of the Gulf of Mexico, where millions of neotropical migratory birds make landfall each year and spend the winter months. Beginning in 2000, a joint effort by the Universidad Autónoma de Yucatán and Colorado State University blood-sampled and tested migratory and resident birds in Yucatán State, Mexico. The following year, the Smithsonian Institution also began sampling birds on the Yucatán Peninsula. Further south in the Lacandón Forest of Chiapas State, a joint federal Mexico-United States study evaluated blood from about 200 resident domestic animals sampled in July of 2001. From these, a single seropositive cow (*Bos* sp.) with a $PRNT_{90}$ for WNV of 1:80 and a $PRNT_{90}$ for SLEV of 1:20, was considered a probable case of WNV infection (12). However, these authors cautioned against concluding that WNV had reached southern Mexico. They reasoned that a major range extension should be confirmed by a second detection of infection. Also, no evidence of WNV transmission had been detected at that time in the nearby Yucatán Peninsula (9, 13). The Chiapas study demonstrated serologic evidence for infections due to uncharacterized flaviviruses which could have resulted in cross-reaction with WNV. Secondary flavivirus infections are notorious for causing elevated heterologous flavivirus titers (14).

FIGURE 1. Countries of Latin America and the Caribbean with reported activity for West Nile virus (in black) between 2001 and 2004, including Mexico, Belize, Guatemala, El Salvador, Cuba, Bahamas, Cayman Islands, Jamaica, Dominican Republic, Puerto Rico (United States), Guadeloupe (French West Indies), Trinidad and Tobago, and Colombia

Spread of West Nile virus 2002–2004

In 2002, WNV continued to spread in the Caribbean Basin. Guadeloupe (French West Indies) reported numerous subclinical infections in horses and chickens, determined serologically by neutralization (15). In July 2002, 10.4% of the healthy horses in four locations were positive and by January 2003, 61.6% had become positive in these locations. The absence of reported neurologic disease in these horses is mysterious. Subsequent surveillance in 2003 and 2004 failed to detect any transmission (16).

In the Dominican Republic on the Greater Antillean island of Hispaniola, a University of Kansas study team sampled blood and tissues from resident birds captured in November, 2002, for museum collections (17). Five birds of 33 (15.2%) from the Parque Nacional Los Haitises on the northeast coast tested positive for WNV antibodies by neutralization and a specific inhibition-ELISA test. A follow-up study in March, 2003, yielded 12 more WNV-seropositive birds of 58 (20.7%) at the Parque Nacional Monte Cristi in northwest Dominican Republic, along the border with Haiti (18). Positive Dominican bird species included *Phaenicophilus palmarum* (n = 4), two each of *Ploceus cucullatus, Saurothera longirostris, Loxigilla violacea* and *Turdus plumbeus*, and one each of five other species.

Evidence of WNV infection was confirmed in Mexico as of July, 2002. Seropositive horses were reported from six states (Chihuahua, Coahuila, Tamaulipas, Veracruz, Tabasco and Yucatán) (19–21). Seropositive birds were rare and were first detected in the early winter months of 2003 (13, 22).

Mexican authorities began widespread serosurveys in horses and birds in 2003 and found many seropositive horses in 22 states (J. Mendez, personal communication, 4 Feb 2004), with no human cases in 2003 and six human cases (three with encephalitis) in northern Mexico in 2004 (23). The first Mexican isolate came from a dead captive common raven (*Corvus corax*) in Tabasco State (southeast Mexico) in May, 2003 (21). Additional isolates from dead birds were obtained in northwest Mexico later in 2003 and 2004. Phylogenetic analysis of the prM-E region of the WNV genome isolated from the raven in Tabasco linked it to central United States strains from 2002, but revealed slightly greater genetic variation than previous

reports for North American WNV strains (21). Two of the 9 nucleotide mutations resulted in amino acid changes, and one of these altered a glycosylation site within the envelope (E) protein. Virulence testing of plaque-purified subcultures of this isolate revealed variants with reduced virulence in mice (24). Similar observations had been made with a Texas 2002 isolate (25).

The widespread WNV seropositivity among horses observed in Mexico in 2003 was also present in the Central American republics of El Salvador and Guatemala (26, M.E. Morales-Betoulle et al., manuscript in preparation). However, anecdotal reports of fatal or life-threatening neurologic disease in Mexican and Central American horses have rarely been confirmed as due to WNV. One encephalitic horse diagnosed with WNV infection was reported from Belize, with onset October 31, 2003. Interestingly, 2 000 birds sampled in Belize earlier in 2003 and another 2 000 in 2002 all tested negative for WNV antibodies (27).

West Nile virus activity continued in the eastern Caribbean region in 2003. In the Bahamas, a human case of WNND was diagnosed with onset in July, 2003 (28). In early 2004, two seropositive *Turdus plumbeus* (of 734 birds sampled) were detected in Guantanamo Bay Naval Base at the eastern point of Cuba, and in eastern Puerto Rico, one *Coereba flaveola* (of 1 200 birds sampled) was seropositive, probably reflecting transmission in 2003 (29). Three neutralizing antibody- and IgM-positive, healthy horses were also reported in eastern Puerto Rico in May, 2004, and two others were found in central Puerto Rico in July, 2004 (A. Diaz et al., manuscript in preparation). Mosquitoes collected from the locations where seropositive horses resided tested negative for WNV infection. Four seropositive horses from the Havana region and three human WNND cases in central Cuba were announced in January, 2005 (G. Kouri, personal communication, 2 February 2005), reflecting transmission in 2004.

In the fall of 2004, 8 resident unvaccinated horses (of 200 sampled) and 2 domestic Muscovy ducks (of 40 resident birds sampled) were seropositive for WNV in Trinidad (28; R. Salas, personal communication, 17 November 2005), and 12 seropositive equines (of 130 sampled) were reported in northern Colombia (30). These reports mark the first evidence of WNV activity in South American ecosystems (the island of Trinidad is located within sight of the South American mainland off the coast of Venezuela). Efforts to detect WNV-specific antibodies in resident and migrant birds in Brazil in 2002 and 2003 were unsuccessful (31). With the incursion of WNV into northern South America in 2004, it becomes the only zoonotic flavivirus to have been identified in six continents.

DISCUSSION

The failure of efforts to isolate the virus or detect genomic RNA from WNV in Latin America and the Caribbean (with a few exceptions in Mexico) is perplexing and underscores the concern that serologic evidence for WNV activity is at best indirect. Flaviviruses are notorious for their close antigenic relationships and serologic cross-reactivity (10). In spite of strong serologic evidence from cross-neutralization testing against known flaviviruses from the region, the possibility of misdiagnosis due to cross-reaction with an as yet unrecognized "WN-like" virus still exists. In fact, some of the serologic results classified as due to "undifferentiated flavivirus infection" can best be explained by the existence of such a virus. The recent discovery of two strains of WN-like virus in central Europe lends credence to this concern (32). These two WN-like viruses were both identified serologically as WNV, but genetically they are equidistant from both currently recognized WNV lineages and each other and may represent newly discovered WNV lineages or new WN-like flaviviruses.

Another concern is the strong emphasis placed by several research groups on serologic surveillance of migratory birds (9, 13, 22, 29, 31). These studies consume large quantities of valuable resources, yet are unlikely to provide significant results. Given the recent intense transmission of WNV during the summers in temperate North America, the capture of WN-seropositive avian survivors either during migration or on the wintering grounds is to be expected because many of these birds normally migrate to neotropical winter territories where they probably continue to circulate antibodies derived from a WNV infection acquired on their North American breeding grounds. Some studies claim that seropositive migrants are evidence that birds could carry WNV long distances. Unfortunately, although plausible, this conclusion is not valid for two reasons. First, the possibility that WN-seropositive migratory birds were in fact infected locally cannot be disproved. Second, long-distance migration by a healthy, antibody-circulating bird does not indicate that a viremic bird could make the same long-distance flight. More data are needed to support such a hypothesis. However, the observation of infectious WNV at high titers in tissues of convalescent migratory birds (e.g., Killdeer, *Charadrius vociferus*) more than one week post-infection and the demonstration of oral infection in raptors would suggest that recently infected birds that recover from viremia, migrate, and then fall prey to a raptor may still introduce WNV into new distant ecosystems if the raptor becomes infected and circulates sufficient virus in its blood to infect mosquitoes (33).

The most pressing concern regarding the reports of WNV in Latin America and the Caribbean is the absence of data on the disease burden in people, horses or birds. Widespread resistance to virulent strains of WNV in Latin American and Caribbean vertebrates (including people) seems highly unlikely. However, the selection of resistant WNV strains is plausible. If migrating birds are indeed the major mechanism for southward dispersal of WNV, then one could imagine a scenario in which birds infected with highly virulent strains become too sick to migrate, while birds infected with avirulent strains make the long flights

across seas and deserts successfully, spreading avirulent WNV to new transmission foci along their migratory routes. More research is needed to evaluate this hypothesis, but if proven, this bodes well for the future of WNV epidemics in North America, as the avirulent strain might be reintroduced continually from the south by returning migratory birds. South American arboviruses have in fact been isolated from northward-bound birds during the spring migration in Louisiana (34). This scenario may also explain the apparent low virulence for SLEV in birds and horses in North and South America. In fact, South American strains of SLEV are also less viremogenic in birds than are North American strains, and less virulent in mice (35). Whether an avirulent bird and horse strain of WNV will also be less virulent for humans remains to be seen.

Saint Louis encephalitis virus may be responsible for considerable cross-reaction to WNV in serologic tests of serum from Latin America. The virus is expected to cross-react in about 5% of primary WNV infections of birds (36). However, in secondary infections, the proportion of samples that cross-react by PRNT is probably much greater. Secondary flavivirus infections may explain the high rate of flavivirus antibody-positive serum samples in the Caribbean Basin countries that cannot be assigned to a specific infection (because of the presence of similar titers for multiple flaviviruses). Although rarely associated with disease in Latin America, SLEV infections are commonly reported. For example, in Chiapas, Mexico, 20 (10%) of 196 domestic animals (including three of five horses) were diagnosed as positive for SLEV-neutralizing antibodies by PRNT (12). The known range of distribution for SLEV was expanded through the efforts to detect WNV in the Caribbean Basin. For example, two SLE-seropositive birds reported in Puerto Rico provide the first evidence of SLEV activity from that Caribbean location (9, 29).

CONCLUSION AND RECOMMENDATIONS

Although WNV has yet to present a serious disease threat in Latin America and the Caribbean Basin, an outbreak may be pending. The first major outbreak (with >100 human cases of WNND) in the United States was delayed until 2002, three years after initial detection of the virus in 1999. Public health and veterinary authorities in Latin America and the Caribbean should remain vigilant for unusual clusters of severe disease cases. Dead birds (especially corvids) have been particularly useful for the early detection of WNV activity in North America (37). Corvids are less abundant in Latin America, and thus avian mortality may be less useful as a surveillance technique in this region (38). In countries where WNV has already been detected, surveillance efforts should be expanded. Surveillance guidelines for Latin American and Caribbean Basin countries are available (28, 39, 40).

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RESUMEN

La actividad del virus del Nilo occidental en América Latina y el Caribe

Objetivos. El virus del Nilo occidental (VNO, familia Flaviviridae, género *Flavivirus*) se ha propagado rápidamente por toda la cuenca del Caribe desde que se detectó por primera vez en 2001. En este informe se resumen nuestros conocimientos actuales acerca de la transmisión del VNO en zonas tropicales del continente americano.

Métodos. Revisamos todo lo que se ha publicado sobre el tema y consultamos a autoridades de salud clave para obtener datos inéditos.

Resultados. Las infecciones por el virus del Nilo occidental aparecieron por primera vez en seres humanos residentes de las Islas Caimán y de los Cayos de la Florida en 2001, y en pájaros de aspecto sano de los cuales se obtuvieron muestras a principios de 2002. En 2002 se encontraron pruebas serológicas de infección por el VNO en caballos, pollos y aves de corral no estabuladas oriundas de Guadalupe, la República Dominicana y la parte oriental de México. En 2003, el VNO se diseminó dentro de México y por la parte norte de Centroamérica y se encontraron pruebas serológicas en las Bahamas, Puerto Rico y Cuba. En 2004, las primeras pruebas serológicas de actividad vírica en ecosistemas sudamericanos se detectaron en septiembre y octubre en Colombia y Trinidad, donde se observaron anticuerpos neutralizantes contra el VNO en animales domésticos.

Conclusiones. Estos informes esporádicos de enfermedad equina, humana y aviar en América Latina y el Caribe son desconcertantes. Es necesario aislar las cepas para determinar si la atenuación del virus u otro factor explica la carga de enfermedad reducida en ecosistemas tropicales.

Palabras clave Virus del Nilo occidental, América Latina, región del Caribe, arbovirus, vigilancia de la población, flavivirus.

別紙様式第2-1

No. 19

医薬品 研究報告 調査報告書

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研究報告の概要

○クリミア・コンゴ出血熱―トルコ

2008年7月7日、トルコのブルサ、チャナッカレ、サムスンの病院で3名の患者がダニ媒介性疾患のクリミア・コンゴ出血熱で死亡し、この2ヶ月間での死亡者数は37名になった。

保健省はダニに注意するよう呼びかける声明を発表した。ダニに咬まれた場合は決して手でつぶさずに、皮膚を保護し、医師にピンセットで注意深く取り除いてもらった後、ヨードで消毒することを推奨している。さらに、咬まれた人は10日間医学的観察を行い、発熱、頭痛、吐き気、嘔吐、下痢などの症状が現われた場合は、最寄りの病院を受診するよう、保健省の担当者は話している。

クリミア・コンゴ出血熱は主に動物に感染し、ヒツジや家畜に寄生するダニが、時折人にウイルスを感染させる。迅速に治療しないと出血によって死亡することもある。感染した人の血液や唾液を介して他の人にウイルスが伝播される可能性がある。感染地域はアフリカ、アジア、ヨーロッパの一部だが、近年トルコの気候が温暖になっていることから、ダニの数が増えてより多くの人が感染するようになっていると保健当局では話している。

報告企業の意見	今後の対応
2008年7月7日、トルコの病院で3名の患者がダニ媒介性疾患のクリミア・コンゴ出血熱で死亡し、この2ヶ月間での死亡者数は37名になったとの報告である。	日本赤十字社では、輸血感染症対策として問診時に海外渡航歴の有無を確認し、帰国(入国)後4週間は献血不適としている。今後も引き続き、新たな病原体による感染症の発生状況等に関する情報の収集に努める。

使用上の注意記載状況・その他参考事項等

合成血-LR「日赤」
照射合成血-LR「日赤」

血液を介するウイルス、細菌、原虫等の感染
vCJD等の伝播のリスク

19

Archive Number 20080709.2092
Published Date 09-JUL-2008
Subject PRO/AH/EDR> Crimean-Congo hem. fever - Turkey (11)

CRIMEAN-CONGO HEMORRHAGIC FEVER - TURKEY (11)
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A ProMED-mail post
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International Society for Infectious Diseases
<http://www.isid.org>

Date: Wed 9 Jul 2008
Source: Turkish Daily News, Dogan News Agency report [edited]
<http://www.turkishdailynews.com.tr/article.php?enewsid=109351>

On Mon 7 Jul 2008, 3 people were pronounced dead at hospitals in the provinces of Bursa, Canakkale, and Samsun, taking the death toll from tick bites to 37 in the past 2 months. According to the Dogan news agency, a resident of the western province of Bursa went camping 10 days ago and was bitten by a tick. He was hospitalised and diagnosed with the deadly Crimean-Congo hemorrhagic fever (CCHF), and moved to the intensive care unit.

In the western province of Canakkale, a man died in hospital after being treated for suspected CCHF infection. He had told relatives that he had seen a tick on his body. He was buried in a zinc casket with lime spread over the grave as a precaution. Another person had died from CCHF in the same province last month [June 2008].

Another man died from CCHF on Monday [7 Jul 2008] in the northern province of Samsun after he was bitten by a tick and removed it with his hand.

The Health Ministry also issued a statement to warn people against ticks. In case of a tick bite the skin should be covered with [an antiseptic]. The tick should be removed by doctors using tweezers with great care and iodine should be applied to the bite. Health Ministry officials said ticks should never be killed by hand.

Moreover, those people, touched by any tick, should be kept under medical observation for 10 days, and go to the nearest hospital if they have symptoms such as fever, headache, nausea, vomiting, or diarrhea, officials from the Health Ministry said.

CCHF mainly affects animals. Ticks, which live on sheep and cattle, can sometimes pass the virus to people. It is a [haemorrhagic] fever where patients can bleed to death if they are not treated quickly. Those infected can transmit the virus through their blood or saliva. The disease is endemic in parts of Africa, Asia, and Europe. Health authorities said a warmer climate, which Turkey has experienced in recent years, could mean a larger tick population that could in turn infect more people with the disease.

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Communicated by:
ProMED-mail Rapporteur A-Lan Banks

[The CCHF death toll in Turkey has risen from 33 on 4 Jul 2008 , when more than 550 cases were recorded, to the present 37.

The HealthMap/ProMED-mail interactive map of Turkey is available at
<http://healthmap.org/promed?v=39.1,35.2,5>,

and a map delineating the administrative provinces of Turkey can be accessed <http://www.mapsofworld.com/turkey/turkey-political-map.html>. - Mod.CP]

[see also:
Crimean-Congo hem. fever - Turkey (10): treatment 20080704.2038
Crimean-Congo hem. fever - Turkey (09) 20080622.1935
Crimean-Congo hem. fever - Turkey (08) 20080620.1917
Crimean-Congo hem. fever - Turkey (07) 20080616.1892
Crimean-Congo hem. fever - Turkey (06) 20080615.1888
Crimean-Congo hemorrhagic fever - Turkey (05) 20080612.1866
Crimean-Congo hem. fever - Turkey (04) 20080611.1838
Crimean-Congo hem. fever - Turkey (03) 20080522.1686
Crimean-Congo hem. fever - Turkey (02) 20080511.1610
Crimean-Congo hem. fever - Turkey 20080508.1567
2007

Crimean-Congo hemorrhagic fever - Turkey 20070610.1892
2006

Crimean Congo hemorrhagic fever - Turkey (05) 20060822.2359
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別紙様式第2-1

No. 8

医薬品 研究報告 調査報告書

識別番号・報告回数			報告日	第一報入手日	新医薬品等の区分	機構処理欄
				2008. 7. 11	該当なし	

一般的名称	(製造販売承認書に記載なし)	研究報告の公表状況	CDC, Salmonella Saintpaul Outbreak Notices. 2008 Jul 8; Available from: URL: http://www.cdc.gov/salmonella/saintpaul/archive/070808.html	公表国 米国
販売名(企業名)	合成血-LR「日赤」(日本赤十字社) 照射合成血-LR「日赤」(日本赤十字社)			

研究報告の概要

○サルモネラ・セントポール流行の調査

CDCは、関係機関と協力して、複数州でのサルモネラ菌血清型セントポールのアウトブレイクを調査している。当初の疫学調査では生のトマトの摂食が関連すると考えられたが、最近、レストランで食事をした患者で多くのクラスターが発生していることが判明した。このため、トマトと同時に摂食されることの多い生のハラペーニョやコリアンダーなども原因となった可能性があるが、現時点では、感染源をこのうちの一つに特定することはできない。

7月7日時点で、41の州、ワシントンD.C.、カナダで991名の患者が同じ遺伝子パターンのサルモネラ・セントポールに感染した。感染が特定された症例は、検査施設が州の衛生研究所にサルモネラ株を送って確認されたものである。患者のうち、情報が得られた711名は、4月10日～6月25日の間に発症し、このうち275名は6月に発症していた。患者の年齢は1歳～99歳で48%が女性だった。最も感染者の割合が高いのは20歳～29歳、最も低いのは10歳～19歳及び80歳以上の年代だった。感染に関連した死亡例が2例報告されている。2007年の4月～6月にこの型のサルモネラ・セントポールに感染した患者は6名しかいなかった。

公衆衛生当局は5月からアウトブレイクの調査を続けているが、患者が食べたものを正確に思い出し、食材を特定することが難しいため、調査は難航している。サルモネラに感染した場合、12～72時間で下痢、発熱、腹痛などの症状を発症し、4～7日間持続する。ほとんどの患者は自然に回復するが、小児、高齢者、免疫不全患者などでは重症化しやすい。FDAは感染源と見られるトマトの摂食を控え、サルサソースなどに使われる生のトマトにも注意するよう呼びかけている。

報告企業の意見	今後の対応
2008年7月7日時点で、米国の41の州、ワシントンD.C.、カナダで991名の患者がサルモネラ・セントポール株に感染したことが確認されたとの報告である。	日本赤十字社では、輸血による細菌感染予防対策として問診時に献血者の健康状態を確認し、発熱を伴う食中毒様の激しい下痢症状がある場合は1ヶ月間献血不適としている。また、全ての輸血用血液製剤について、平成19年1月より保存前白血球除去を実施している。今後も細菌やウイルスの検出や不活化する方策について情報の収集に努める。

使用上の注意記載状況・その他参考事項等

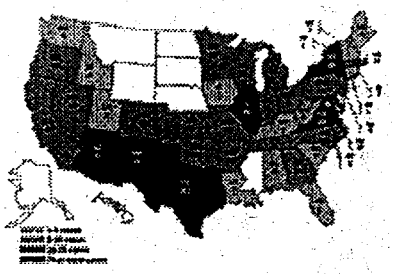
合成血-LR「日赤」
照射合成血-LR「日赤」

血液を介するウイルス、細菌、原虫等の感染
vCJD等の伝播のリスク

JRC2008T-046

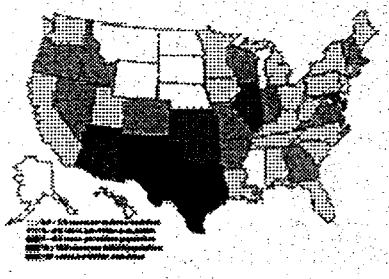
Investigation of Outbreak of Infections Caused by *Salmonella* Saintpaul

Cases infected with the outbreak strain of *Salmonella* Saintpaul, United States, by state, as of July 7, 2008 9pm EDT



Click map to view a larger image.

Incidence of cases of infection with the outbreak strain of *Salmonella* Saintpaul, United States, by state, as of July 7, 2008 9PM EDT



Click map to view a larger image.

Questions and Answers
Related to the Outbreak of *Salmonella* Saintpaul infections associated with tomatoes.

Update for July 8, 2008 - Case count information as of 9 pm EDT, July 7, 2008

Click Here for Advice to Consumers

CDC is collaborating with public health officials in many states, the Indian Health Service, and the U.S. Food and Drug Administration FDA) to investigate an ongoing multi-state outbreak of human *Salmonella* serotype Saintpaul infections. An initial epidemiologic nvestigation comparing foods eaten by ill and well persons identified consumption of raw tomatoes as strongly linked to illness. Recently, many clusters of illnesses have been identified in several states among persons who ate at restaurants. These clusters led us to broaden the investigation to be sure that it encompasses food items that are commonly consumed with tomatoes. Fresh tomatoes, fresh hot chili peppers such as jalapeños, and fresh cilantro are the lead hypotheses. However, at this point in the investigation, we can neither directly implicate one of these ingredients as the single source, nor discard any as a possible source.

Since April, 991 persons infected with *Salmonella* Saintpaul with the same genetic fingerprint have been identified in 41 states, the District of Columbia, and Canada. These were identified because clinical laboratories in all states send *Salmonella* strains from ill persons to their State public health laboratory for characterization. One new state, West Virginia, reported an ill person. The number of ill persons identified in each state is as follows: Alabama (2 persons), Arkansas (13), Arizona (47), California (8), Colorado (13), Connecticut (4), Florida (2), Georgia (24), Idaho (4), Illinois (95), Indiana (14), Iowa (2), Kansas (17), Kentucky (1), Louisiana (1), Maine (1), Maryland (29), Massachusetts (24), Michigan (7), Minnesota (10), Missouri (12), New Hampshire (4), Nevada (11), New

Jersey (9), New Mexico (98), New York (28), North Carolina (10), Ohio (8), Oklahoma (24), Oregon (10), Pennsylvania (11), Rhode Island (3), South Carolina (1), Tennessee (8), Texas (382), Utah (2), Virginia (29), Vermont (2), Washington (4), West Virginia (1), Wisconsin (11), and the District of Columbia (1). Four ill persons are reported from Canada; three appear to have been infected while traveling in the United States, and one illness remains under investigation.

Among the 711 persons with information available, illnesses began between April 10 and June 25, 2008, including 275 who became ill on June 1 or later. Many steps must occur between a person becoming ill and the determination that the illness was caused by the outbreak strain of *Salmonella*; these steps take an average of 2-3 weeks. Therefore, an illness reported today may have begun 2-3 weeks ago. Patients range in age from <1 to 99 years; 48% are female. The rate of illness is highest among persons 20 to 29 years old; the rate of illness is lowest in children 10 to 19 years old and in persons 80 or more years old. At least 194 persons were hospitalized. One death in a man in Texas in his eighties has been associated with this outbreak. In addition, a man in his sixties who died in Texas from cancer had an infection with the outbreak strain of *Salmonella* Saintpaul at the time of his death; the infection may have contributed to his death

Only 6 persons infected with this strain of *Salmonella* Saintpaul were identified in the country during April through June of 2007. The previous rarity of this strain and the distribution of illnesses in all U.S. regions suggest that the implicated food is distributed throughout much of the country. Because many persons with *Salmonella* illness do not have a stool specimen tested, it is likely that many more illnesses have occurred than those reported. Some of these unreported illnesses may be in states that are not on today□s map.

Health officials have worked continuously since late May to investigate this outbreak. CDC has sent 17 people to the field to work with other public health officials. The investigation is complex and difficult. One difficult aspect is that people often have difficulty remembering exactly what foods they ate, and remembering specific ingredients is even more difficult. Although laboratory testing of fo ds might help, perishable foods that were consumed by ill persons are often not available to test.

Clinical features of *Salmonella* Infection

Most persons infected with *Salmonella* develop diarrhea, fever, and abdominal cramps 12-72 hours after infection. Infection is usually diagnosed by culture of a stool sample. The illness usually lasts 4-7 days. Although most people recover without treatment, severe infections may occur. Infants, elderly persons, and those with impaired immune systems are more likely than others to develop severe illness. When severe infection occurs, *Salmonella* may spread from the intestines to the bloodstream and then to other body sites, and can cause death. In these severe cases, antibiotic treatment may be necessary.

Advice to consumers

At this time, FDA is advising U.S. consumers to limit their tomato consumption to those that are not the likely source of this outbreak. These include cherry tomatoes; grape tomatoes; tomatoes sold with the vine still attached; tomatoes grown at home; and red plum, red Roma, and round red tomatoes from specific sources listed at: http://www.fda.gov/oc/opacom/hottopics/tomatoes.html*. Consumers should be aware that raw tomatoes are often used in the preparation of fresh salsa, guacamole, and pico de gallo, are part of fillings for tortillas, and are used in many other dishes.

C sumers everywhere are advised to:

- Refrigerate within 2 hours or discard cut, peeled, or cooked tomatoes.
- Avoid purchasing bruised or damaged tomatoes and discard any that appear spoiled.
- Thoroughly wash all tomatoes under running water.
- Keep tomatoes that will be consumed raw separate from raw meats, raw seafood, and raw produce items.
- Wash cutting boards, dishes, utensils, and counter tops with hot water and soap when switching between types of food products.

FDA recommends that U.S. retail outlets, restaurants, and food service operators offer only fresh and fresh cut red plum, red Roma, and round red tomatoes and food products made from these tomatoes from specific sources listed at: http://www.fda.gov/oc/opacom/hottopics/tomatoes.html#retailers*. Cherry tomatoes, grape tomatoes, and tomatoes sold with the vine still attached from any source may be offered.

FDA information on this investigation can be found at: http://www.fda.gov/oc/opacom/hottopics/tomatoes.html*

More information about *Salmonella* and this investigation can be found at:

- *Salmonella* in tomatoes FAQs
- Timeline for Reporting of Cases
- New Mexico Department of Health (PDF – 191 KB)
- Arizona Department of Health Services News Release - Tomatoes: Caution Urged*
- Texas Department of State Health Services - News Update, June 13, 2008*
- Kansas Identifies 3 Cases Linked to Multi-State *Salmonella* Outbreak*

- Kentucky Cabinet for Health and Family Services Press Release
- Indiana State Department of Health Media Update on *Salmonella* Outbreak*
- Maryland Department of Health and Mental Hygiene News Release
- Missouri DHHS: State health department issues cautions about tomatoes*
- New Jersey Department of Health and Human Services: NJ Reports Four *Salmonella* Cases Linked to Multi-State Outbreak
- Utah Department of Health: Health News

nformation on the safe handling of produce can be found at: www.cfsan.fda.gov/~dms/prodsafe.html.*

Previous Updates on this Outbreak

- July 7, 2008
- July 4, 2008
- July 3, 2008
- July 2, 2008
- July 1, 2008
- June 30, 2008
- June 27, 2008
- June 26, 2008
- June 25, 2008
- June 24, 2008

- June 23, 2008
- June 20, 2008
- June 18, 2008
- June 16, 2008
- June 12, 2008
- June 9, 2008
- June 7, 2008
- June 5, 2008
- June 2, 2008

* Links to non-Federal organizations found at this site are provided solely as a service to our users. These links do not constitute an ndorsement of these organizations or their programs by CDC or the Federal Government, and none should be inferred. CDC is not esponsible for the content of the individual organization Web pages found at these links.

Please note: Some of these publications are available for download only as *.pdf files. These files require Adobe Acrobat Reader in ɔrder to be viewed. Please review the information on downloading and using Acrobat Reader software.

ʾage last modified: July 8, 2008
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ʾage Located on the Web at http://www.cdc.gov/salmonella/saintpaul/archive/070808.html