

June 17, 2014 Emerging Respiratory Virus Update

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*** Please share with your workplace colleagues as appropriate. ***

Dear Colleagues –

Since our last full bulletin on 30 April 2014, cases of MERS-CoV continue to be identified but reports have declined substantially since the surge in activity that began mid-March and peaked late-April 2014.

A WHO mission has since concluded that the dramatic surge in MERS-CoV cases in the Arabian Peninsula during the spring 2014 can be largely explained by breaches in WHO-recommended infection prevention and control measures in health care settings. A seasonal increase in virus circulation within the animal reservoir (i.e. camels) and spill over into the human population contributed to primary cases within the community but nosocomial outbreaks amplified secondary spread and case counts where rigorous infection control precautions were not applied. There remains no evidence for mutations in the virus to promote more effective human-to-human transmission and no evidence of sustained human-to-human transmission in the community.

Yesterday (16 June 2014), the WHO convened its 6th meeting of the IHR Emergency Committee concerning MERS-CoV and again concluded that the conditions for a Public Health Emergency of International Concern (PHEIC) have not yet been met. However, the Committee did emphasise that the situation remains of concern. Their concerns centred on the anticipated increase in travel to Saudi Arabia for religious pilgrimage and breaches in infection prevention and control in health care settings.

This year, the Hajj – the annual pilgrimage to Mecca, Saudi Arabia – will take place approximately during 2-7 October 2014. However, Umrah is a similar pilgrimage that can be undertaken any time of the year and this year it is expected that the largest number of Umrah pilgrims will be during the upcoming Ramadan period occurring approximately between 28 June and 28 July 2014.

Travel-associated cases linked to upcoming religious pilgrimage to Saudi Arabia may therefore be anticipated. In advance of that possibility, we provide you with an update on recent MERS-CoV activity. For completeness, we also provide a brief update on recent H7N9 activity in China.

1. MERS-CoV UPDATE [Total: 830 cases; Deaths: 307+], Middle East

a. Countries reporting cases

As of 16 June 2014, the WHO has been informed of 701 lab-confirmed cases of MERS-CoV but this total does not include an additional 113 cases retrospectively identified and reported by the Saudi Arabia Ministry of Health on 3 June 2014 accrued across the period 2012-2014 and for which further epidemiologic details are still pending (see attached **MERS-CoV epidemic curve**).

To date since June 2012, 21 countries have reported more than 800 cases of MERS-CoV overall (see attached **MERS-CoV map**). This tally may increase to 22 countries if a recently reported case this week in Bangladesh is also confirmed by the WHO. As interesting historical context and comparison recall that in 2003, 26 countries in total reported more than 8000 confirmed cases of SARS-CoV (two-thirds from

mainland China) over just a 5 month period before spread of that emerging coronavirus was ultimately extinguished in July 2003.

Saudi Arabia still accounts for more than 80% of MERS-CoV cases but 9 countries in total within the Arabian Peninsula have reported cases (Saudi Arabia, Qatar, Jordan, United Arab Emirates (UAE), Oman, Kuwait, Lebanon, Yemen, Iran). Other countries have reported travel-associated cases including 6 countries of Europe (UK, Germany, France, Italy, Greece and the Netherlands), 3 countries of North Africa (Egypt, Tunisia, Algeria), 2 countries of south-east Asia (Malaysia, Philippines) and 1 country of North America (United States). Three countries outside the Arabian Peninsula that have received travel-associated cases have also experienced limited onward indigenous transmission (UK, France, Tunisia).

Countries reporting travel-associated cases linked to exposure in health care settings within the Arabian Peninsula include Greece, the Philippines and the United States. To date, 4 countries have reported travel-associated cases linked to religious pilgrimage to Saudi Arabia (the Netherlands, Jordan, Malaysia and Algeria). The majority of recent pilgrimage-related cases have either visited a health care facility or come in contact with camels or raw camel products. The WHO has issued specific travel advice for pilgrims, available here: <http://www.who.int/ith/updates/20140603/en/>.

For PHAC travel health notice related to MERS-CoV more generally, see: <http://www.phac-aspc.gc.ca/tmp-pmv/notices-avis/notices-avis-eng.php?id=108>

b. Case characteristics

As with previous updates, MERS-CoV cases continue to be predominantly older, adult men; overall, the median age of cases is 47 years (range: <1-94 years) and 64% are male. The majority of recently-reported cases are secondary cases who acquired their infection through human-to-human transmission, predominately in health care settings, as reflected in the large number of infections in health care workers (~25% of recent cases). Overall, about one-half of cases develop severe infection (case fatality of 35-40%), while about one-quarter present with mild/asymptomatic illness (more likely in secondary cases). People with chronic comorbidities (e.g. diabetes, chronic lung or renal disease, immunodeficiency) are at higher risk of severe infection. The role of asymptomatic cases in human-to-human transmission remains unknown at this time.

c. Camel Connection

Dromedary (one-humped) camels are now recognized as the primary animal reservoir for human MERS-CoV infections. Evidence to support the role of camels in the MERS-CoV transmission cycle comes from numerous serological studies that have identified anti-MERS-CoV antibodies in camels across a wide geographic area in the Middle East and parts of Africa, including serum samples dating back as early as 1992, as well as phylogenetic analyses that have identified antigenically equivalent MERS-CoV partial and whole genome sequences in camels, including those in close contact with human cases. Six countries in the Middle East, including Saudi Arabia, Qatar, UAE, Oman, Egypt and, most recently, Kuwait, have now identified MERS-CoV nucleic acid in camels. Preliminary evidence from Qatar suggests that people working in close contact with camels (e.g. farmers, abattoir workers, veterinarians) may be at higher risk of MERS-CoV infection.

The exact route of direct or indirect transmission from camels to humans (or vice versa) remains unknown. In their interim recommendations, the WHO advises that individuals should practice good hand hygiene following contact with camels and avoid consumption of raw (unpasteurized) camel products (e.g. milk, urine) or undercooked meat. For individuals at high risk of infection, the WHO recommends avoiding contact with camels or camel products altogether.

For a summary of MERS-CoV transmission from animals to humans, and interim recommendations for at-risk groups see:

http://www.who.int/csr/disease/coronavirus_infections/MERS_CoV_RA_20140613.pdf?ua=1.

d. Additional MERS-CoV links

For the latest WHO summary and literature update (11 June 2014), see:

http://www.who.int/csr/disease/coronavirus_infections/archive_updates/en/.

For ongoing WHO MERS-CoV updates, see:

www.who.int/csr/disease/coronavirus_infections/en/index.html.

For the media statement of the IHR Emergency Committee concerning MERS-CoV see:

<http://www.who.int/mediacentre/news/statements/2014/ihr-emergency-committee-merscov/en/>

2. H7N9 UPDATE [Total: 450 cases; 157 deaths], China

Since our last bulletin, 18 new human cases of avian influenza A(H7N9) and 11 deaths have been reported. However, the number of reported cases has decreased substantially since the second-wave peak in January 2014, when on average 40 cases per week were reported. The geographic distribution of cases has not changed since our previous bulletin [see attached **H7N9 epidemic curve and map**].

To stay current with ongoing developments, please consult the WHO avian influenza A(H7N9) page:

www.who.int/influenza/human_animal_interface/influenza_h7n9/en/index.html.

3. ACTION AND ADVICE

In the event of severe acute respiratory illness (SARI) in a patient with links to affected areas in the two weeks prior to symptom onset (i.e. residence, travel history or contact with someone with such history), clinicians should notify their local health authority/Medical Health Officer.

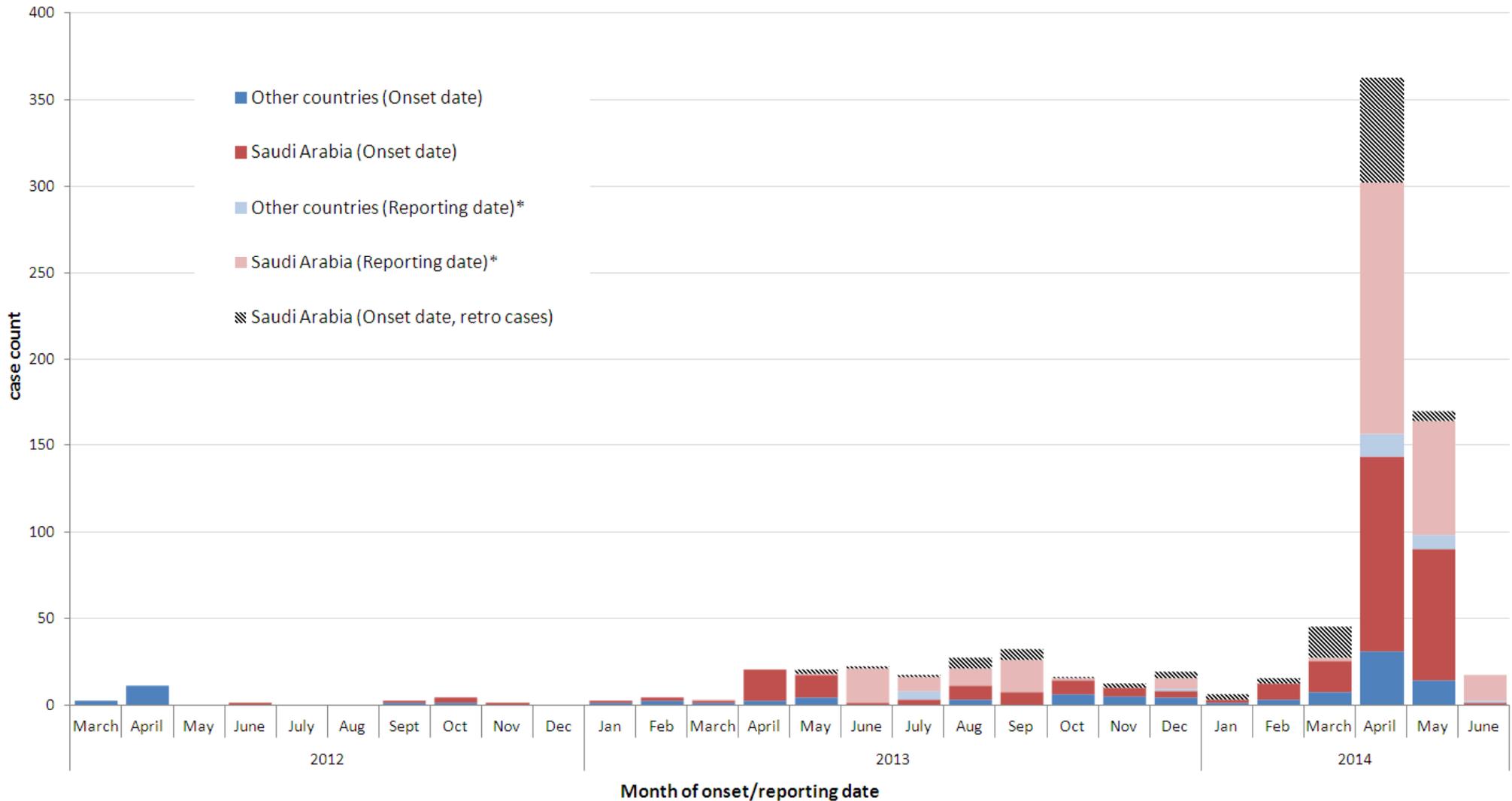
Health care workers should implement respiratory precautions immediately, and cases should be managed in respiratory isolation with contact and droplet precautions. Airborne precautions are warranted in the event of aerosol-generating procedures or conditions. Given a spectrum of illness inclusive of milder or atypical presentations, clinicians are encouraged to use their judgement and/or consult infection control for guidance around enhanced measures where the index of suspicion (e.g. based on contact, comorbidity or clustering history) and exposure risk may be higher. Facilities should be mindful of the protection of other patients and visitors, in addition to healthcare workers, to minimize nosocomial transmission and risk.

For diagnostic testing for suspected MERS-CoV, please discuss with your local health authority/Medical Health Officer and consult a virologist or microbiologist at the BC Public Health Microbiology & Reference Laboratory (PHMRL) to arrange advance notification and direct shipping. Lower respiratory specimens (e.g. sputum, endotracheal aspirate, or bronchoalveolar lavage) are recommended, where possible and clinically indicated. Follow strict infection prevention and control guidelines when collecting respiratory specimens.

To review prior bulletins issued by the BCCDC Influenza & Emerging Respiratory Pathogens team, see:

<http://www.bccdc.ca/dis-cond/DiseaseStatsReports/EmergingRespiratoryVirusUpdates.htm>.

MERS-CoV Epidemic Curve

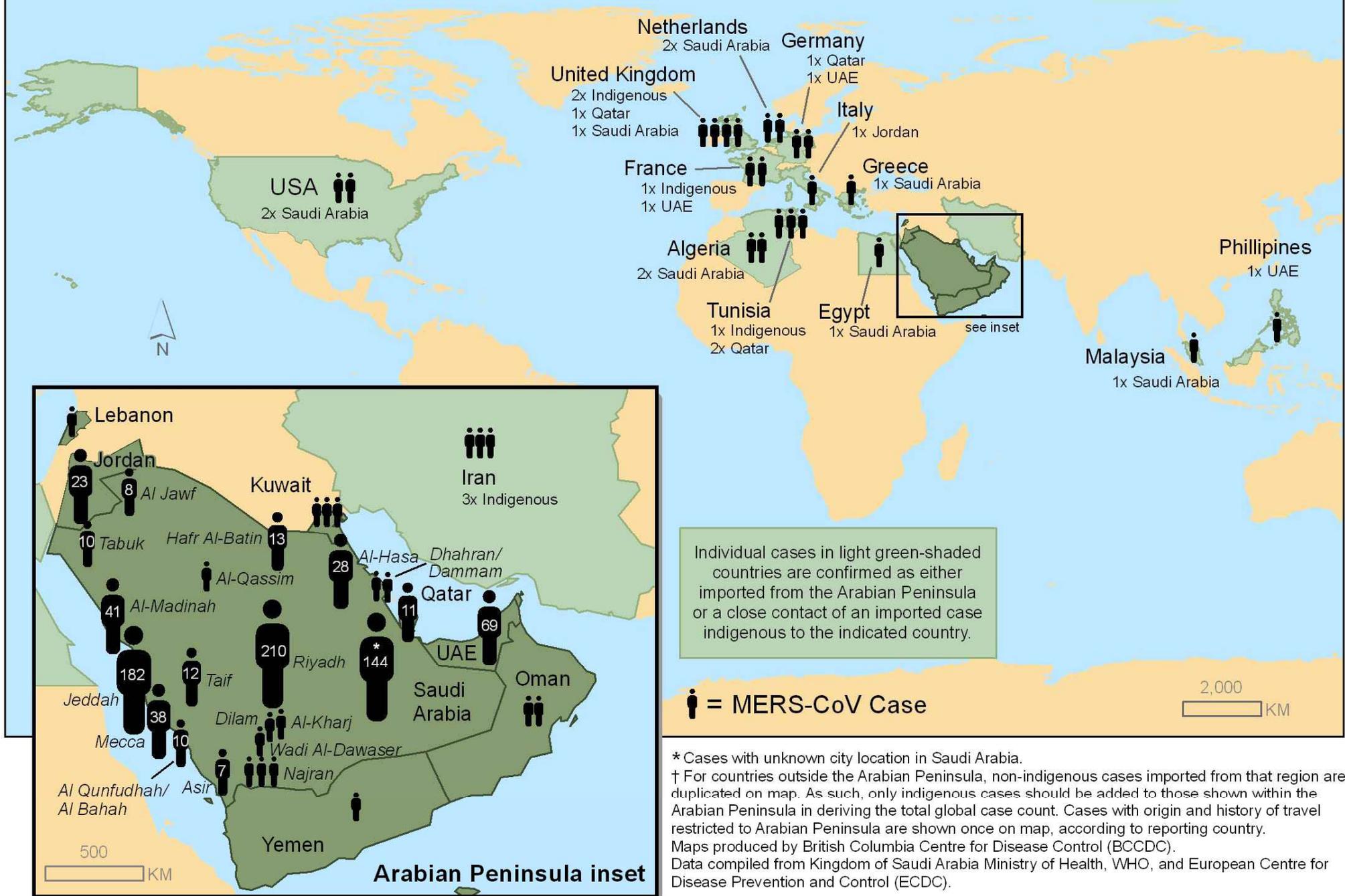


* Cases are shown by country of exposure (or by reporting country if place of exposure unknown) and by symptom onset date (or by reporting date if onset date unavailable or case is asymptomatic).

Note: June 2014 data shown is for partial month only.

MERS-CoV case activity as of June 17, 2014

case count: 830†



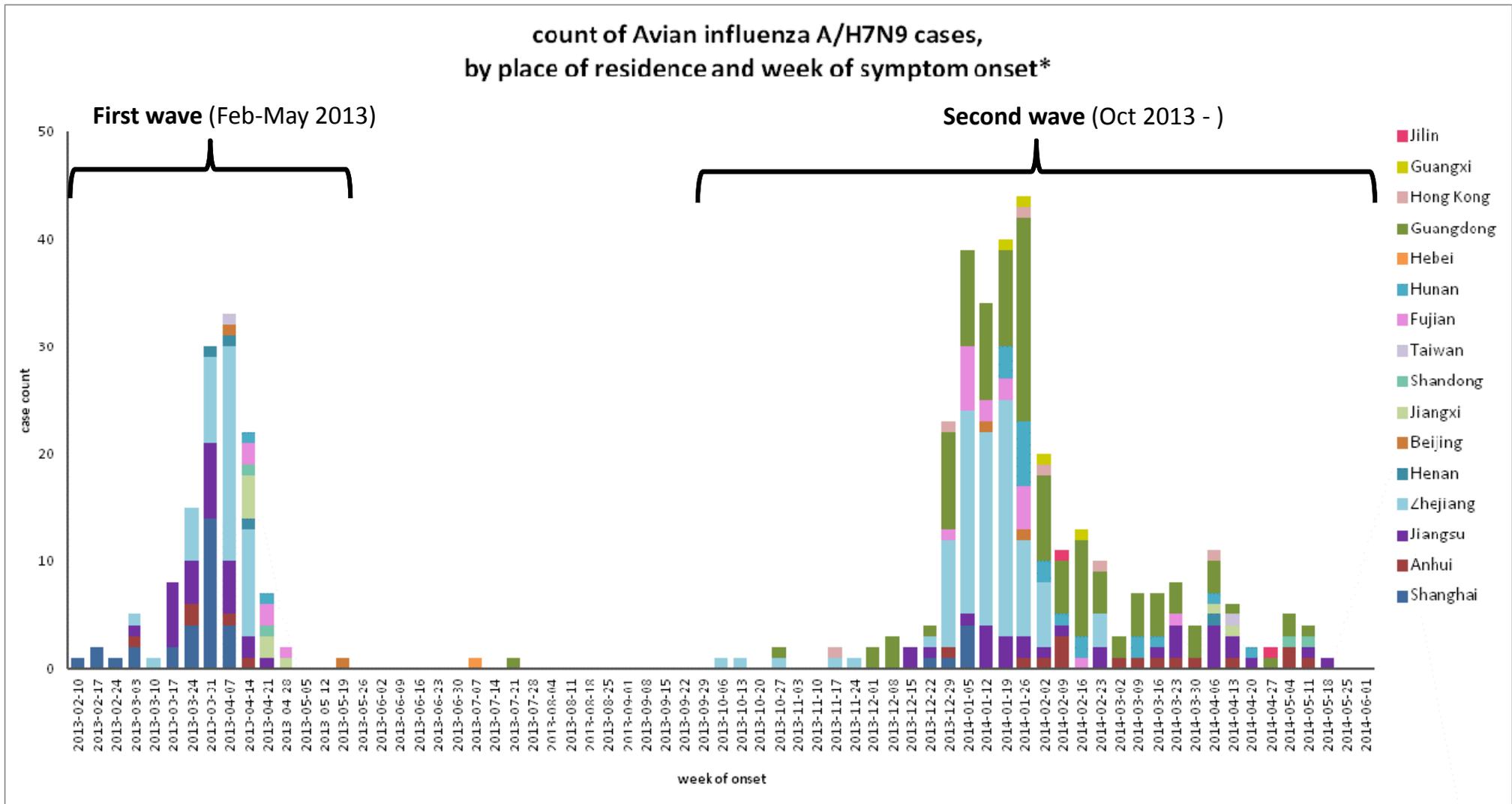
Individual cases in light green-shaded countries are confirmed as either imported from the Arabian Peninsula or a close contact of an imported case indigenous to the indicated country.

👤 = MERS-CoV Case

2,000 KM

* Cases with unknown city location in Saudi Arabia.
 † For countries outside the Arabian Peninsula, non-indigenous cases imported from that region are duplicated on map. As such, only indigenous cases should be added to those shown within the Arabian Peninsula in deriving the total global case count. Cases with origin and history of travel restricted to Arabian Peninsula are shown once on map, according to reporting country.
 Maps produced by British Columbia Centre for Disease Control (BCCDC).
 Data compiled from Kingdom of Saudi Arabia Ministry of Health, WHO, and European Centre for Disease Prevention and Control (ECDC).

H7N9 Epidemic Curve



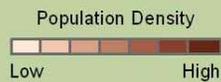
*Does not include: 1 Henan, 4 Jiangsu, 1 Guizhou, and 1 Guangdong cases with unknown onset date; one asymptomatic case in Beijing.

H7N9 avian influenza first and second wave cases by province of residence as of June 17th, 2014

1st wave
(Feb-May 2013)



2nd wave
(Oct 2013- present)



Waterbodies

Province	Cumulative cases
Anhui	20
Beijing	5
Fujian	22
Guangdong	114*
Guangxi	4
Guizhou	1
Hebei	1*
Henan	4
Hunan	22
Jiangsu	60
Jiangxi	9
Jilin	2
Shandong	4
Shanghai	36
Zhejiang	138
Hong Kong	6
Taiwan	2
Total	450



* Two cases with symptom onset in July 2013 (one in Hebei and one in Guangdong) are not represented on the map.
 ** Case was likely exposed in Zhejiang.
 † Cases reported travel to mainland China during exposure period.
 ‡ One case residing (and apparently exposed) in Guangdong was identified during travel to Malaysia, where the case was reported and remains hospitalised. A second case who lives in and was likely exposed in Guangdong was hospitalised and diagnosed in Hong Kong.