

**Submission to the Special meeting of the Legco panel on Food Safety and Environmental Hygiene on the consultancy study on the “Way forward for the live poultry trade in Hong Kong”**

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*Background about my expertise on this subject: I have carried out research on avian, pig and human influenza viruses in Hong Kong since 1997. I am co-director of the WHO H5 influenza reference laboratory in Hong Kong and have served as advisor and consultant to WHO and FAO on many occasions; for example, serving as a member of the WHO expert panel that visited and advised mainland China in April 2013 soon after the emergence of avian influenza A H7N9. I have served the Government of Hong Kong as a Member of the Expert Working Group on Avian Influenza 2001-3; Committee Member preparing the “Report of the Investigation team for the 2002 avian influenza incident, Government of the Hong Kong SAR, May 2002”; Member, Scientific Committee on Emerging and Zoonotic Diseases, Center for Health Protection, since 2005. I am a Founding Member, of The Hong Kong Academy of Sciences.*

**Summary**

With some important qualifications as detailed below, I am broadly in agreement with the risk assessment and recommendations laid out in the consultation report “Way forward proposed for the live poultry trade in Hong Kong” and the discussion paper dated 11 April 2017, entitled “Way forward of Live poultry trade in Hong Kong”. Some caveats and additional recommendations are detailed below.

Risk assessment from the live poultry trade to public health:

The basis for my assessment of risks from avian influenza on public health is outlined below.

a) Given Hong Kong’s geographic location and dependence on imported poultry, whether live or as freshly killed chicken carcasses, to meet the demand for food, there are few “zero-risk options” in relation avian influenza public health risks for Hong Kong. The only real “zero-risk option” for poultry consumption would for example be, to completely rely on frozen poultry imports from a region where zoonotic avian influenza viruses are not found; e.g. Australia.

b) Chilled poultry carcasses imported from mainland China is not “zero-risk” as long as viruses such as H5N1, H5N6 or H7N9 continue to be enzoonotic in poultry there, as is the case at present (Ref 1,2). Live virus can be found in chicken carcasses and poultry meat, if the poultry are sourced from infected premises (3,4 and unpublished data - manuscript in review). In this regard, it is relevant to note that, although exposure to live poultry is associated with increased risk of human zoonotic disease caused by avian influenza A H7N9 in mainland China, there are a minority of human cases where there is no clear direct exposure to live poultry (5). This was indeed also the case in the case control study of human cases of H5N1 in Hong Kong in 1997 (6). The possibility of acquiring infection from handling and preparing contaminated chilled poultry carcasses which then contaminates

persons or other foods in the kitchen that are consumed without cooking, therefore cannot be ruled out. However, such risks are likely to be lower than that from exposure to infected live poultry.

c) Hong Kong's live poultry markets currently sell chicken sourced from local farms which are under intensive surveillance by local agricultural authorities in regard to avian influenza. Given the facts outlined in b) above, and the fact that we can provide a high degree of assurance that the local chicken farms are free of avian influenza viruses of concern (H5N1, H5N6, H7N9), locally produced chicken pose little zoonotic risk, whether they are sold live or as freshly slaughtered chicken (see proviso in d) below).

d) The major public health risks of locally acquiring zoonotic avian influenza (H5N1, H5N6, H7N9 and similar viruses) from live poultry markets within Hong Kong currently arises from the continued import of minor poultry (i.e. the only live poultry currently being imported from mainland China). Currently, these poultry are brought into the same wholesale live poultry market as the locally produced live chicken. Although there is surveillance testing of these imported poultry, it is from this source that risk of introduction of virus into the live poultry markets is most likely; and any introduced infection can potentially be transmitted from there back to local farms (but see proviso e. below). This risk is amplified by the fact that there is usually a backlog of minor poultry within the wholesale market, increasing the risk of amplification and dissemination of any introduced virus within the wholesale market. Therefore, separation of imported (currently minor poultry) and local (currently chicken) wholesale markets would be highly desirable and would further reduce risk of virus introduction into Hong Kong's live poultry markets.

e) In addition to the current measures in place in regard to importation of live poultry (i.e. sourced from registered farms, quarantine measures, testing of imported poultry by AFCD) and the production of local poultry (inspection of farm bio-security, regular testing during and before market, enhanced bio-security in the movement of poultry within the marketing system, poultry vaccines for H5N1), the current ban on holding live poultry overnight within live poultry markets in Hong Kong greatly reduces zoonotic risk, even in the rare event of an avian influenza virus may be introduced into the retail poultry markets. This has been demonstrated by our 18 year systematic longitudinal studies carried out in retail live poultry markets in Hong Kong (7). Thus, even if a virus were occasionally to enter the retail poultry markets, these measures now in place will not allow it to establish and maintain itself within the markets, which is a pre-requisite for zoonotic transmission.

Thus, as the consultation report notes, Hong Kong's defences in this regard are truly multi-layered. This is evidenced by the fact that there are no locally acquired human disease with H5N1, H5N6 or H7N9 in Hong Kong after 1997.

f) I take note of the survey findings in the consultant's report with states that 43% of respondents "would be very dissatisfied or very dissatisfied if they could no longer purchase live chickens in Hong Kong".

Taking all these factors outlined in a) to f) above, I conclude that the continuation of the live poultry retail markets does not materially increase zoonotic risk from viruses such as H5N1, H5N6 or H7N9, **PROVIDED that current measures are maintained and enhanced (as detailed below).**

**Suggested recommendations:**

i) Live chicken sold in Hong Kong retail markets should continue to be solely sourced from Hong Kong farms. This situation needs to be maintained, even if it becomes possible to import live chicken again.

ii) The wholesale market for live chicken is separated from the wholesale market for imported minor poultry. It would be desirable if such imported minor poultry are received at separate wholesale premises and sold only via a few limited retail outlets.

iii. From a public health perspective, given current ground realities, it makes sense to strengthen, or at least maintain, the local poultry production sector rather than weaken it. This is based on the fact that a) local production is under intensive surveillance by our own Agricultural authorities; b) Hong Kong can serve as a “clean compartment” for poultry production. The possibility of local sourcing of day-old chicks needs to be addressed if possible.

The major risk of introduction of avian influenza into local farms is from contaminated cages or personnel who may get contaminated with virus introduced into the wholesale market with imported minor poultry (see recommendation ii above). I disagree with the Consultation Report which states that the avian influenza risk is similar from local and imported poultry. The threat of virus introduction from wild birds, though real, applies only to a few virus lineages (e.g. H5N6) and not, for example to H7N9.

iv. I agree with the consultant report which suggests that options for vaccinating chicken in local farms with an effective H7N9 vaccine should be considered. This should be accompanied by unvaccinated tagged sentinel chicken being placed in each farm which can be serologically tested for H7N9 to provide additional assurance (in addition to the swab testing by PCR) that the low pathogenic H7N9 virus has not broken through vaccine protection.

Note: This risk assessment and recommendation is unique to the conditions presently pertaining in Hong Kong. It cannot be extrapolated to other areas of China or Asia where zoonotic threats from avian influenza are also of concern.

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