HKUMed WHO Collaborating Centre for Infectious Disease Epidemiology and Control releases Superspreading and Latest Epidemiologic Update of COVID-19

港大醫學院世衞傳染病流行病學及控制合作中心發表有關新型冠狀病毒 (COVID-19) 超級傳播及流行病學最新概況
Clustering of local infections – but majority of infections imported

Cluster initiated by a local case
Cluster initiated by an imported case (8.4%)
Sporadic local (4.3%)
Sporadic imported
Cluster of imported cases

Mandatory quarantine for all arrivals from South Korea
Mandatory quarantine for all arrivals from Iran
Mandatory quarantine for all arrivals from Italy
Mandatory quarantine for all arrivals from Schengen Region
Mandatory quarantine for all arrivals from Mainland China
Banning entry of all non-Hong Kong residents with travel history to Hubei province in the past 2 weeks
Ban on public gatherings > 4 people
Closure of leisure venues and bars

Barring entry of all non-Hong Kong residents from all overseas countries/territories
Clustering of COVID-19 infections

Transmission
- Social
- Family
- Work
- Local Travel
- Wedding
- Temple
- Bar

Source
- Imported Source
- Local Source

Intervention
- Case Quarantined

Bar and band cluster

Wedding cluster

Temple cluster

Other clusters

https://www.researchsquare.com/article/rs-29548/v1
20% of cases responsible for 80% of transmission events

70% of cases did not transmit infection to anyone else

https://www.researchsquare.com/article/rs-29548/v1
Effective $R_t$ in Hong Kong today

- **January**:
  - Imported cases
  - Unlinked local cases
  - Local cases linked with imported cases
  - Local cases linked with local cases

- **February**:

- **March**:

- **April**:

- **May**:

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**Graph**: Effective reproductive number over time.

- Red line: $R_t$ of local cases
- Black line: $R_t$ of imported cases

Date of symptom onset vs. No. cases
Findings from telephone surveys on preventive measures taken at individual level

Telephone surveys were conducted among Hong Kong adults aged 18 years or above. Participants were recruited using random-digit dialling of both landline and mobile telephone numbers. Proportions were weighted by age, sex and socioeconomic status distributions to the adult population in Hong Kong.
Findings from telephone surveys on preventive measures taken at individual level

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Findings from telephone surveys on risk perception towards COVID-19

Risk perception towards COVID-19 overlaid on COVID-19 epidemic curve by date of reporting

Abbreviation: CI = confidence interval

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Masks are **necessary but insufficient**

Yellow period – civil servants and many private businesses arrange work-at-home

Blue period – CNY

Widespread use of masks

Orange period – closure of bars, leisure facilities, nightclubs etc

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Next steps

1. Risk that a second wave will develop
2. Masks help but are insufficient to stop transmission
3. Need to improve testing in primary care
4. Need to scale up contact tracing capacity
5. Need to co-ordinate of the 3 sets of outbreak control measures:
   • Travel/border measures
   • Test and isolate cases, trace and quarantine contacts
   • Physical distancing and general preventive measures in the community
6. Advance procurement of vaccines
Appendix
Reproductive number

• Basic reproduction number \((R_0)\): The average number of secondary cases per one case in a population where all individuals are susceptible to infection
  - Inherent to pathogen but can vary by location because of population density and contact patterns

• Effective reproductive number at time \(t\) \((R_t)\): The average number of secondary cases per one case in a population over time
  - Will vary over time and indicates real-time transmissibility

• Reasons for \(R_t\) to change – (1) immunity after infection; (2) reduction in transmission because of effective control measures and behavioral changes
HKU COVID-19 dashboard

• Our estimates of the effective reproductive number shown at [https://covid19.sph.hku.hk](https://covid19.sph.hku.hk)

• We estimate $R_t$ with a 7-day lag. We cannot estimate how much transmission is occurring today because we only have information on infections that occurred in the past.

• We pause $R_t$ estimation when there were no local cases, resume when local cases occur