grid members at all levels are required to carry out investigation and prevention and control service management according to the work orientation of five members: propagandists,

investigators, supervisors, agents and rectifiers. Grid responsibility is carried out from the community market town to each corridor and village to ensure that the responsibility can be traced.

Fourth, good management should reflect the principle of humanization 2. The overall benefits and the major collective interest of the entire society can be guaranteed to a large extent.

4. FINDINGS AND DISCUSSION

4.1 The Setting of Multiple Areas' Lockdown

Hong Kong's first regional blockade was in Jordan. According to the incomplete records of the food and Health Bureau and the home affairs department, the government of the Hongkong Special Administrative Region (HKSAR) reported that about 6900 people had received COVID-19 testing at the temporary sampling stations in Jotun's restricted area on 23 January. The staff of the SAR government have visited more than 3240 households in the "restricted area", involving about 6200 citizens. They have registered their data to facilitate follow-up testing in the future; On the 24th, the staff will continue to conduct home visits and arrange people who have not yet been tested to the sampling station for testing.

Various departments of the HKSAR government sent people to stay overnight in the "restricted area" to assist in epidemic prevention. The Hong Kong Immigration Department arranged 300 people to assist residents in testing, and the fire department recruited 650 people to go upstairs to inform residents and arrange people in the unit for testing. The SAR government also reminds anyone who has stayed in the "restricted area" for more than 2 hours in the past 14 days to be tested immediately, even if they are not in the "restricted area" when the relevant declaration takes effect. The SAR government emphasizes that testing is a responsible act for itself, its family, and the community. Anyone who violates the restrictions and testing requirements commits an offense and is liable to a fine of $25000 and imprisonment for six months.

In the later process of the closure of Tseung Kwan O and Tung Chung, the SAR government used community grid management to cut off the communication chain and quickly find invisible patients. The designated "restricted area" subject to compulsory inspection by the "closed area" is in block 9, Lingkai, Kangcheng, sunrise, No. 1, Kangcheng Road, Tseung Kwan O, Hong Kong. The subjects in the area must wait at their premises until all the identified subjects in the area have completed the inspection and the relevant test results have been roughly determined. The SAR government also issued a notice of compulsory testing on the 19th. Any person who has been in the building as mentioned above for more than two hours from March 6 to 19 must undergo compulsory testing on or before March 21, even if he is not in the "restricted area" when the relevant declaration takes effect.

The goal of the SAR government is to complete the testing operation within about 48 hours, complete the testing and determine the results for all persons who should be inspected, and hope that the public can start working normally at about 6 a.m. on Monday.

4.2. Stakeholders

In this blockade and mandatory test operation, the decision-maker is the government. The main participants include the health protection center of the Ministry of Health, the Ministry of civil affairs, and the police force. The key role in the government, which coordinates the work of various government departments, manages and forcibly tests the blockade area.

The government provides simple food, masks, hand sanitizers to meet the needs of individual compulsory testing.

The center for health protection of the Department of Health has set up eight temporary sampling stations in the restricted area, requiring subjects to arrive before midnight on the same day for rapid antigen detection, nose throat joint swab sampling, and virus detection.

The home affairs department and its licensing office, police force, Yau Tsim Mong, and Sham Shui Po district offices mobilized about 380 people to implement the above circular and announcement.

The home affairs department also distributes leaflets in three popular minority languages to people in restricted areas and sets up a special line for ethnic minorities subject to detection and reporting restrictions to inquire and seek assistance. Measures will be taken to follow up and trace down unanswered flats in the restricted areas.

Epidemic prevention and control follows the principle of Utilitarianism and Liberalism.

Utilitarianism focuses on increasing the overall benefits of the entire society. When directed towards making social, economic, or political decisions, a utilitarian philosophy would aim to better society as a whole. Stakeholders' participation is essential in this anti-epidemic policy decision(i.e. NGOs, businessmen, investors, and residents). What is more, citizen's rights, equality, morality, freedom, and justice are guaranteed in the implementation of this policy, that is, liberalism.

4.3. Motivation

To better control the epidemic, ensure public security and health, let the society be able to resume normal operation as soon as possible, take enforcement lockdown and testing, achieve more efficient screening infection, reduce community spread of viruses and infections. The Government hopes that this temporary inconvenience will completely cut the chain of transmission in the area, remove the residents' worries and fears, restore their confidence in the community, revitalize social and commercial activities, and allow people's lives to return to normal.

4.4. Controversy and Conflict

In this incident, the controversy and conflict mainly lie in the inconvenience brought by the government's lockdown action to the residents in this area and the panic and anxiety brought by the temporary blockage to the residents. The government required all residents in the area not to leave the area and stay in the same place, which restricted citizens' freedom to some extent. In order to reduce the impact of the blockade on residents, the government completed the operation at 6:00 a.m. the next day so that citizens could go to work normally the next day and their work was not affected. The government has also called on employers to discretion and not deduct wages and benefits from employees who fail to show up on time. To some extent, the conflict caused by the operation can be eased.

4.5. The Public's Reaction

Citizens in Bi street felt that the inspection of the closed area was sudden. Some citizens told the media that they turned around after going downstairs to buy vegetables and found that their residence had been closed. However, citizens generally agree with the government's approach, saying: "now that the epidemic is severe, using extraordinary practices is a good thing."

The government stated that it understands that the increase in confirmed cases in the region has caused anxiety and hesitation among residents in the district, and the suspension of commercial activities also affects the livelihood of residents, such as shops have also been hit hard, affecting the daily life of the public.

It is hoped that the short-term inconvenience can completely cut off the chain of transmission in the region. It is grateful for the understanding and cooperation of the people under investigation.

The combination of streets and community networks can be reflected in the community "grid management" mechanism of multiple areas.

Table.3 - The Combination of Street's Network and Community's Network

	Street's network	Community's network
Set hierarchy	Street Micro-renewal and District Revitalization	Below village committee and neighborhood committee
Classification criteria	Road form and business form	Residential district, number of households, number of people
Focus of work	Integrated urban management	Community service and conflict resolution
Working team	Grid inspector, line department personnel	Social workers, disciplined services, testing departments

4.6. Motivation

In the process of COVID-19 prevention and control strategy, how to better establish public risk awareness and pay attention to public opinions of the epidemic is very important.

The government news website daily broadcasts the progress of epidemic prevention and control, raising public awareness and reducing information asymmetry. Smart government in Blueprint 2.0 can make good use of innovative technology to respond to the epidemic and help citizens fight the epidemic.

In the past months, the anti-epidemic and epidemic prevention work has inspired the HKSAR government to promote the development of innovation and technology, including the use of innovative thinking to change the usual service model and the wider use of technology to respond to the new normal of COVID-19.

Based on risk, the Hong Kong government decided to accept the scientific and technological supervision required by quarantine persons. During the quarantine period, the government monitors whether people under quarantine comply with the quarantine order through several measures, including sharing real-time locations with WhatsApp or WeChat communication software.

4.7. Skill Requirements

Given the role of the internet and smart technology, increasing the speed of the community's response to emergencies and building a community's emergency mechanism should be the key to problem-solving (Mitroff, 2000). The integration of smart management and community emergency mechanisms can systematically manage the community, reflecting the theory that "media attention promotes the speed of policymaking"(Wolfe, 2012). Through intelligent network and hierarchical means, the scattered and isolated information and material resources in the community can be integrated to form risk perception, command decision-making, and response handling, coordinated and linked "central nervous system", which facilitates the speedier response of HKSAR, comprehensively analyzing controllable and uncontrollable factors.

4.8. Benefits of this Alternative Solution from Different Perspectives

"Integral Grid" Management can be seen as an organizational activity aimed at introducing the management concepts of the private sector to the public sector to polish up the efficiency and output of public service. As a result, the effectiveness of "Integral Grid" Management can be presented in the following aspects:

1. Political interference and departmental disputes can be reduced(i.e., De-politicize government tasks) to give space to NGOs to play the role of managers to obtain high efficiency.
2. Regulatory decisions can be more fair and transparent.
3. It can clarify specific goals, bring public service closer to citizens, and improve public response capabilities in epidemic prevention and control.

The theory of evidence-based policy-making determining how to work with policymakers maximizes scientific evidence in this policy. Evidence-based policy-making (EBPM) views that there should be a direct and unproblematic link between scientific evidence, policy decisions, and outcomes. They use two shortcuts: the "rational" way to gather sufficient evidence and the "irrational" decision-making, which draws on emotions, beliefs, and habits. In blueprint 2.0 of epidemic prevention and control, decision-makers have fully achieved the combination of rational macro-control and irrational micro-adjustment, responding to major public health incidents after careful evaluation and consideration, combined with patients' participation, providing the best care for individuals.

Table3. multiple dimensions in the Method of "Integral Grid" Management

bureaucracy	accountability	civil servants	leadership
public services	public values	citizen engagement	equity
budgeting	performance management	responsiveness	HRM
governance	combating red tape	efficiency	Publicity

In the process of epidemic prevention and control, "Integral Grid" management can reduce redundancy. Redundancy means difficulty in organization and management, waste of resources of public sectors. Redundancy becomes a political issue when there is no agreement on the weighting of the error types. The transfer of government functions and the purchase of public services in the epidemic prevention and control process are important measures for the reform of the social field.

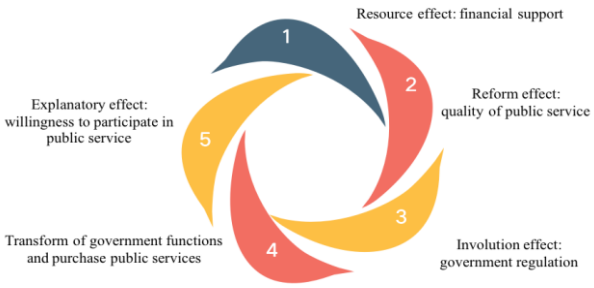

Diagram 4: Theoretical Model of Government Transfer Function in the Method of "Integral Grid" Management

5. CONCLUSIONS

In response to changes in the government's organizational structure, methods of "Integral Grid" management in major public health Events reflect the idea of public management reform. The result of improving citizens' satisfaction with government performance and government financial performance should be closely related.

Some public management reform ideas can be listed as follows.

(1) Civil Engagement and Joint Decision

Interaction between "non-governmental think tanks" and decision-makers is one of the "Integral Grid" management characteristics, which pays attention to public interests and injects knowledge empowerment. It is important to encourage civic engagement to express views on the improvement of public management.

(2) Intellectual Support: Benign Interaction between Policy Designing and Implementation

This government-led allocation mode in public management is to take control of the overall situation, select and invite official think tanks in the private sector at the same time. A community-led pandemic containment effort and collective effort initiated by actors in these four waves bring much inspiration. Four key functions are involved

1. Provide a sense of group solidarity through a community-based approach initiative;
2. Provide protection resources through mutual assistance;
3. Raise public awareness of the severity of the crisis;
4. Force the authorities to take more effective and thoughtful measures.

From a decision-making perspective:

1. Characterized by the self-reliance of citizens, trying to solve or alleviate the pandemic on its own.
2. Encourage the community to provide high-quality health support and infrastructure instead of relying on the government.
3. The civil society alliance urges the government to respond actively.

Through in-depth analysis of the operating mechanism and internal logic of community grid management during the prevention and control of the fourth wave and its enlightenment to social governance, it was found that: It is beyond doubt that the government plays an indispensable role in the prevention and control of the COVID-19 pandemic, but the remodeling of social governance in districts and communities of Hong Kong is also important. The prevention and control of the epidemic have highlighted the important role of urban and rural communities.

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