Pre-Travel Vaccination and Counseling for the PCP

Booth Wainscoat, DO

UPMC Division of Infectious Disease/ID Connect

October 19, 2023

We live in a global community

Lecture goals:

- ❑Introduce 3 major factors impacting Travel Medicine
- ❑Described The GeoSetinnel Network and latest U.S. TM statistics
- ❑Develop a practical strategy for navigating vaccine and chemoprophylaxis needs for selected travelers

Impact factors in Emergence of TM Problem

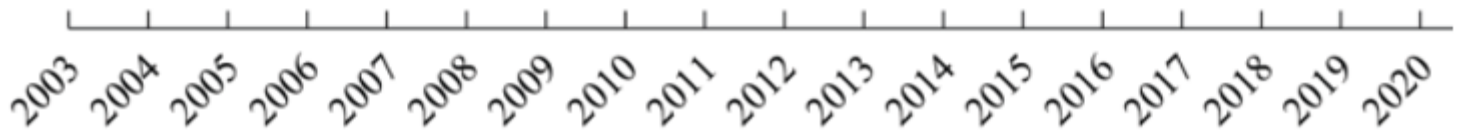
- Trends in travel volume

- Influence of Climate change on infectious disease

- Practice Gap in Travel Medicine services in the U.S.

Trends in Travel Volume

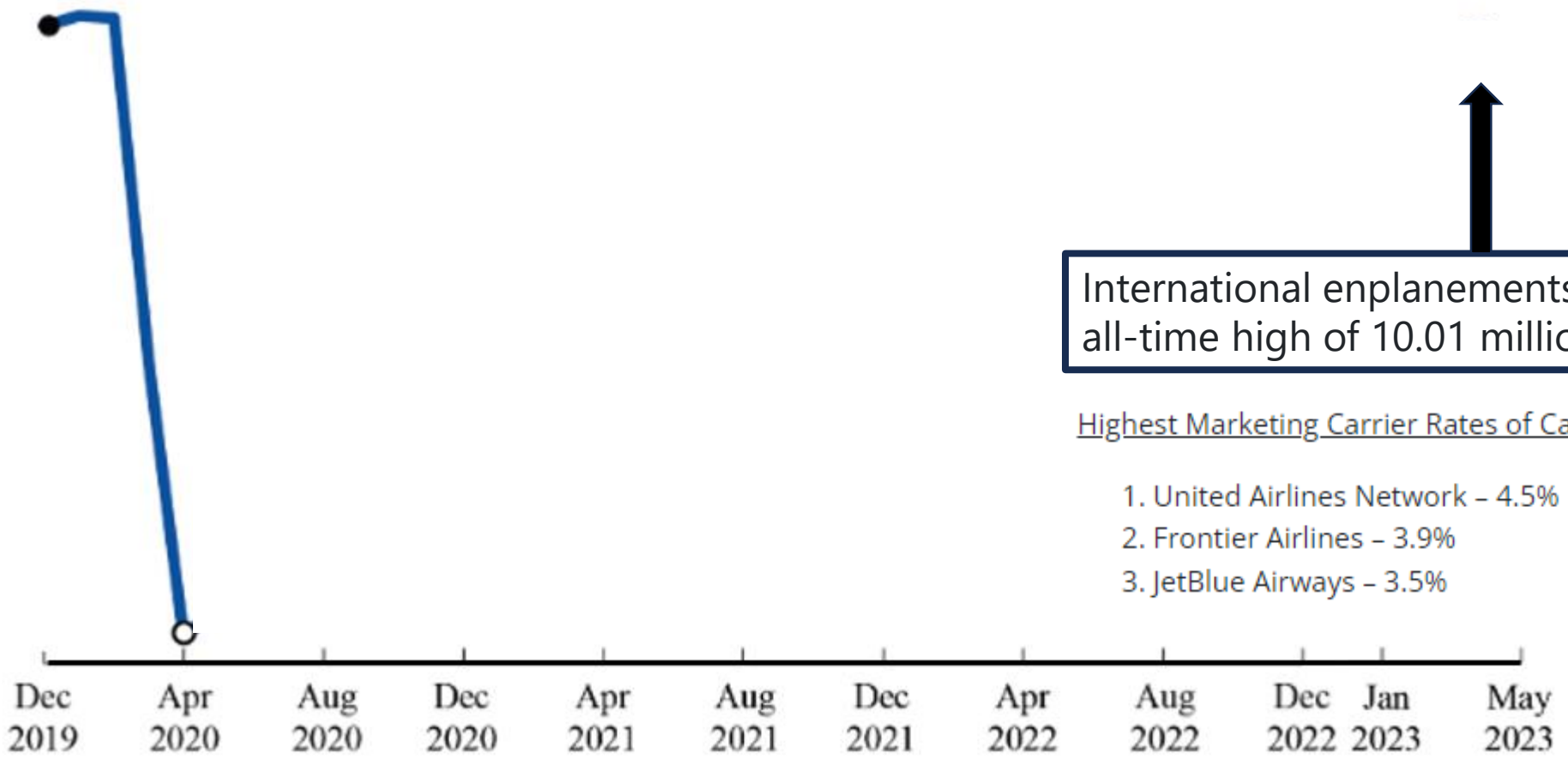
Figure 1. Annual Passengers on U.S. Airlines: 2003–2021
Passengers in millions, unadjusted (000,000)



2020-2023 U.S. Airline Traffic Data

United States Department of Transportation

Trends in Travel Volume



International enplanements reached an all-time high of 10.01 million in April 2023

Highest Marketing Carrier Rates of Canceled Flights June 2023

1. United Airlines Network – 4.5%
2. Frontier Airlines – 3.9%
3. JetBlue Airways – 3.5%

United States Department of Transportation

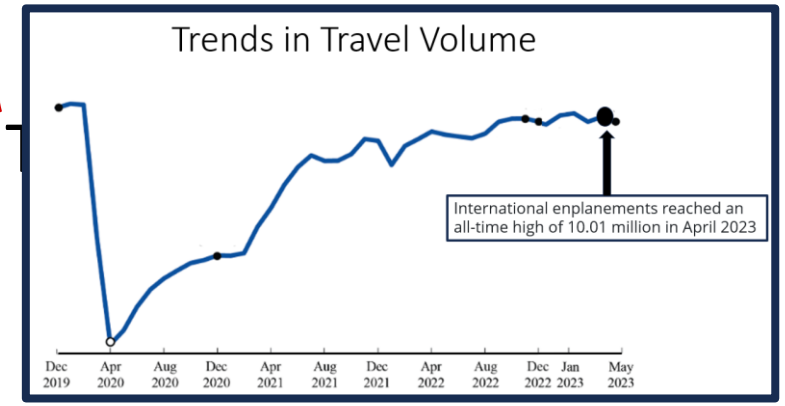
Impact factors in Emergence of TM Problem

- Influence of Climate c 

nse

- Practice Gap in Travel Medicine services in the U.S.

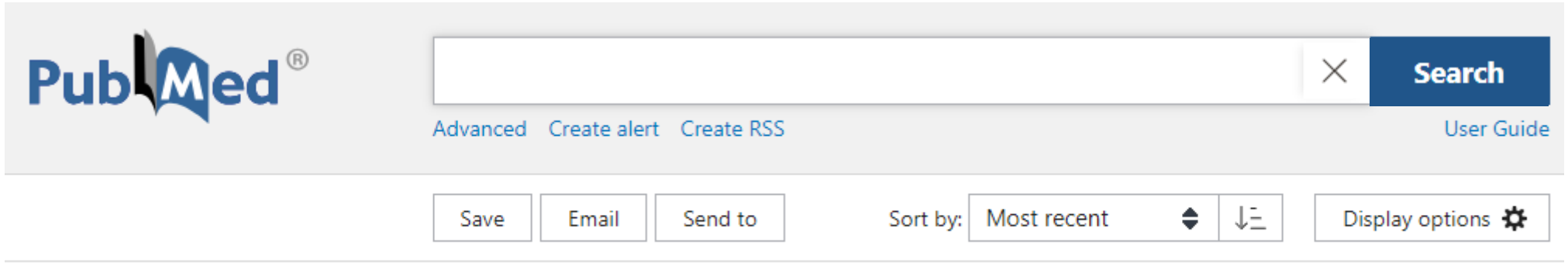
Impact factors in Emergence of TM Problem



- Influence of Climate change on infectious disease

- Practice Gap in Travel Medicine services in the U.S.

Influence of Climate change on infectious disease



- Global climate changes may either enhance or dimmish specific pathogen activity
- However, the influence of extreme weather events on infectious disease vectors [mosquitos] has been an established factor for over a century

ARTICLES
https://doi.org/10.1038/s41564-019-0376-y

nature microbiology

Corrected: Publisher Correction; Publisher Correction

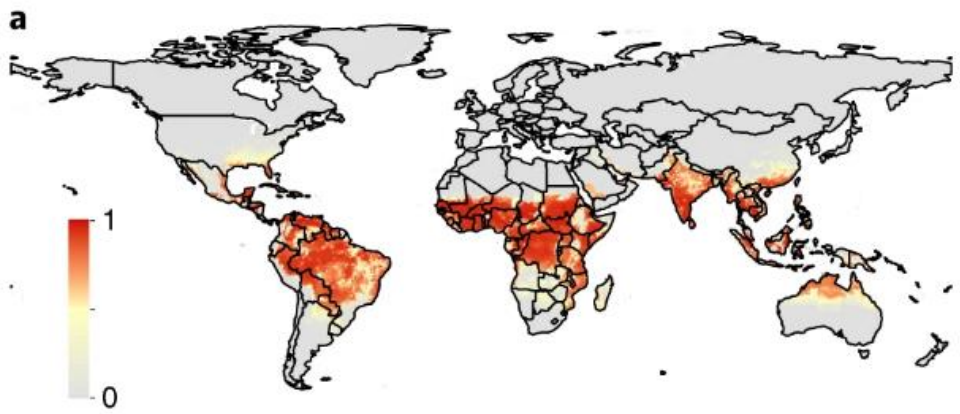
OPEN

Past and future spread of the arbovirus vectors *Aedes aegypti* and *Aedes albopictus*

Moritz U. G. Kraemer[1,2,3,42]*, Robert C. Reiner Jr[4,42], Oliver J. Brady[5,6,42], Jane P. Messina[7,8,42],

[1]Department of Zoology, University of Oxford, Oxford, UK.

NATURE MICROBIOLOGY | VOL 4 | MAY 2019 | 854–863 |



Kraemer, M.U.G., Reiner, R.C., Brady, O.J. *et al.* Past and future spread of the arbovirus vectors *Aedes aegypti* and *Aedes albopictus*. *Nat Microbiol* **4**, 854–863 (2019). https://doi.org/10.1038/s41564-019-0376-y

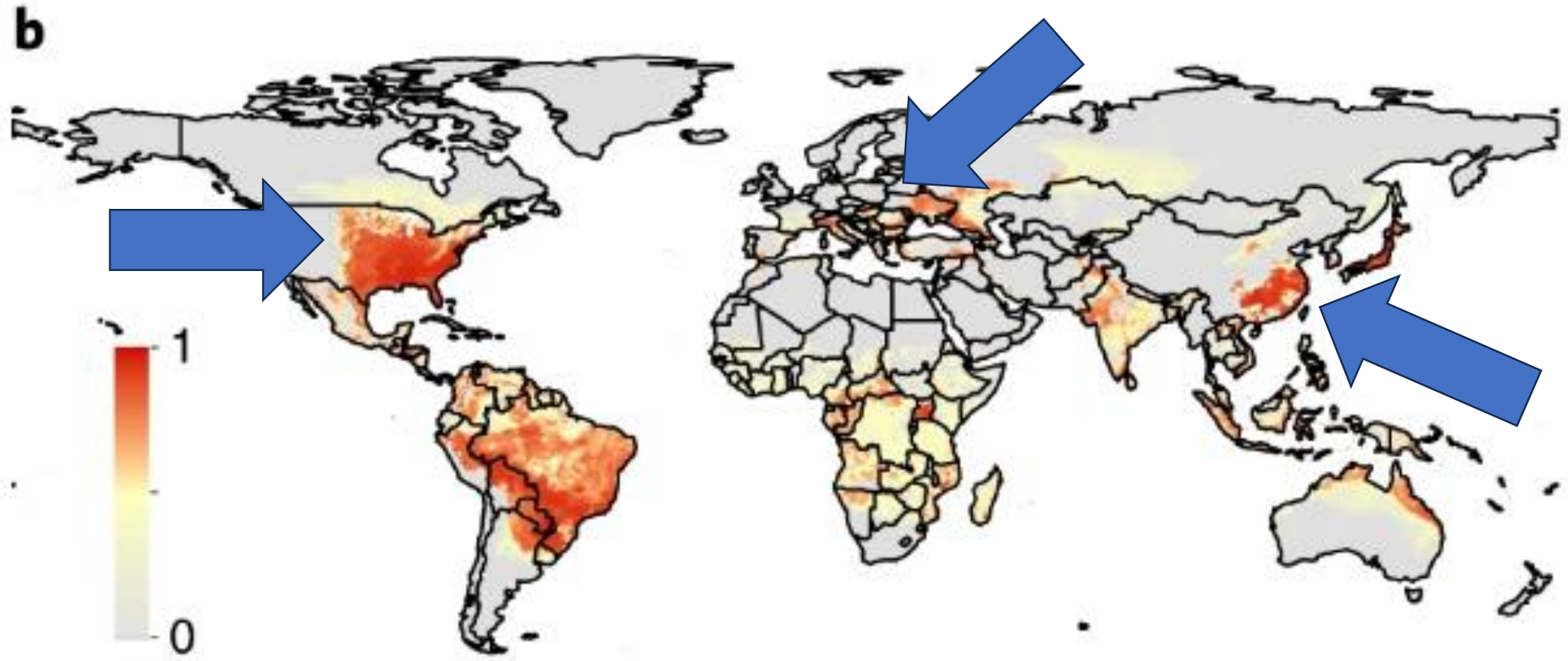
Past and future spread of the arbovirus vectors Aedes aegypti and Aedes albopictus

NATURE MICROBIOLOGY | VOL 4 | MAY 2019 | 854–863 |

- Transmission of dengue, yellow fever, chikungunya and Zika requires vectors *Aedes* mosquito vectors [Ae. aegypti and Ae. Albopictus]
- Numerous predictive models focus on climatic changes impacting spread of *Aedes* mosquitos *but fail to predict* intracontinental spread of the species.
- Human-mediated range expansion is a significant factor predicting intracontinental spread
- The authors create a combined forecast model of future climatic conditions and urban growth to predict the ranges mosquito vectors from 2015 to 2080

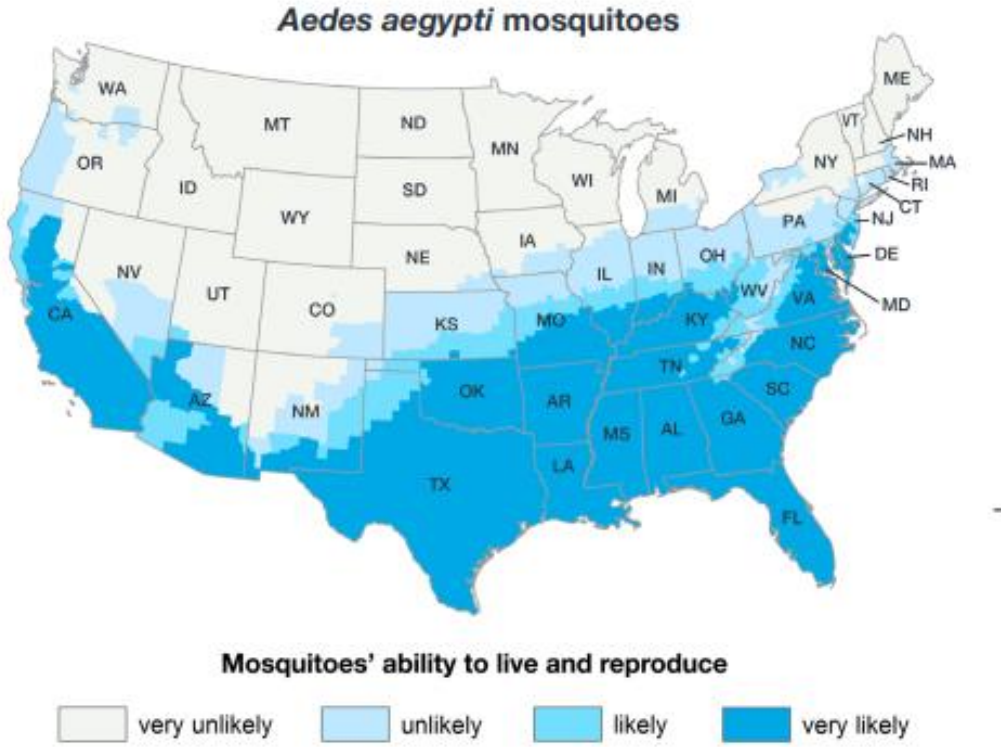
Kraemer, M.U.G., Reiner, R.C., Brady, O.J. *et al.* Past and future spread of the arbovirus vectors *Aedes aegypti* and *Aedes albopictus*. *Nat Microbiol* **4**, 854–863 (2019). https://doi.org/10.1038/s41564-019-0376-y

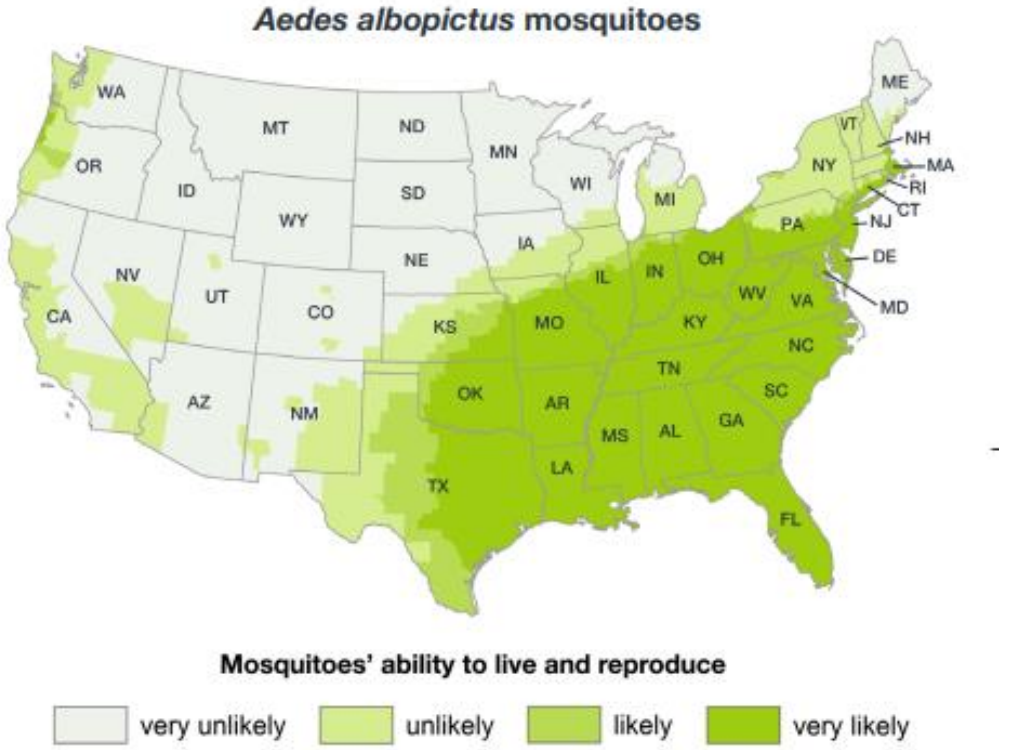
Predicted global geographical distribution of *Aedes aegypti*



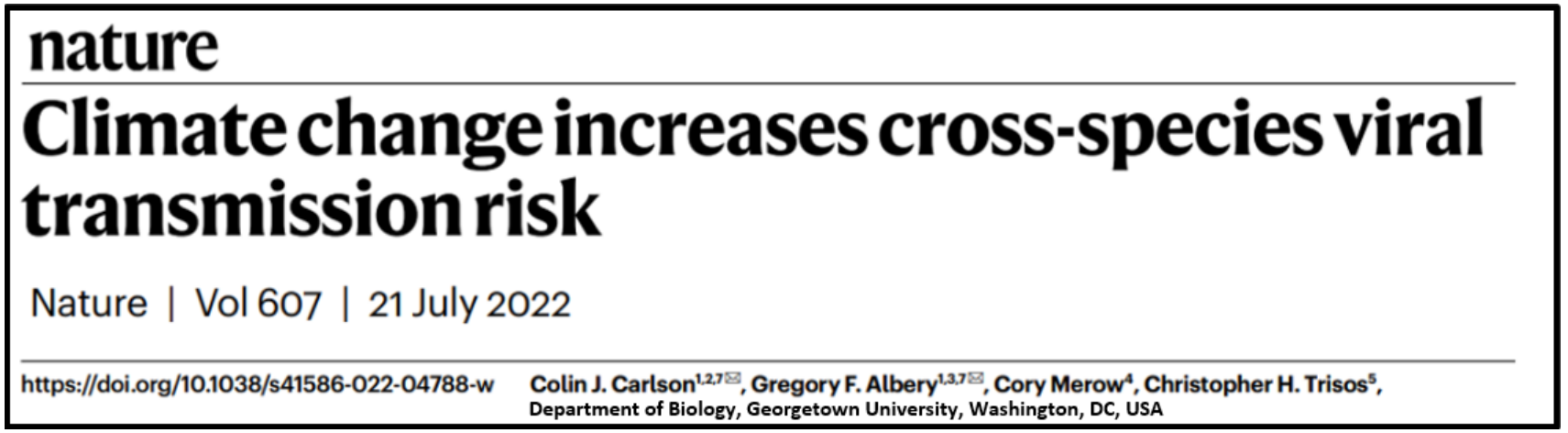
(a) The distribution of *Aedes aegypti*
(b) in 2050 under the medium climatic scenario

ESTIMATED potential range of *Aedes aegypti* and *Aedes albopictus* in the United States, 2017*





Source: Centers for Disease Control and Prevention, National Center for Emerging and Zoonotic Infectious Diseases (NCEZID), Division of Vector-Borne Diseases (DVBD)



nature

Climate change increases cross-species viral transmission risk

Nature | Vol 607 | 21 July 2022

https://doi.org/10.1038/s41586-022-04788-w

Colin J. Carlson[1,2,7], Gregory F. Albery[1,3,7], Cory Merow[4], Christopher H. Trisos[5],
Department of Biology, Georgetown University, Washington, DC, USA

- ~1,400 distinct pathogenic species known to cause infection in humans
- >10,000 virus species which have the ability to infect humans currently circulating silently in wild mammals.
- Climate change, land use and movement of humans and wildlife create opportunities for viral sharing in new geographical locations creating "Zoonotic spillover"
- The authors use mammal–virus network modeling to project "spillover' into 2070.

Carlson, C.J., Albery, G.F., Merow, C. *et al.* Climate change increases cross-species viral transmission risk. *Nature* **607**, 555–562 (2022). https://doi.org/10.1038/s41586-022-04788-w

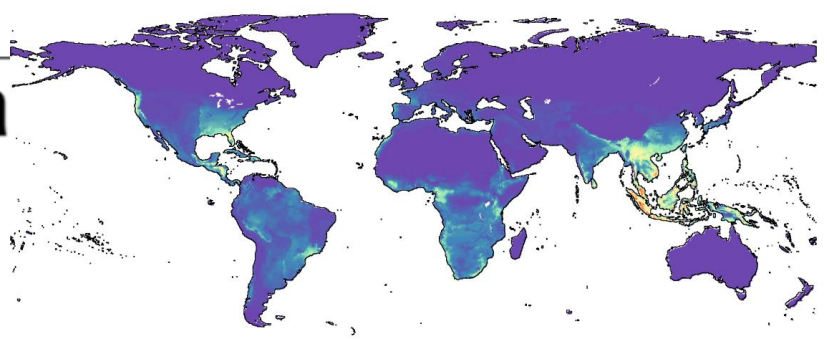
nature

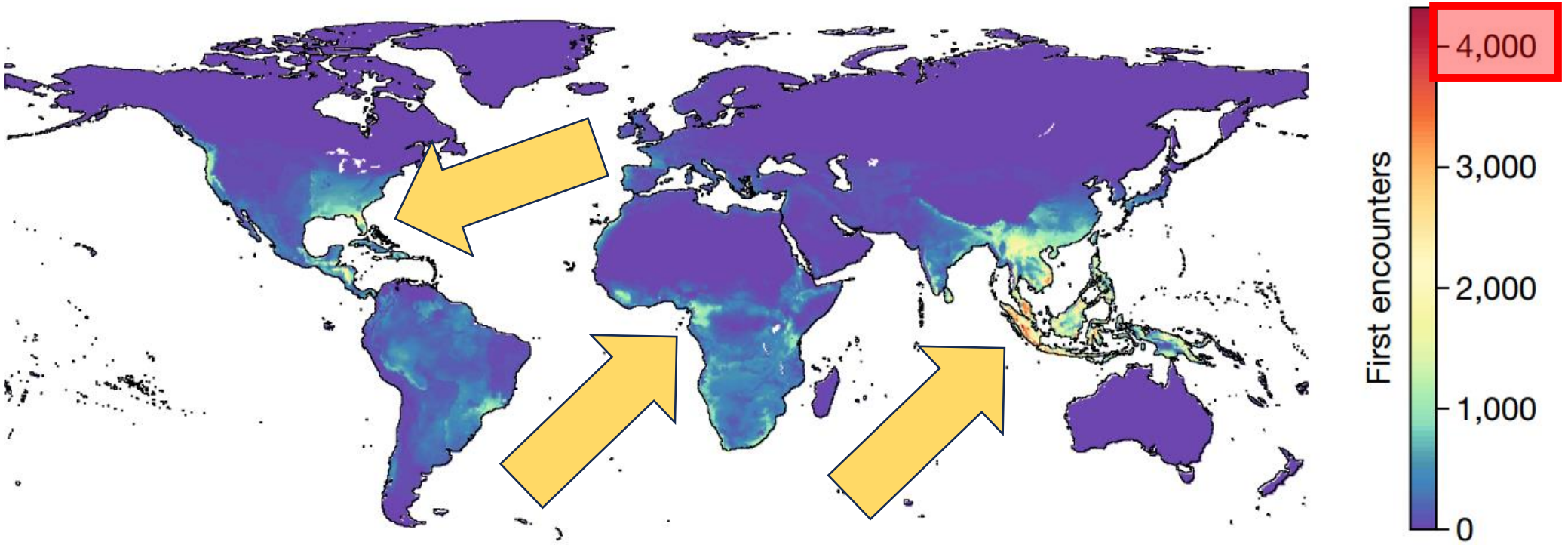
Climate change in transmission risk

Nature | Vol 607 | 21 July 2022

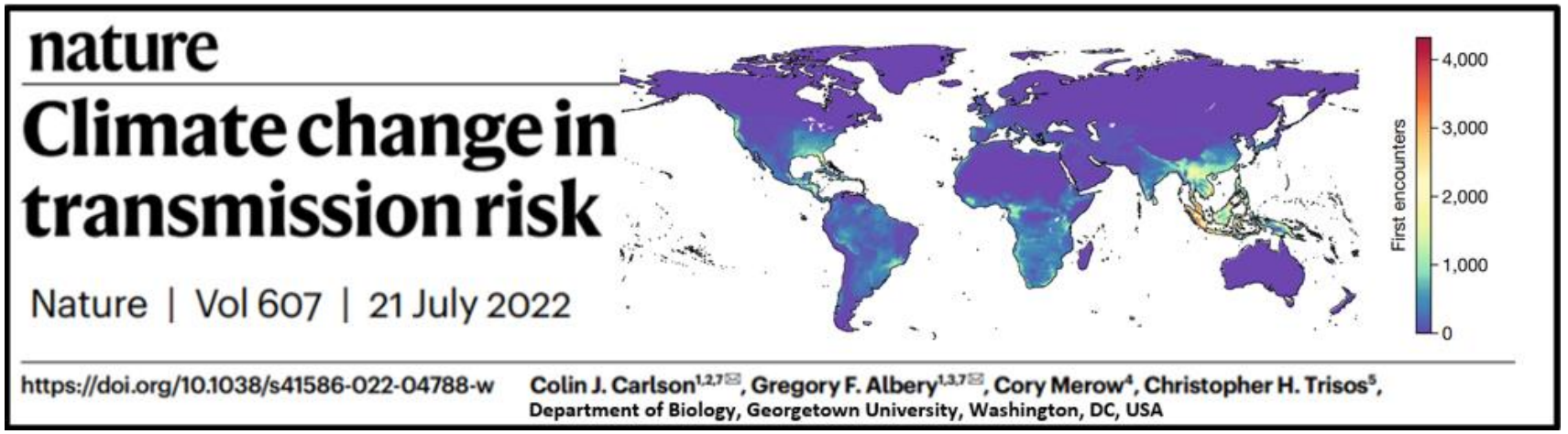
https://doi.org/10.1038/s41586-022-04788-w

Colin J. Carlson[1,2,7], Gregory F. Albery[1,3,7], Cory Merow[4], Christopher H. Trisos[5],
Department of Biology, Georgetown University, Washington, DC, USA





Carlson, C.J., Albery, G.F., Merow, C. *et al.* Climate change increases cross-species viral transmission risk. *Nature* **607**, 555–562 (2022). https://doi.org/10.1038/s41586-022-04788-w



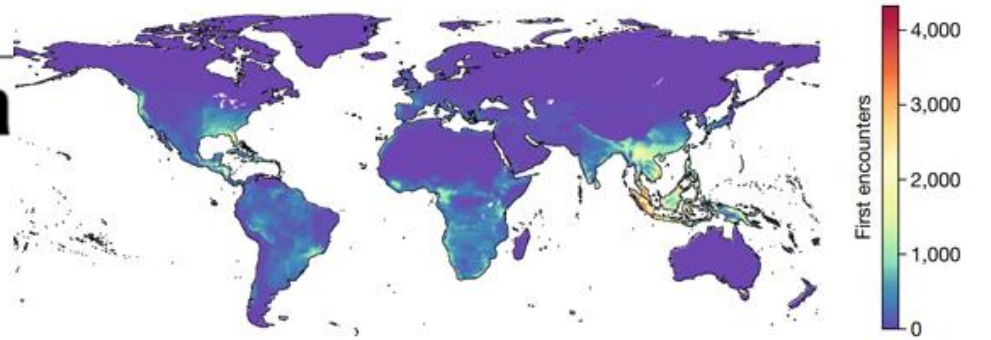
Findings:

- the combinations biodiversity hotspots and high human population density will lead the most frequent viral sharing in Asia and Africa
- Novel viral sharing involving bats will be the strongest facilitator of future emerging viral infection in humans
- Holding global warming under 2 °C within the 21st century will not reduce future viral sharing.

Carlson, C.J., Albery, G.F., Merow, C. *et al.* Climate change increases cross-species viral transmission risk. *Nature* **607**, 555–562 (2022). https://doi.org/10.1038/s41586-022-04788-w

nature

Climate change in transmission risk

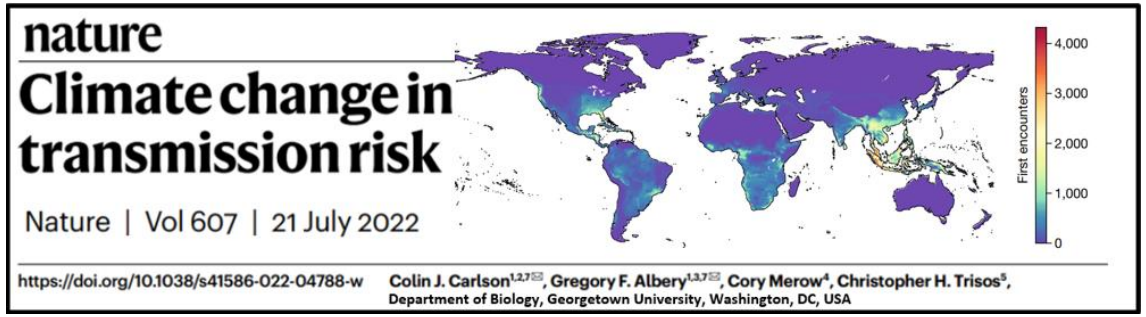


Nature | Vol 607 | 21 July 2022

https://doi.org/10.1038/s41586-022-04788-w

Colin J. Carlson[1,2,7], Gregory F. Albery[1,3,7], Cory Merow[4], Christopher H. Trisos[5],
Department of Biology, Georgetown University, Washington, DC, USA

Impact factors in Emergence of TM Problem



- Practice Gap in Travel Medicine services in the U.S.

Practice Gap in Travel Medicine services in the U.S.

How often do PCP's offer Pre-Travel Vaccination and Counseling?

- Primary care providers are positioned to be the best advocates for health among their patients who travel.

- While risk of exposure to infectious disease abroad is important, travelers' routine health is always a priority when considering the risk of travel

Practice Gap in Travel Medicine services in the U.S.

How often do PCP's offer Pre-Travel Vaccination and Counseling?

- Statistics on TM practice in primary care in the U.S. are lacking
- Few U.S. medical residency and primary care programs offer substantial formal travel medicine training.
- Some countries incorporate TM more commonly into primary practice.


Journal of Travel Medicine, Volume 11, Number 5

Nationwide Survey of the Role of Travel Medicine in Primary Care in Germany

Gwendolin Ropers, Gérard Krause, Friedrich Tiemann, Mirna Du

1,320 Primary Care Providers in Germany

Travel immunizations – 95.2%

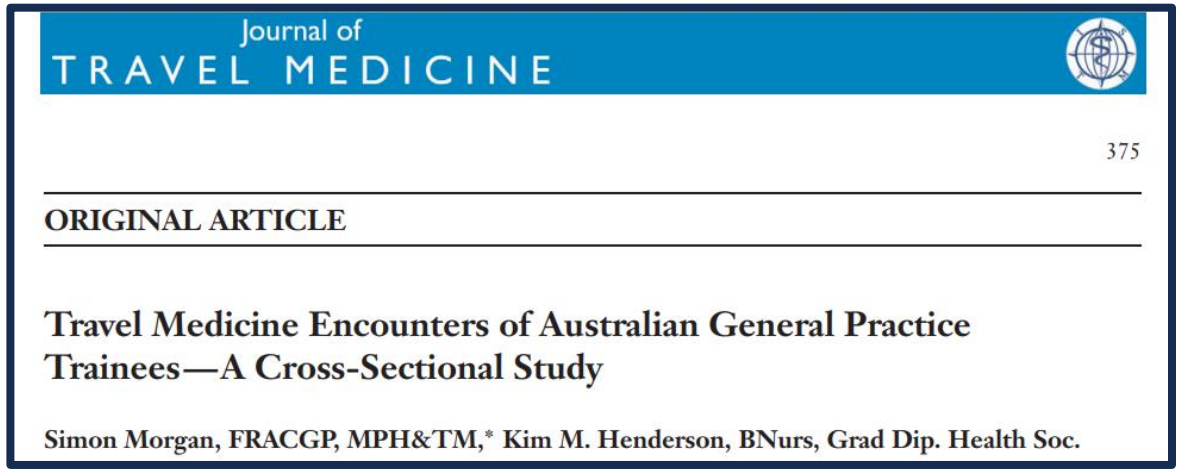
Malaria prophylaxis – 93.7%

Traveler's diarrhea– 85%

Ropers G, Krause G, Tiemann F, Du Ry van Beest Holle M, Stark K. Nationwide survey of the role of travel medicine in primary care in Germany. J Travel Med. 2004 Sep-Oct;11(5):287-94. doi: 10.2310/7060.2004.19104. PMID: 15544712.

How often do PCP's offer Pre-Travel Vaccination and Counseling?

- Statistics on TM practice in primary in the U.S. are lacking
- Few U.S. medical residency and primary care programs offer substantial formal travel medicine training.
- Some countries incorporate TM more commonly into primary practice.



Journal of
TRAVEL MEDICINE

375

ORIGINAL ARTICLE

Travel Medicine Encounters of Australian General Practice Trainees—A Cross-Sectional Study

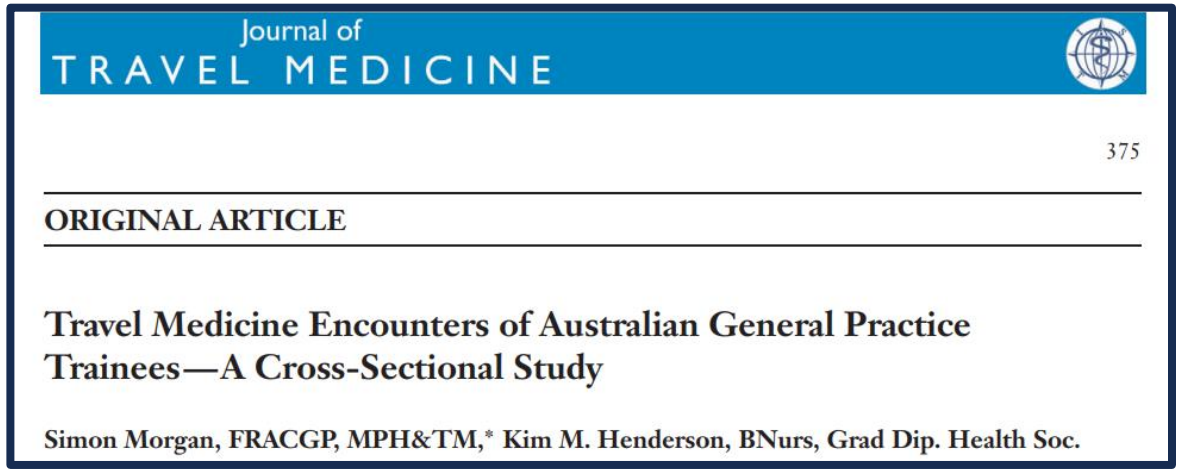
Simon Morgan, FRACGP, MPH&TM,* Kim M. Henderson, BNurs, Grad Dip. Health Soc.

856 General Practioner trainees in Australia	
Sources of additional advice for TM	
34.7% required additional advice	65.3% Did not require additional advice

Morgan S, Henderson KM, Tapley A, Scott J, van Driel ML, Spike NA, McArthur LA, Davey AR, Catzikiris NF, Magin PJ. Travel Medicine Encounters of Australian General Practice Trainees-A Cross-Sectional Study. J Travel Med. 2015 Nov-Dec;22(6):375-82. doi: 10.1111/jtm.12216. Epub 2015 Jun 2. PMID: 26031394.

How often do PCP's offer Pre-Travel Vaccination and Counseling?

- Statistics on TM practice in primary in the U.S. are lacking
- Few U.S. medical residency and primary care programs offer substantial formal travel medicine training.
- Some countries incorporate TM more commonly into primary practice.



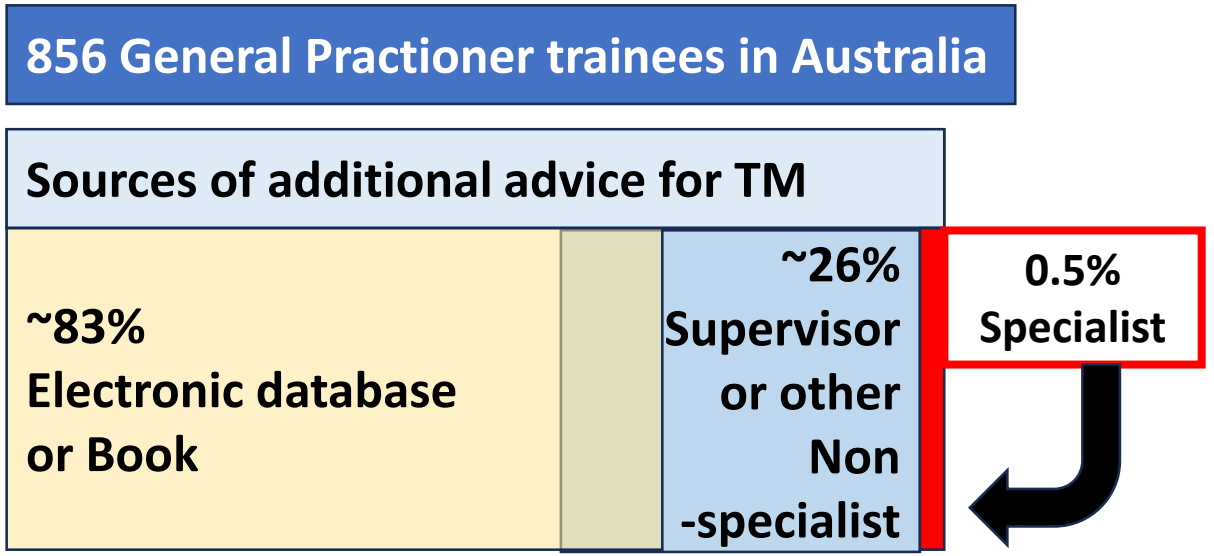
Journal of
TRAVEL MEDICINE

375

ORIGINAL ARTICLE

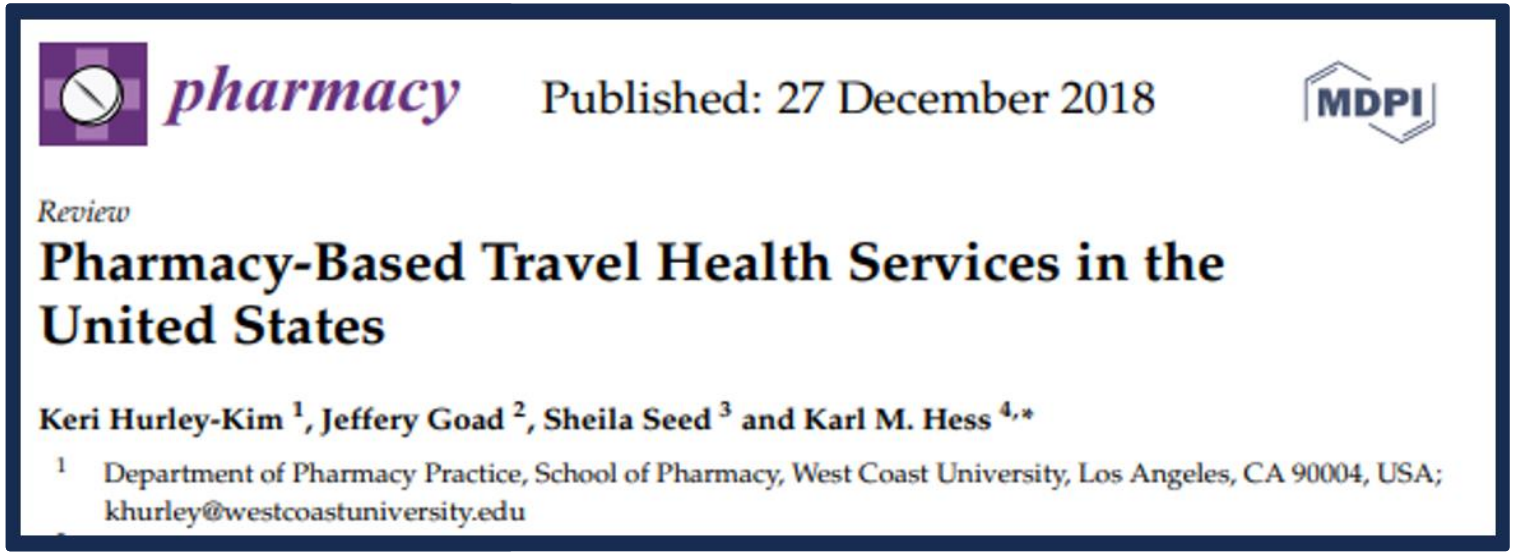
Travel Medicine Encounters of Australian General Practice Trainees—A Cross-Sectional Study

Simon Morgan, FRACGP, MPH&TM,* Kim M. Henderson, BNurs, Grad Dip. Health Soc.



Morgan S, Henderson KM, Tapley A, Scott J, van Driel ML, Spike NA, McArthur LA, Davey AR, Catzikiris NF, Magin PJ. Travel Medicine Encounters of Australian General Practice Trainees-A Cross-Sectional Study. J Travel Med. 2015 Nov-Dec;22(6):375-82. doi: 10.1111/jtm.12216. Epub 2015 Jun 2. PMID: 26031394.

Who performs Pre-Travel Vaccination and Counseling?



pharmacy Published: 27 December 2018 MDPI

Review

Pharmacy-Based Travel Health Services in the United States

Keri Hurley-Kim [1], Jeffery Goad [2], Sheila Seed [3] and Karl M. Hess [4,*]

[1] Department of Pharmacy Practice, School of Pharmacy, West Coast University, Los Angeles, CA 90004, USA; khurley@westcoastuniversity.edu

Hurley-Kim K, Goad J, Seed S, Hess KM. Pharmacy-Based Travel Health Services in the United States. Pharmacy (Basel). 2018 Dec 27;7(1):5. doi: 10.3390/pharmacy7010005. PMID: 30591674; PMCID: PMC6473888.

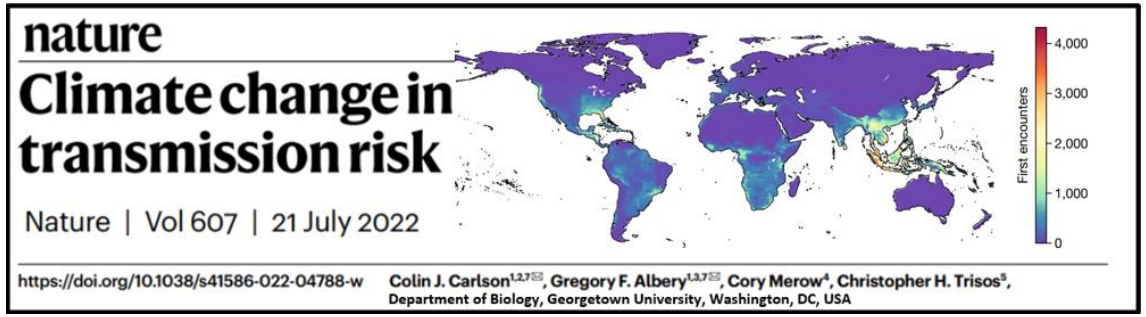
Who performs Pre-Travel Vaccination and Counseling?

- Pharmacists are essential members of a Pre-travel care plan
- More than 300,000 pharmacists have been trained to immunize in the United States
- The American Pharmacists Association (APhA) reports that more than 10,000 pharmacists have received specialized travel health training
- Collaborative practice agreements (CPA) with physicians in ambulatory care settings; however, several states and territories now allow for more independent practice

Practice Gap in Travel Medicine services in the U.S.

Hurley-Kim K, Goad J, Seed S, Hess KM. Pharmacy-Based Travel Health Services in the United States. Pharmacy (Basel). 2018 Dec 27;7(1):5. doi: 10.3390/pharmacy7010005. PMID: 30591674; PMCID: PMC6473888.

How many factors TM Emergence of TM Perfect storm?



Practice Gap in Travel Medicine services in the U.S.

Frequent patient questions regarding travel:

- Is it safe to travel?
- Did the pandemic change travel?
- What are the chances I get sick? Do I really need that vaccine?
- Can my PCP do this or do I need a specialist?

Is it safe to travel?

- All travel has some degree of inherent risk
- Risks are correlated with specific destination, duration, seasonal variation, activities, diet and lifestyle choices while abroad.
- Change the question: Have you safely prepared for travel?


Sierra Leone
Vietnam
Peru
Australia

74 year old M New York resident developed fever, myalgia, nausea, and vomiting 3 days after visiting the northern Amazon area. Fever, abdominal pain, and watery diarrhea persisted and was admitted to a hospital in Peru, where Entamoeba histolytica was detected in his stool. He was received support care but progressed to critical illness

Peru

A 27-year-old woman with two days of watery diarrhea, abdominal cramps, nausea, vomiting and fevers that commenced one day prior to return after a 3-week trip to Vietnam. Her partner also had similar diarrheal symptoms. Her abdomen was diffusely tender with positive Murphy's sign. Dx: acalculous cholecystitis

Vietnam

24-year-old male with no significant PMH who presented to the ED with 6 days of fever, headache, fatigue, and myalgia. Travel: 3-week trip to Sierra Leone, West Africa. He was in his usual state of health before and during his trip. Denied insect bites or sick contacts. He required hemodialysis w/ complications of acalculous cholecystitis and DIC

Sierra Leone

45-year-old male completed trekking adventure in Northern Australia. He recalled contact with insect and ticks as well as feral pigs He developed 2-day history of acute confusion and fever and was admitted to ICU with neurologic deterioration requiring LP.

Australia

Were pre-travel care needs met for each case?

Peru

Vietnam

Sierra Leone

Australia

Peru

Vietnam

Sierra Leone

Australia

Were pre-travel care needs met for each case?


Peru


Vietnam


Sierra Leone


Australia

Goals:

- Identify the most common missed opportunities in Pre-Travel care
- Detect patterns in pre-travel needs across various destinations
- Develop a comprehensive strategy to optimize Pre-travel consultation

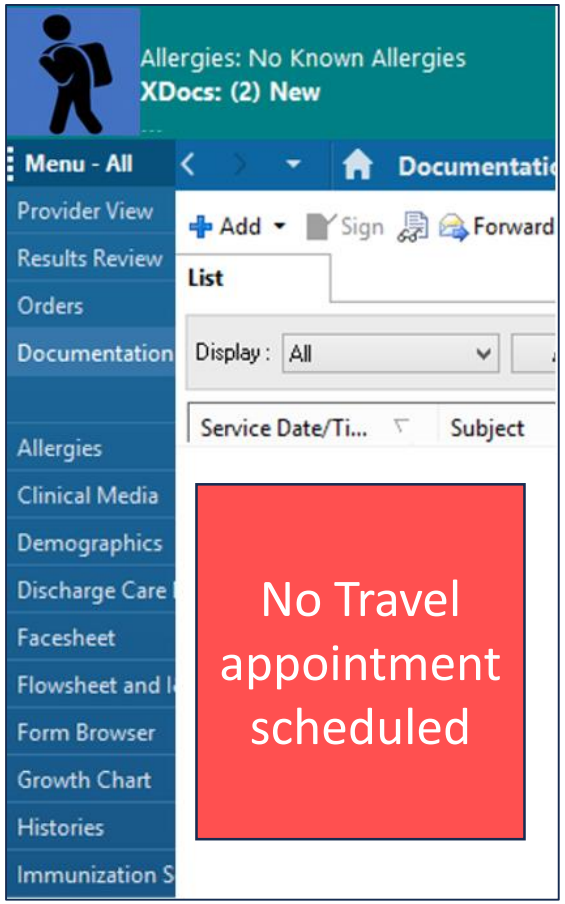
Were pre-travel care needs met for each case?

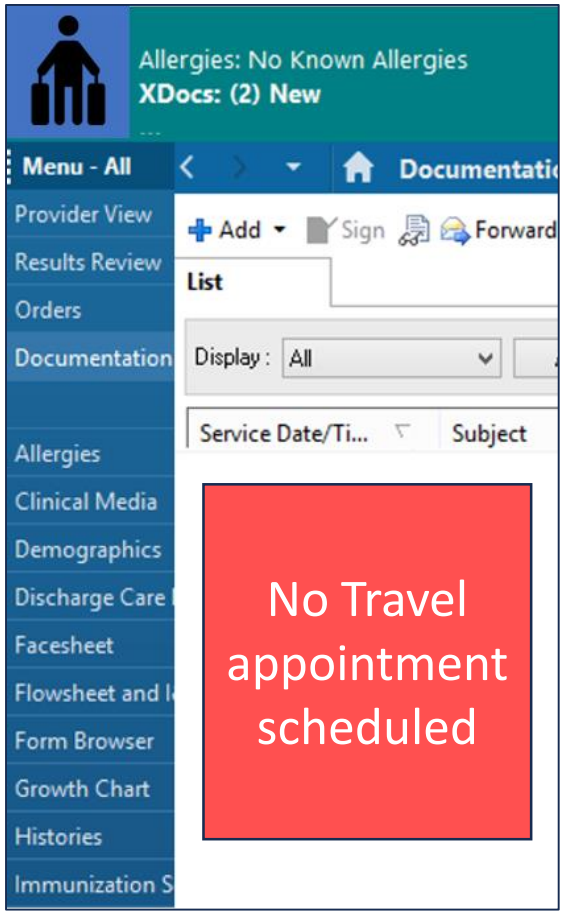
Peru

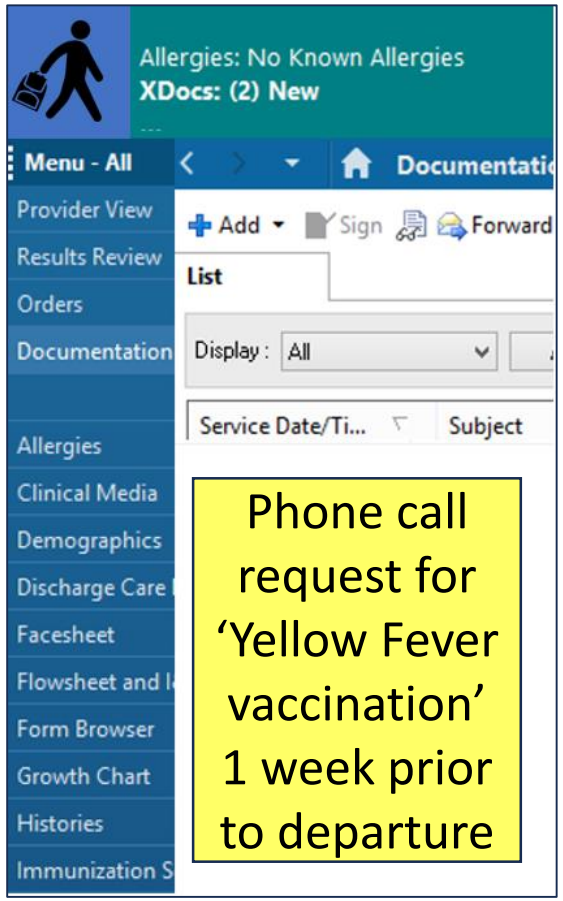
Vietnam

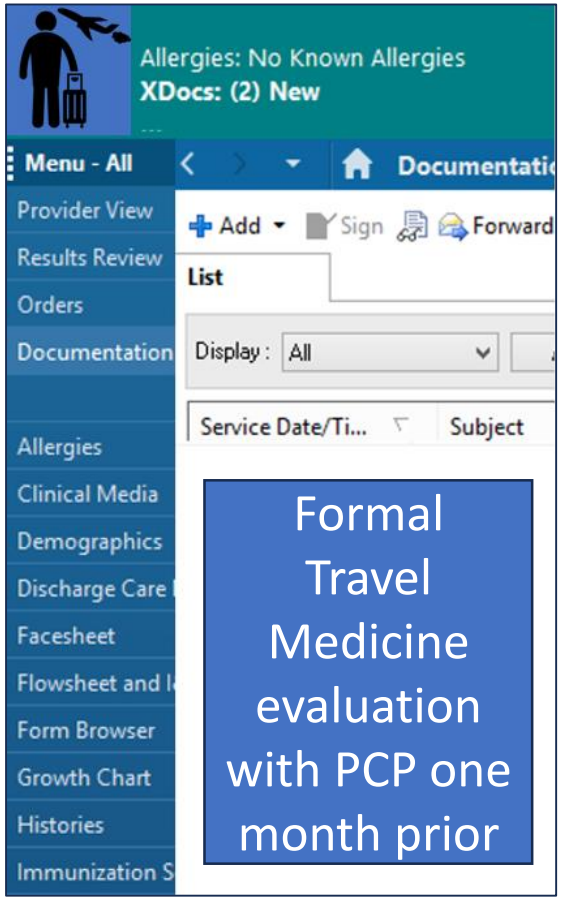
Sierra Leone

Australia









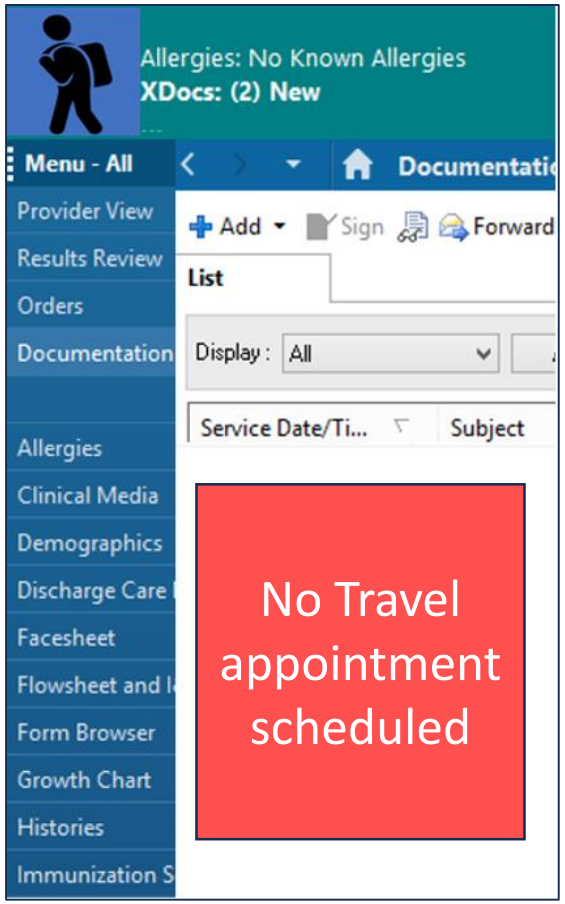
How often do travelers receive pre-travel consultation?

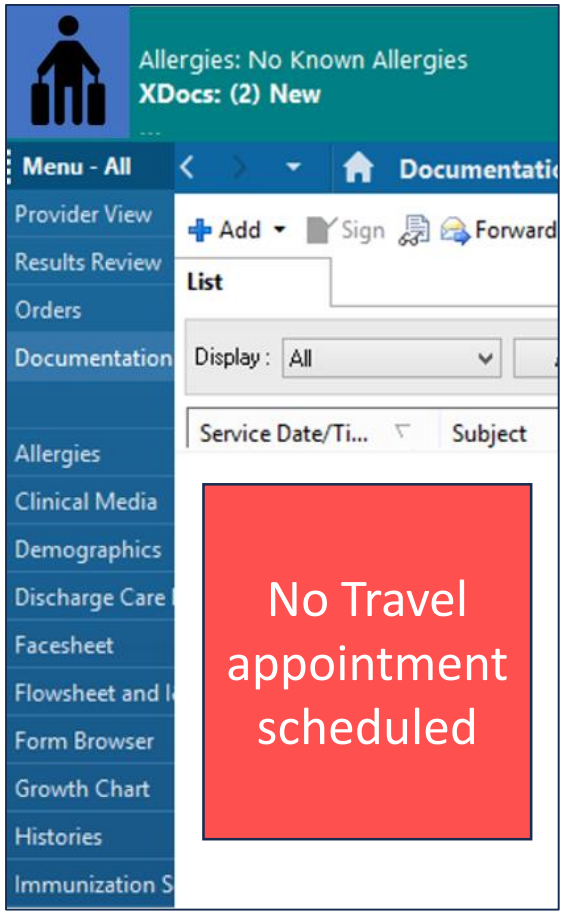
Peru

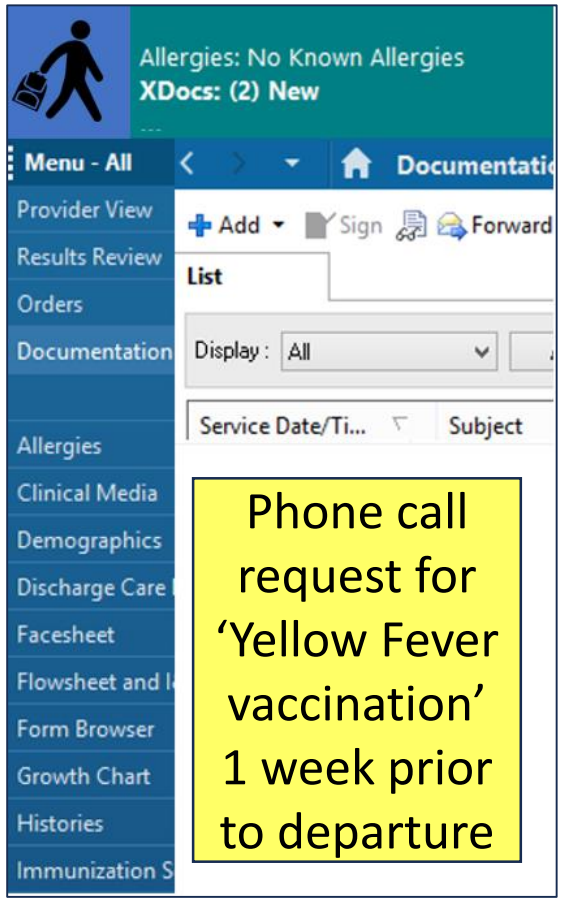
Vietnam

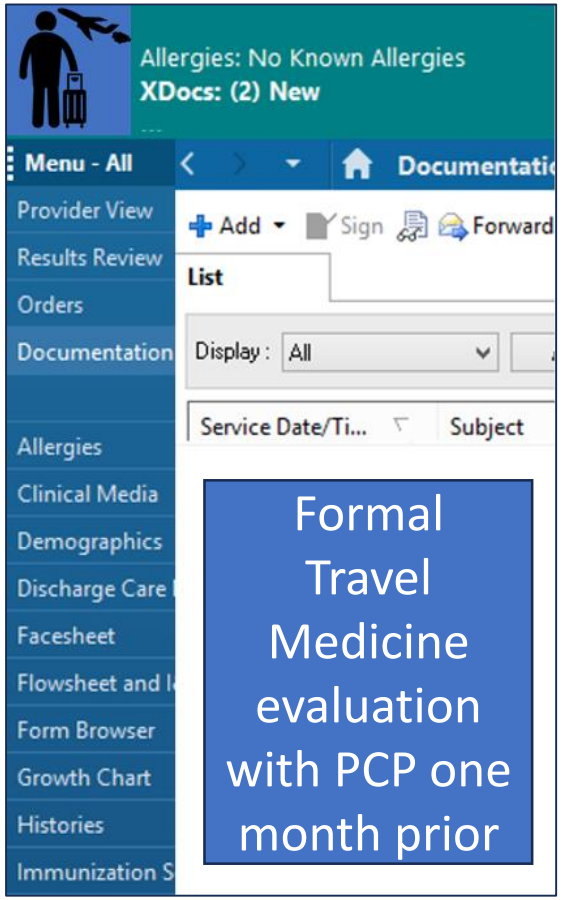
Sierra Leone

Australia



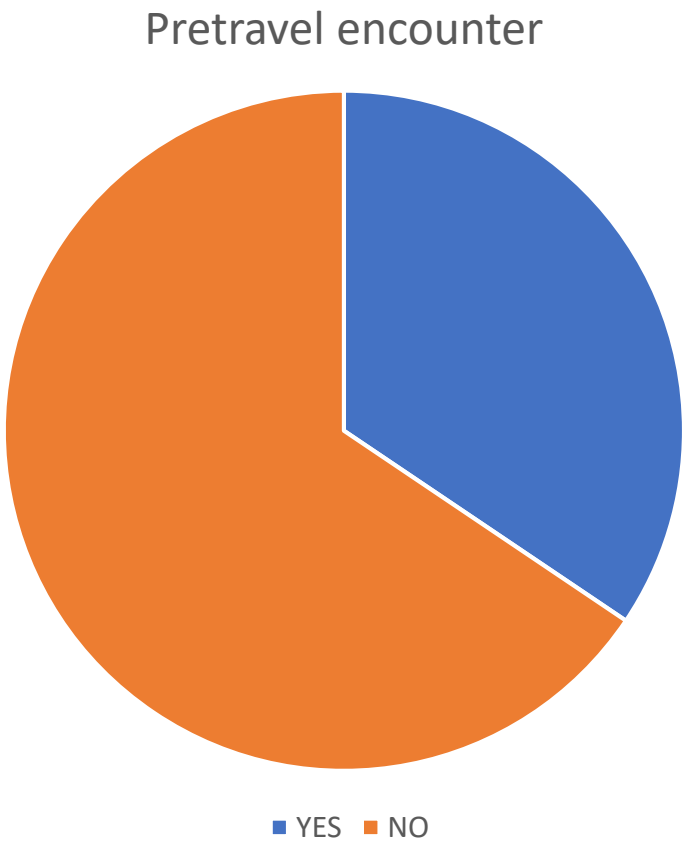






How often do travelers receive pre-travel consultation?

Pretravel encounter	Nonmigrant travelers in US N=8,967 (%)
YES	3,089 (34.4%)
NO	5,878 (65.5%)



Brown AB, Miller C, Hamer DH, et al. Travel-Related Diagnoses Among U.S. Nonmigrant Travelers or Migrants Presenting to U.S. GeoSentinel Sites — GeoSentinel Network, 2012–2021. MMWR Surveill Summ 2023;72(No. SS-7):1–22. DOI: http://dx.doi.org/10.15585/mmwr.ss7207a1.

How often do travelers receive pre-travel consultation?

Pretravel encounter	Nonmigrant travelers in US N=8,967 (%)
YES	3,089 (34.4%)
NO	5,878 (65.5%)

Brown AB, Miller C, Hamer DH, et al. Travel-Related Diagnoses Among U.S. Nonmigrant Travelers or Migrants Presenting to U.S. GeoSentinel Sites — GeoSentinel Network, 2012–2021. MMWR Surveill Summ 2023;72(No. SS-7):1–22. DOI: http://dx.doi.org/10.15585/mmwr.ss7207a1.

Centers for Disease Control and Prevention
MMWR
Surveillance Summaries / Vol. 72 / No. 7

Travel-Related Diagnoses Among U.S. Nonmigrant Travelers or Migrants Presenting to U.S. GeoSentinel Sites — GeoSentinel Network, 2012–2021

Pretravel encounter	Nonmigrant travelers in US N=8,967 (%)
YES	3,089 (34.4%)
NO	5,878 (65.5%)

Surveillance Summaries

Travel-Related Diagnoses Among U.S. Nonmigrant Travelers or Migrants Presenting to U.S. GeoSentinel Sites — GeoSentinel Network, 2012–2021

Ashley B. Brown, MPH[1]; Charles Miller, MSOR[1]; Davidson H. Hamer, MD[2,3]; Phyllis Kozarsky, MD[4]; Michael Libman, MD[5]; Ralph Huits, MD, PhD[6]; Aisha Rizwan, MPH[7]; Hannah Emetulu, MPH[7]; Jesse Waggoner, MD[8]; Lin H. Chen, MD[9,10]; Daniel T. Leung, MD[11]; Daniel Bourque, MD[3]; Bradley A. Connor, MD[12]; Carmelo Licitra, MD[13]; Kristina M. Angelo, DO[1]

[1]Division of Global Migration and Quarantine, National Center for Emerging and Zoonotic Infectious Disease, CDC; [2]Department of Global Health, Boston University School of Public Health, Boston, Massachusetts; [3]Section of Infectious Disease, Department of Medicine, Boston University Chobanian & Avedisian School of Medicine, Boston, Massachusetts; [4]Division of Infectious Diseases (Emerita), Department of Medicine, Emory University, Atlanta, Georgia; [5]J.D. MacLean Centre for Tropical Diseases, McGill University, Montreal, Canada; [6]Department of Infectious Tropical Diseases and Microbiology, IRCCS Sacro Cuore Don Calabria Hospital, Negrar, Verona, Italy; [7]GeoSentinel, International Society of Travel Medicine, Alpharetta, Georgia; [8]Department of Medicine, Emory University School of Medicine, Atlanta, Georgia; [9]Department of Medicine, Mount Auburn Hospital, Cambridge, Massachusetts; [10]Harvard Medical School, Boston, Massachusetts; [11]Division of Infectious Diseases, University of Utah School of Medicine, Salt Lake City, Utah; [12]Department of Psychology, Colorado State University, Fort Collins, Colorado; [13]Infectious Diseases, Orlando Health Medical Group, Orlando, Florida

Abstract

Problem/Condition: During 2012–2021, the volume of international travel reached record highs and lows. This period also was marked by the emergence or large outbreaks of multiple infectious diseases (e.g., Zika virus, yellow fever, and COVID-19). Over time, the growing ease and increased frequency of travel has resulted in the unprecedented global spread of infectious diseases. Detecting infectious diseases and other diagnoses among travelers can serve as sentinel surveillance for new or emerging pathogens and provide information to improve case identification, clinical management, and public health prevention and response.

Reporting Period: 2012–2021.

Description of System: Established in 1995, the GeoSentinel Network (GeoSentinel), a collaboration between CDC and the International Society of Travel Medicine, is a global, clinical-care–based surveillance and research network of travel and tropical medicine sites that monitors infectious diseases and other adverse health events that affect international travelers. GeoSentinel comprises 71 sites in 29 countries where clinicians diagnose illnesses and collect demographic, clinical, and travel-related information about diseases and illnesses acquired during travel using a standardized report form. Data are collected electronically via a secure CDC database, and daily reports are generated for assistance in detecting sentinel events (i.e., unusual patterns or clusters of disease). GeoSentinel sites collaborate to report disease or population-specific findings through retrospective database analyses and the collection of supplemental data to fill specific knowledge gaps. GeoSentinel also serves as a communications network by using internal notifications, ProMed alerts, and peer-reviewed publications to alert clinicians and public health professionals about global outbreaks and events that might affect travelers. This report summarizes data from 20 U.S. GeoSentinel sites and reports on the detection of three worldwide events that demonstrate GeoSentinel's notification capability.

Results: During 2012–2021, data were collected by all GeoSentinel sites on approximately 200,000 patients who had approximately 244,000 confirmed or probable travel-related diagnoses. Twenty GeoSentinel sites from the United States contributed records during the 10-year surveillance period, submitting data on 18,336 patients, of which 17,389 lived in the United States and were evaluated by a clinician at a U.S. site after travel. Of those patients, 7,530 (43.3%) were recent migrants to the United States, and 9,859 (56.7%) were returning nonmigrant travelers.

Among the recent migrants to the United States, the median age was 28.5 years (range = <19 years to 93 years); 47.3% were female, and 6.0% were U.S. citizens. A majority (89.8%) were seen as outpatients, and among 4,672 migrants with information available, 4,148 (88.8%) did not receive pretravel health information. Of 13,986 diagnoses among migrants, the most frequent were vitamin D deficiency (20.2%), *Blastocystis* (10.9%), and latent tuberculosis (10.3%). Malaria was diagnosed in 54 (<1%) migrants. Of the 26 migrants diagnosed with malaria for whom pretravel information was known, 88.5% did not receive pretravel health information. Before November 16, 2018, patients' reasons for travel, exposure country, and

Corresponding author: Ashley B. Brown, Division of Global Migration and Quarantine, National Center for Emerging and Zoonotic Infectious Disease, CDC. Telephone: 678-315-3279; Email: prf3@cdc.gov.

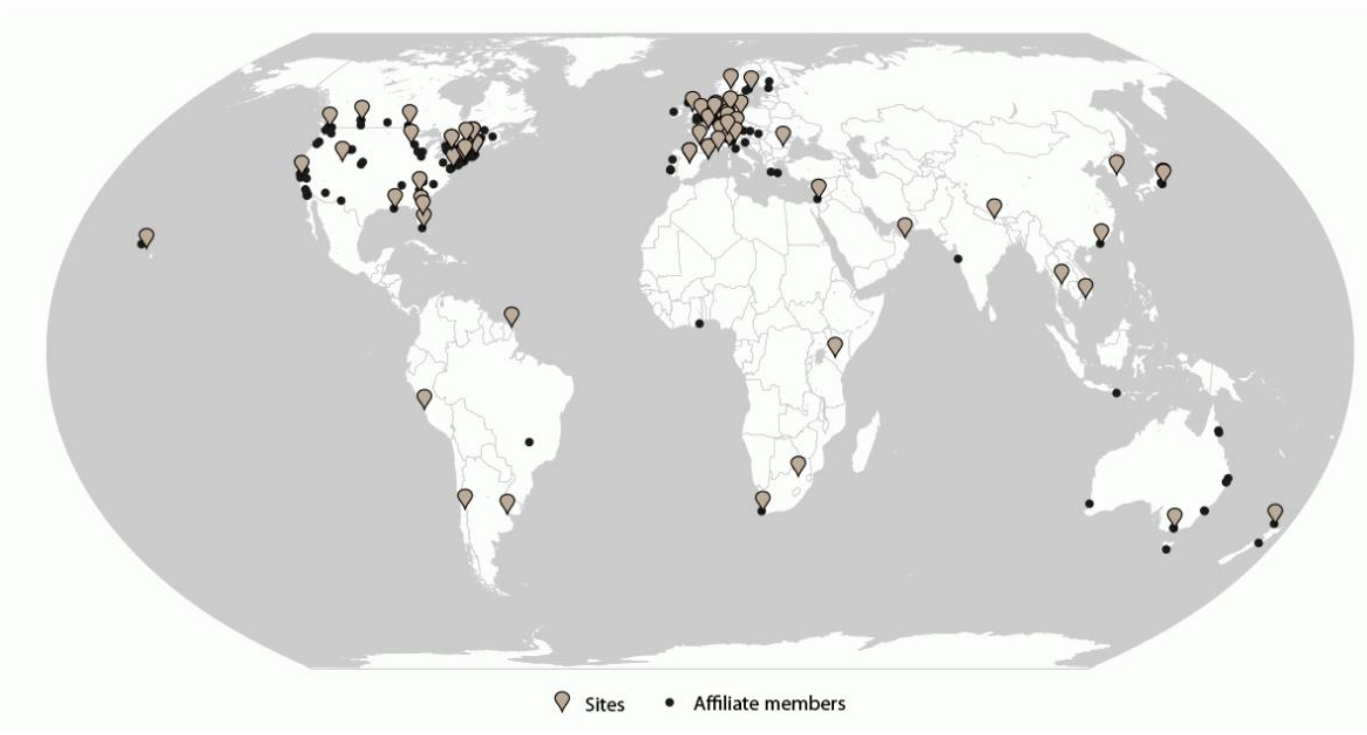
Brown AB, Miller C, Hamer DH, et al. Travel-Related Diagnoses Among U.S. Nonmigrant Travelers or Migrants Presenting to U.S. GeoSentinel Sites — GeoSentinel Network, 2012–2021. MMWR Surveill Summ 2023;72(No. SS-7):1–22. DOI: http://dx.doi.org/10.15585/mmwr.ss7207a1.

Centers for Disease Control and Prevention
MMWR
Surveillance Summaries / Vol. 72 / No. 7

Travel-Related Diagnoses Among U.S. Nonmigrant Travelers or Migrants Presenting to U.S. GeoSentinel Sites — GeoSentinel Network, 2012–2021

- **CDC and the International Society of Travel Medicine collaborated to form the GeoSentinel Network in 1995**
- **71 sites in 29 countries where clinicians diagnose and collect demographic, clinical data about illnesses acquired during travel**
- **Secure electronic data are collected daily**
- **During 2012–2021 approximately 200,000 patients who had approximately 244,000 confirmed or probable travel-related diagnoses**

FIGURE 1. GeoSentinel sites and affiliate members — GeoSentinel Network, 2012–2021*



Brown AB, Miller C, Hamer DH, et al. Travel-Related Diagnoses Among U.S. Nonmigrant Travelers or Migrants Presenting to U.S. GeoSentinel Sites — GeoSentinel Network, 2012–2021. MMWR Surveill Summ 2023;72(No. SS-7):1–22. DOI: http://dx.doi.org/10.15585/mmwr.ss7207a1.

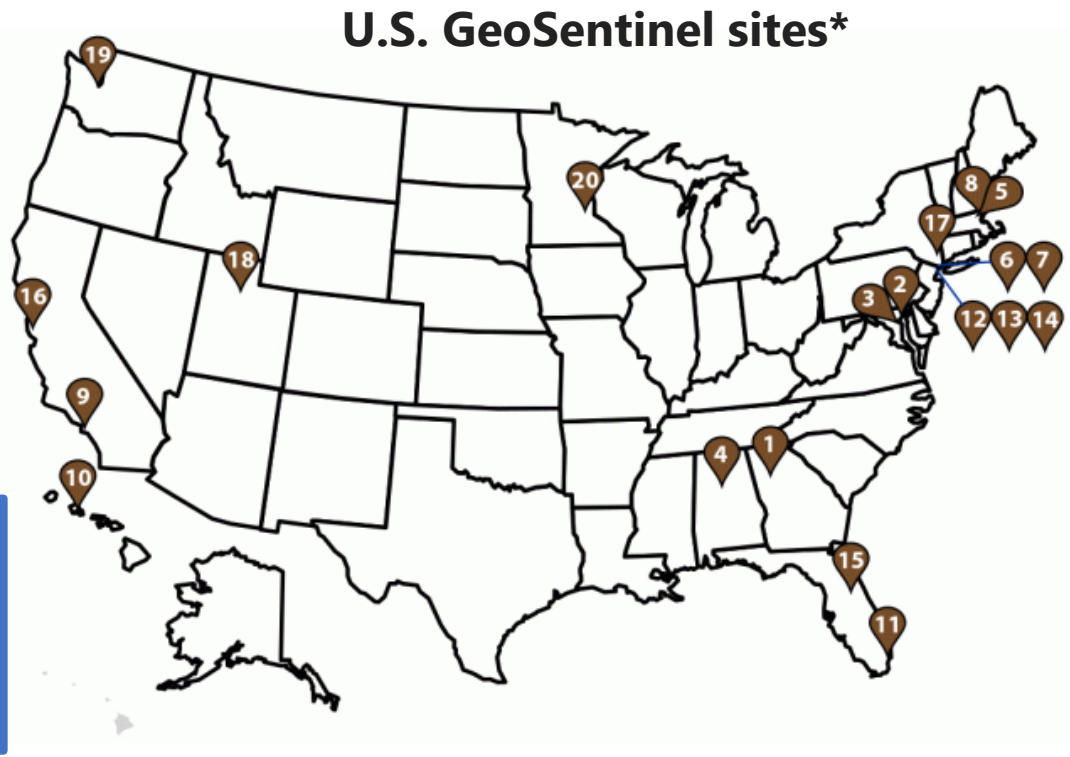
Centers for Disease Control and Prevention
MMWR
Surveillance Summaries / Vol. 72 / No. 7

Travel-Related Diagnoses Among U.S. Nonmigrant Travelers or Migrants Presenting to U.S. GeoSentinel Sites — GeoSentinel Network, 2012–2021

- Twenty USA GeoSentinel sites submitted data:

17,389 travelers who lived in the USA and were evaluated by a clinician at a U.S. site after travel.

- 7,530 (43.3%) were recent migrants to the U.S.
- 9,859 (56.7%) were returning Nonmigrant travelers



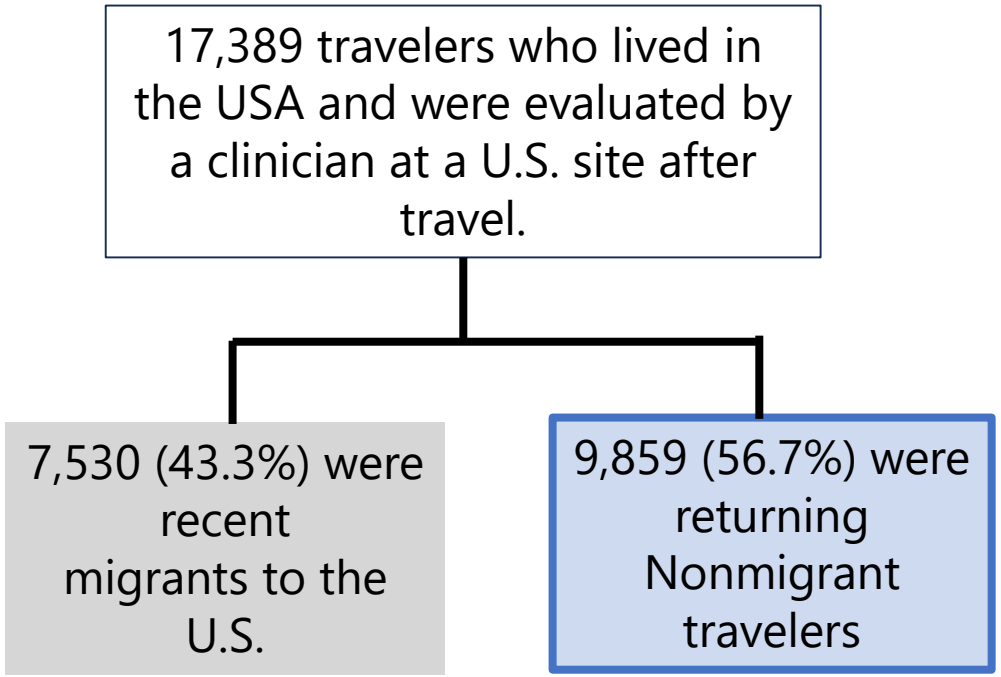
Atlanta, GA (1)
Baltimore, MD (2)
Bethesda, MD (3)
Birmingham, AL (4)
Boston, MA (5)
Bronx, NY (6)
Bronx Lebanon, NY (7)
Cambridge, MA (8)
Hollywood, CA (9)
Honolulu, HI (10)
Miami, FL (11)
New York City, NY (12)
NY Northwest, NY (13)
NY West, NY (14)
Orlando, FL (15)
Palo Alto, CA (16)
Peekskill, NY (17)
Salt Lake City, UT (18)
Seattle, WA (19)
St. Paul, MN (20).

Brown AB, Miller C, Hamer DH, et al. Travel-Related Diagnoses Among U.S. Nonmigrant Travelers or Migrants Presenting to U.S. GeoSentinel Sites — GeoSentinel Network, 2012–2021. MMWR Surveill Summ 2023;72(No. SS-7):1–22. DOI: http://dx.doi.org/10.15585/mmwr.ss7207a1.

Centers for Disease Control and Prevention
MMWR
Surveillance Summaries / Vol. 72 / No. 7

Travel-Related Diagnoses Among U.S. Nonmigrant Travelers or Migrants Presenting to U.S. GeoSentinel Sites — GeoSentinel Network, 2012–2021

- Twenty USA GeoSentinel sites submitted data:



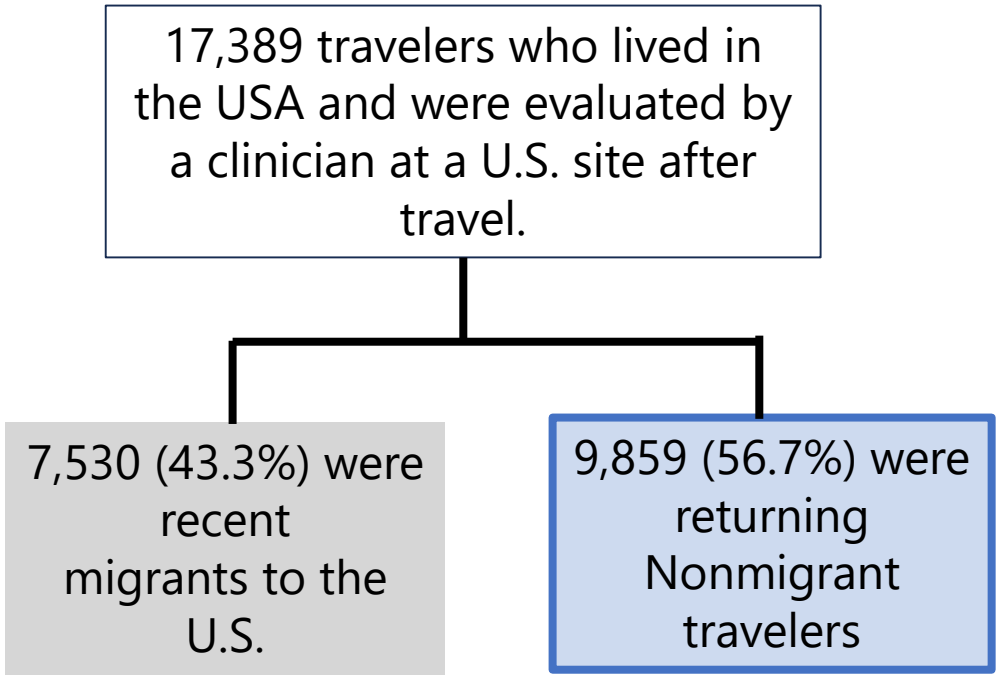
- **What were the intended purposes for travel?**
- **What "regions" and which "countries" were most associated with a reported travel illness?**
- **What illness categories and specific diagnosis were most commonly identified?**

Brown AB, Miller C, Hamer DH, et al. Travel-Related Diagnoses Among U.S. Nonmigrant Travelers or Migrants Presenting to U.S. GeoSentinel Sites — GeoSentinel Network, 2012–2021. MMWR Surveill Summ 2023;72(No. SS-7):1–22. DOI: http://dx.doi.org/10.15585/mmwr.ss7207a1.

Centers for Disease Control and Prevention
MMWR
Surveillance Summaries / Vol. 72 / No. 7

Travel-Related Diagnoses Among U.S. Nonmigrant Travelers or Migrants Presenting to U.S. GeoSentinel Sites — GeoSentinel Network, 2012–2021

- Twenty USA GeoSentinel sites submitted data:



- **What were the intended purposes for travel?**

•Tourism (vacation)
•Business: Conference, Corporate, research, other
•Seasonal/temporary work (migrant worker)
•Student
•Migration
•Providing medical care
•VFR: Visit Friends and Relatives
•Military
•Missionary, humanitarian aid, volunteer
•Retirement
•Planned medical care
•Not ascertainable

Brown AB, Miller C, Hamer DH, et al. Travel-Related Diagnoses Among U.S. Nonmigrant Travelers or Migrants Presenting to U.S. GeoSentinel Sites — GeoSentinel Network, 2012–2021. MMWR Surveill Summ 2023;72(No. SS-7):1–22. DOI: http://dx.doi.org/10.15585/mmwr.ss7207a1.

Centers for Disease Control and Prevention
MMWR
Surveillance Summaries / Vol. 72 / No. 7

Travel-Related Diagnoses Among U.S. Nonmigrant Travelers or Migrants Presenting to U.S. GeoSentinel Sites — GeoSentinel Network, 2012–2021

9,859 (56.7%) were returning Nonmigrant travelers

2012

9,859 travelers had 11,987 unique diagnosis

2021

- **What were the intended purposes for**

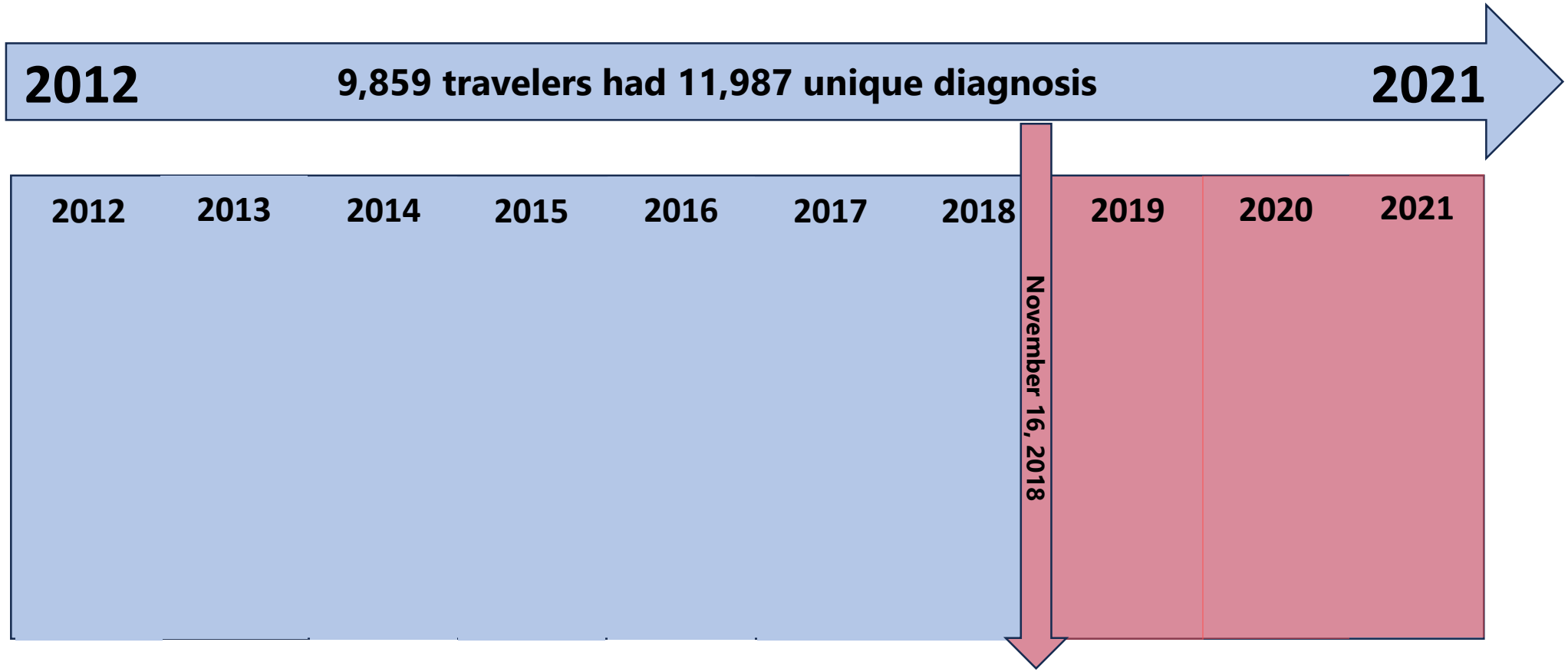
•Tourism (vacation)
•Business: Conference, Corporate, research, other
•Seasonal/temporary work (migrant worker)
•Student
•Migration
•Providing medical care
•VFR: Visit Friends and Relatives
•Military
•Missionary, humanitarian aid, volunteer
•Retirement
•Planned medical care
•Not ascertainable

9,859 (56.7%) were returning Nonmigrant travelers

Brown AB, Miller C, Hamer DH, et al. Travel-Related Diagnoses Among U.S. Nonmigrant Travelers or Migrants Presenting to U.S. GeoSentinel Sites — GeoSentinel Network, 2012–2021. MMWR Surveill Summ 2023;72(No. SS-7):1–22. DOI: http://dx.doi.org/10.15585/mmwr.ss7207a1.

Centers for Disease Control and Prevention
MMWR
Surveillance Summaries / Vol. 72 / No. 7

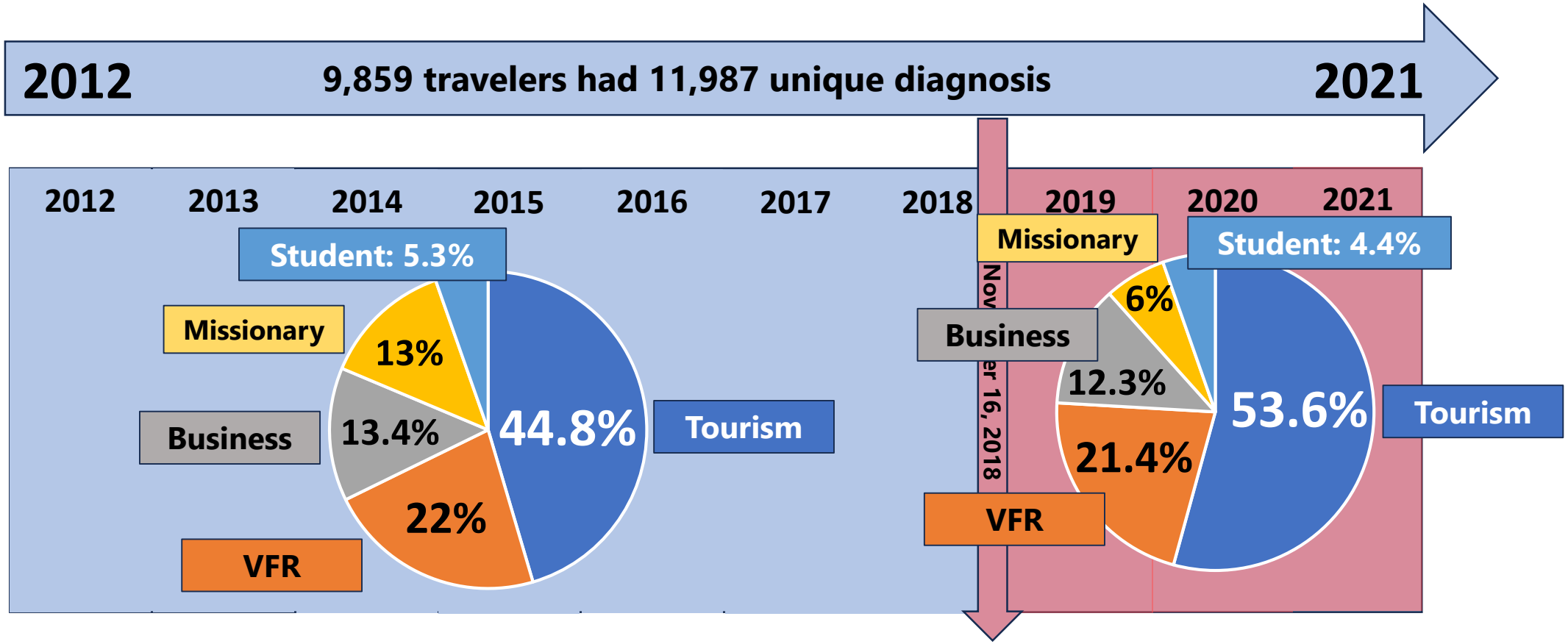
Travel-Related Diagnoses Among U.S. Nonmigrant Travelers or Migrants Presenting to U.S. GeoSentinel Sites — GeoSentinel Network, 2012–2021



Brown AB, Miller C, Hamer DH, et al. Travel-Related Diagnoses Among U.S. Nonmigrant Travelers or Migrants Presenting to U.S. GeoSentinel Sites — GeoSentinel Network, 2012–2021. M 7):1–22. DOI: http://dx.doi.org/10.15585/mmwr.ss7207a1.

Centers for Disease Control and Prevention
MMWR
Surveillance Summaries / Vol. 72 / No. 7

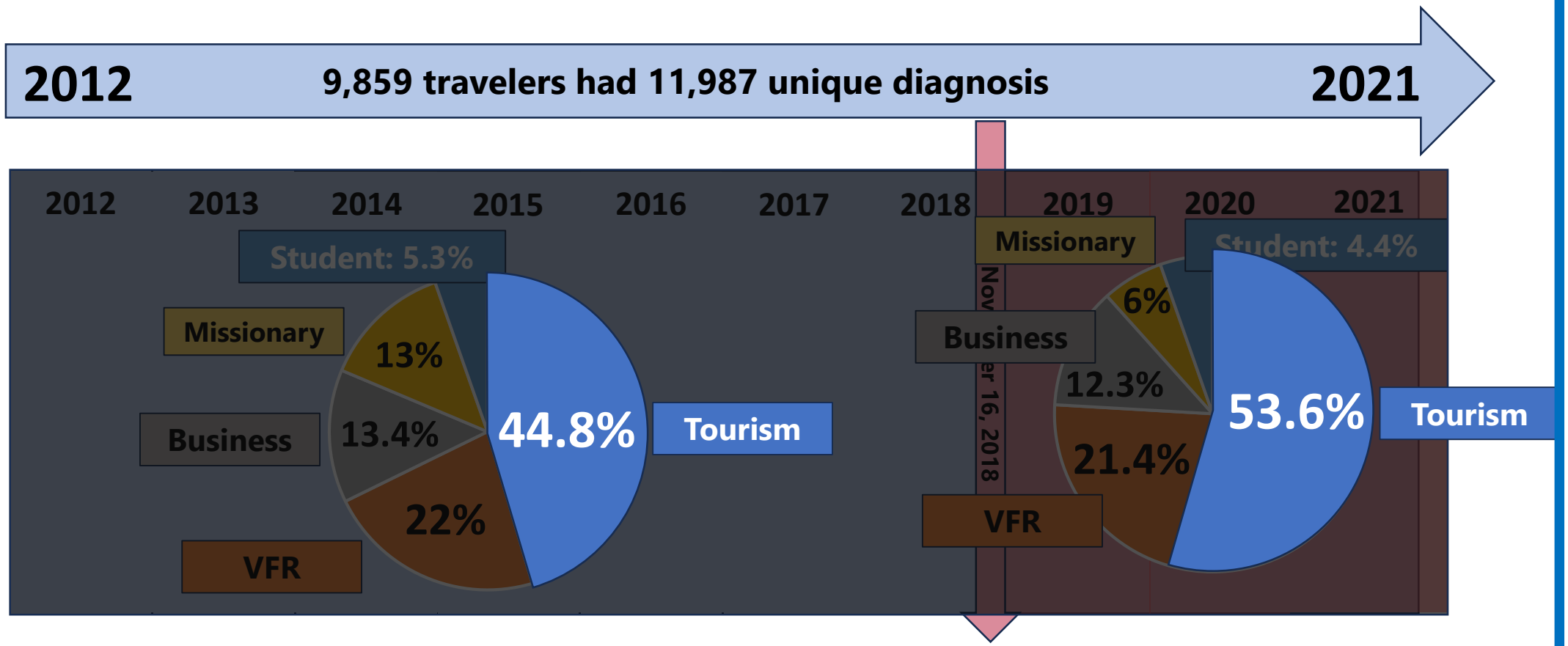
Travel-Related Diagnoses Among U.S. Nonmigrant Travelers or Migrants Presenting to U.S. GeoSentinel Sites — GeoSentinel Network, 2012–2021



Brown AB, Miller C, Hamer DH, et al. Travel-Related Diagnoses Among U.S. Nonmigrant Travelers or Migrants Presenting to U.S. GeoSentinel Sites — GeoSentinel Network, 2012–2021. MMWR Surveill Summ 2023;72(No. SS-7):1–22. DOI: http://dx.doi.org/10.15585/mmwr.ss7207a1.

Centers for Disease Control and Prevention
MMWR
Surveillance Summaries / Vol. 72 / No. 7

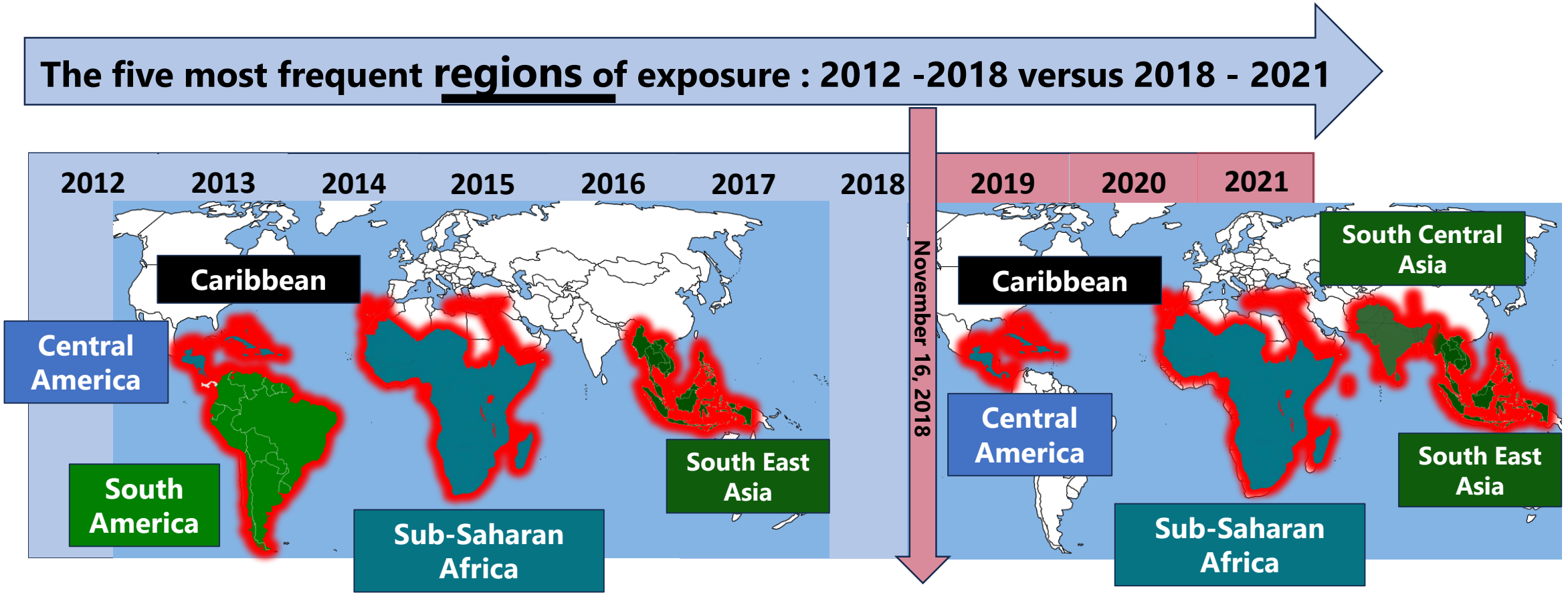
Travel-Related Diagnoses Among U.S. Nonmigrant Travelers or Migrants Presenting to U.S. GeoSentinel Sites — GeoSentinel Network, 2012–2021



Brown AB, Miller C, Hamer DH, et al. Travel-Related Diagnoses Among U.S. Nonmigrant Travelers or Migrants Presenting to U.S. GeoSentinel Sites — GeoSentinel Network, 2012–2021. MMWR Surveill Summ 2023;72(No. SS-7):1–22. DOI: http://dx.doi.org/10.15585/mmwr.ss7207a1.

Centers for Disease Control and Prevention
MMWR
Surveillance Summaries / Vol. 72 / No. 7

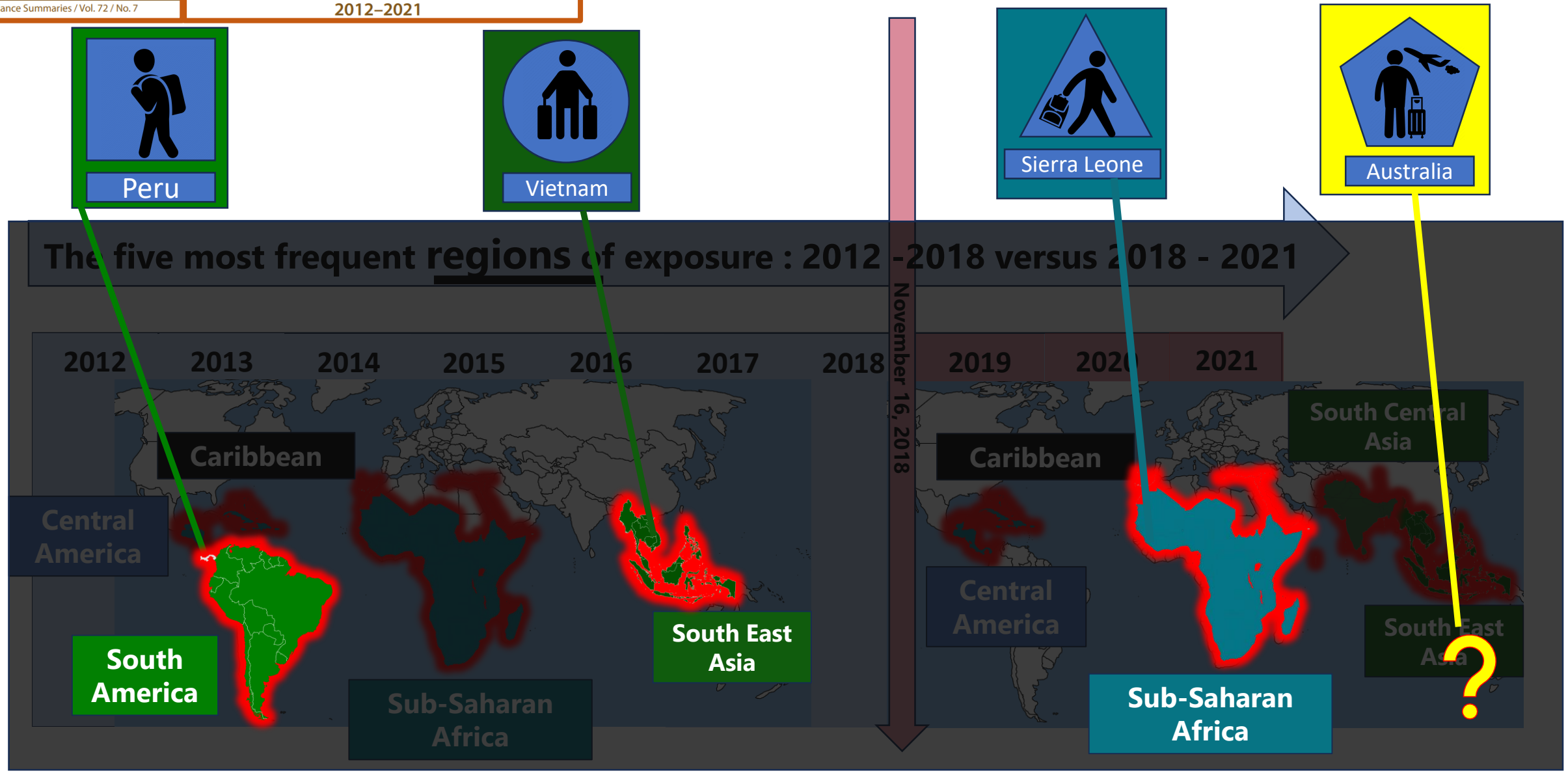
Travel-Related Diagnoses Among U.S. Nonmigrant Travelers or Migrants Presenting to U.S. GeoSentinel Sites — GeoSentinel Network, 2012–2021



Brown AB, Miller C, Hamer DH, et al. Travel-Related Diagnoses Among U.S. Nonmigrant Travelers or Migrants Presenting to U.S. GeoSentinel Sites — GeoSentinel Network, 2012–2021. MMWR Surveill Summ 2023;72(No. SS-7):1–22. DOI: http://dx.doi.org/10.15585/mmwr.ss7207a1.

Centers for Disease Control and Prevention
MMWR
Surveillance Summaries / Vol. 72 / No. 7

Travel-Related Diagnoses Among U.S. Nonmigrant Travelers or Migrants Presenting to U.S. GeoSentinel Sites — GeoSentinel Network, 2012–2021

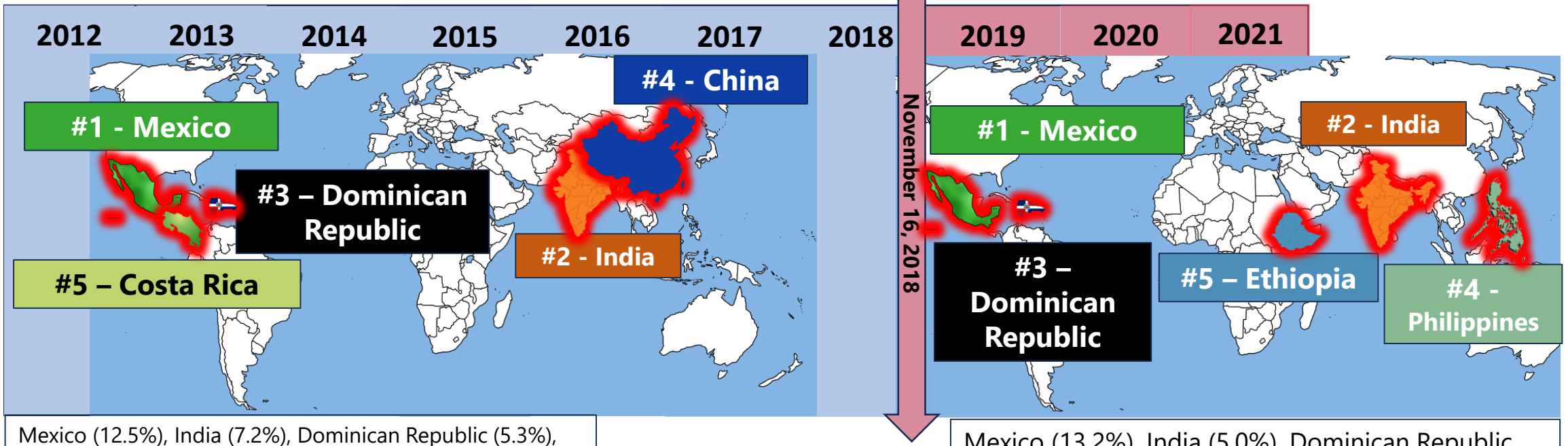


Brown AB, Miller C, Hamer DH, et al. Travel-Related Diagnoses Among U.S. Nonmigrant Travelers or Migrants Presenting to U.S. GeoSentinel Sites — GeoSentinel Network, 2012–2021. MMWR Surveill Summ 2023;72(No. SS-7):1–22. DOI: http://dx.doi.org/10.15585/mmwr.ss7207a1.

Centers for Disease Control and Prevention
MMWR
Surveillance Summaries / Vol. 72 / No. 7

Travel-Related Diagnoses Among U.S. Nonmigrant Travelers or Migrants Presenting to U.S. GeoSentinel Sites — GeoSentinel Network, 2012–2021

The most frequent countries of exposure: 2012 -2018 versus 2018 - 2021



Mexico (12.5%), India (7.2%), Dominican Republic (5.3%), China (3.3%), and Costa Rica (3.0%).

Mexico (13.2%), India (5.0%), Dominican Republic (4.2%), Philippines (3.0%), and Ethiopia (3.0%).

Brown AB, Miller C, Hamer DH, et al. Travel-Related Diagnoses Among U.S. Nonmigrant Travelers or Migrants Presenting to U.S. GeoSentinel Sites — GeoSentinel Network, 2012–2021. MMWR Surveill Summ 2023;72(No. SS-7):1–22. DOI: http://dx.doi.org/10.15585/mmwr.ss7207a1.

Centers for Disease Control and Prevention
MMWR
Surveillance Summaries / Vol. 72 / No. 7

Travel-Related Diagnoses Among U.S. Nonmigrant Travelers or Migrants Presenting to U.S. GeoSentinel Sites — GeoSentinel Network, 2012–2021

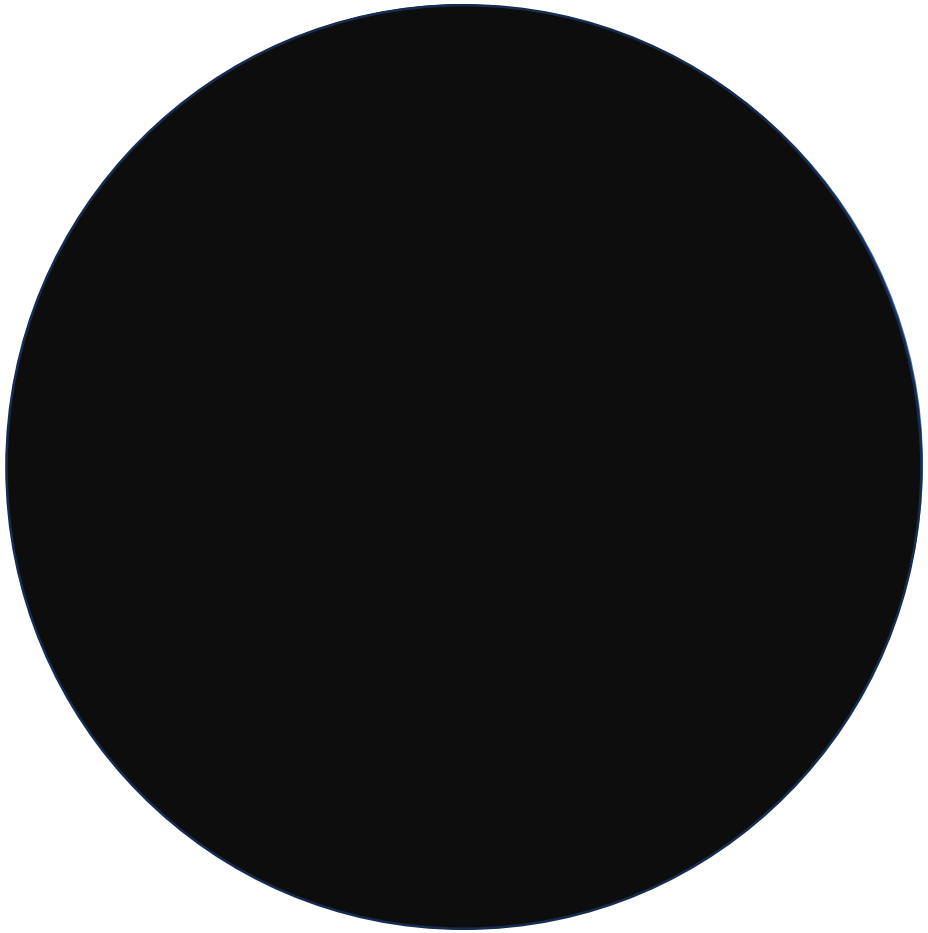
- **What illness categories and specific diagnosis were most commonly identified?**

Brown AB, Miller C, Hamer DH, et al. Travel-Related Diagnoses Among U.S. Nonmigrant Travelers or Migrants Presenting to U.S. GeoSentinel Sites — GeoSentinel Network, 2012–2021. MMWR Surveill Summ 2023;72(No. SS-7):1–22. DOI: http://dx.doi.org/10.15585/mmwr.ss7207a1.

Centers for Disease Control and Prevention
MMWR
Surveillance Summaries / Vol. 72 / No. 7

Travel-Related Diagnoses Among U.S. Nonmigrant Travelers or Migrants Presenting to U.S. GeoSentinel Sites — GeoSentinel Network, 2012–2021

Categories of diagnosis

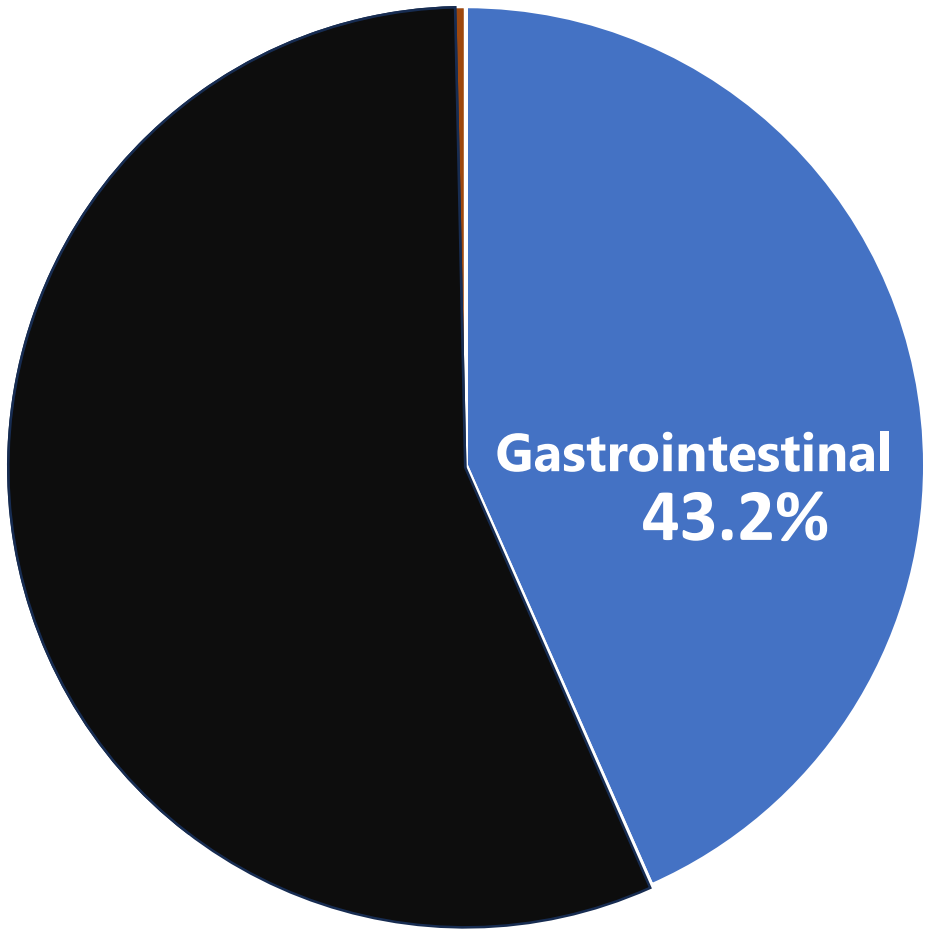


Brown AB, Miller C, Hamer DH, et al. Travel-Related Diagnoses Among U.S. Nonmigrant Travelers or Migrants Presenting to U.S. GeoSentinel Sites — GeoSentinel Network, 2012–2021. MMWR Surveill Summ 2023;72(No. SS-7):1–22. DOI: http://dx.doi.org/10.15585/mmwr.ss7207a1.

Centers for Disease Control and Prevention
MMWR
Surveillance Summaries / Vol. 72 / No. 7

Travel-Related Diagnoses Among U.S. Nonmigrant Travelers or Migrants Presenting to U.S. GeoSentinel Sites — GeoSentinel Network, 2012–2021

Categories of diagnosis

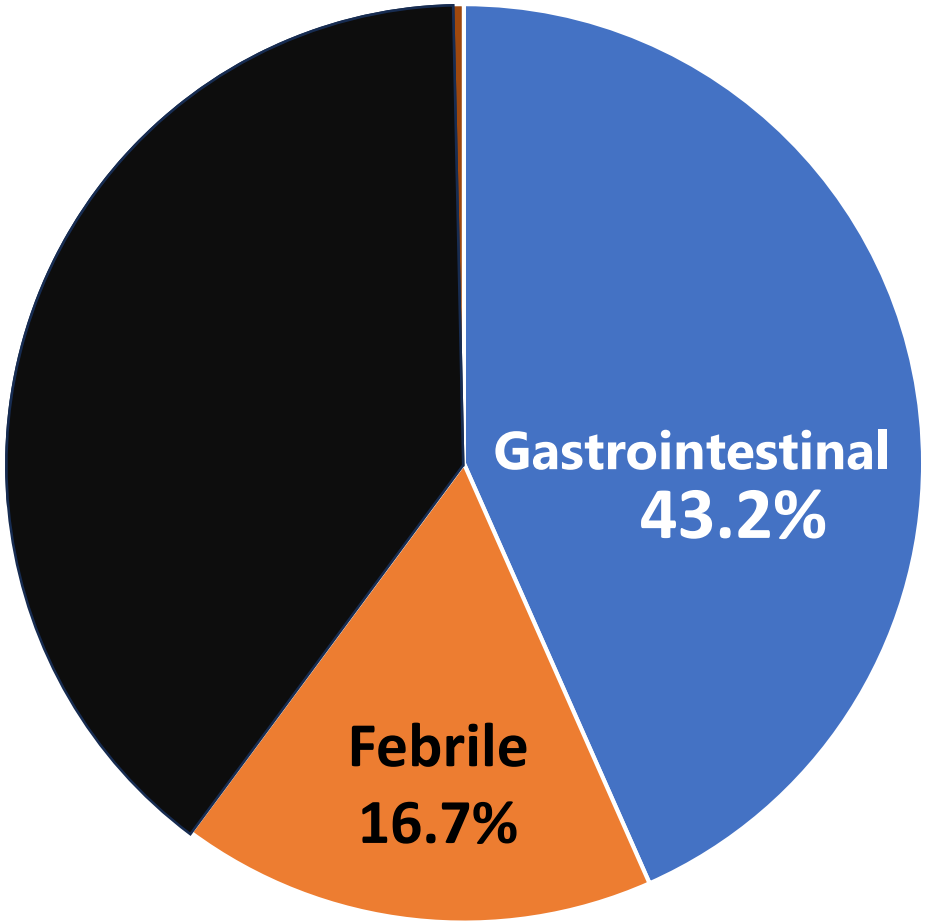


Brown AB, Miller C, Hamer DH, et al. Travel-Related Diagnoses Among U.S. Nonmigrant Travelers or Migrants Presenting to U.S. GeoSentinel Sites — GeoSentinel Network, 2012–2021. MMWR Surveill Summ 2023;72(No. SS-7):1–22. DOI: http://dx.doi.org/10.15585/mmwr.ss7207a1.

Centers for Disease Control and Prevention
MMWR
Surveillance Summaries / Vol. 72 / No. 7

Travel-Related Diagnoses Among U.S. Nonmigrant Travelers or Migrants Presenting to U.S. GeoSentinel Sites — GeoSentinel Network, 2012–2021

Categories of diagnosis

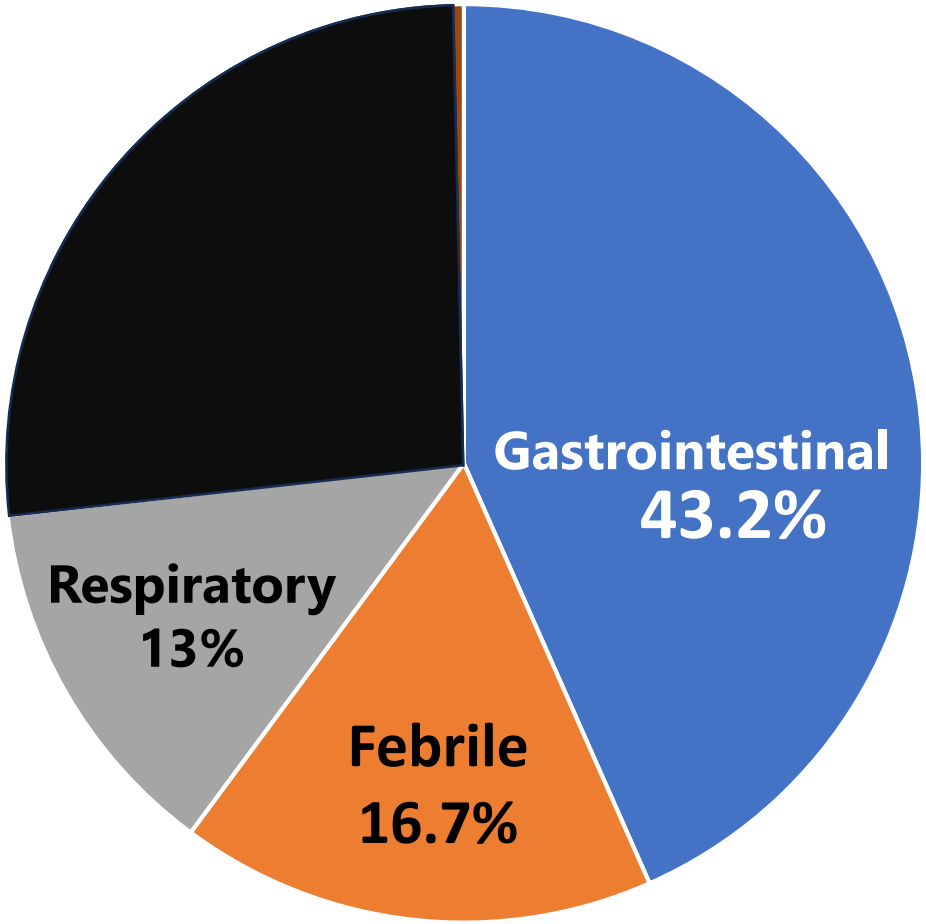


Brown AB, Miller C, Hamer DH, et al. Travel-Related Diagnoses Among U.S. Nonmigrant Travelers or Migrants Presenting to U.S. GeoSentinel Sites — GeoSentinel Network, 2012–2021. MMWR Surveill Summ 2023;72(No. SS-7):1–22. DOI: http://dx.doi.org/10.15585/mmwr.ss7207a1.

Centers for Disease Control and Prevention
MMWR
Surveillance Summaries / Vol. 72 / No. 7

Travel-Related Diagnoses Among U.S. Nonmigrant Travelers or Migrants Presenting to U.S. GeoSentinel Sites — GeoSentinel Network, 2012–2021

Categories of diagnosis

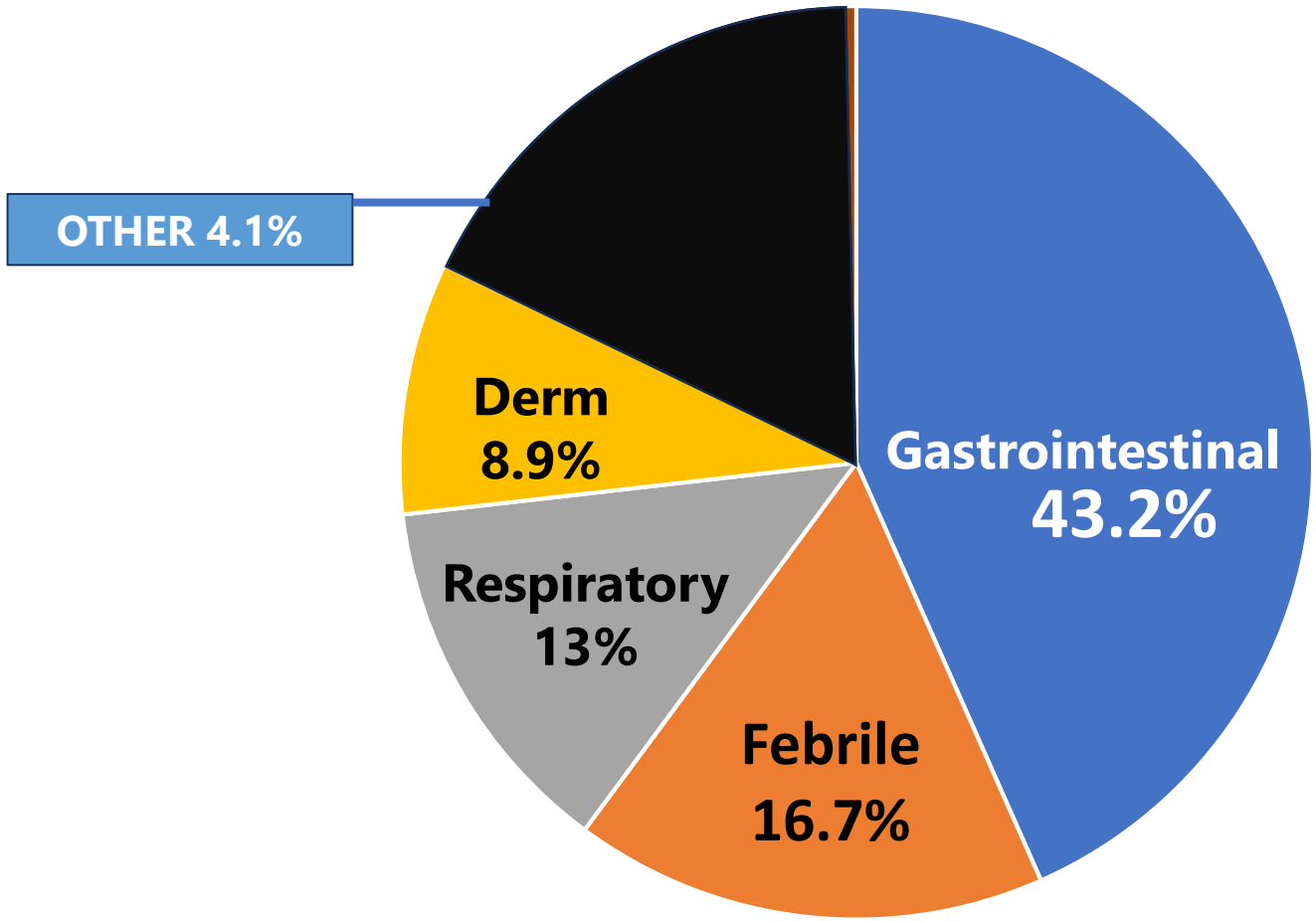


Brown AB, Miller C, Hamer DH, et al. Travel-Related Diagnoses Among U.S. Nonmigrant Travelers or Migrants Presenting to U.S. GeoSentinel Sites — GeoSentinel Network, 2012–2021. MMWR Surveill Summ 2023;72(No. SS-7):1–22. DOI: http://dx.doi.org/10.15585/mmwr.ss7207a1.

Centers for Disease Control and Prevention
MMWR
Surveillance Summaries / Vol. 72 / No. 7

Travel-Related Diagnoses Among U.S. Nonmigrant Travelers or Migrants Presenting to U.S. GeoSentinel Sites — GeoSentinel Network, 2012–2021

Categories of diagnosis

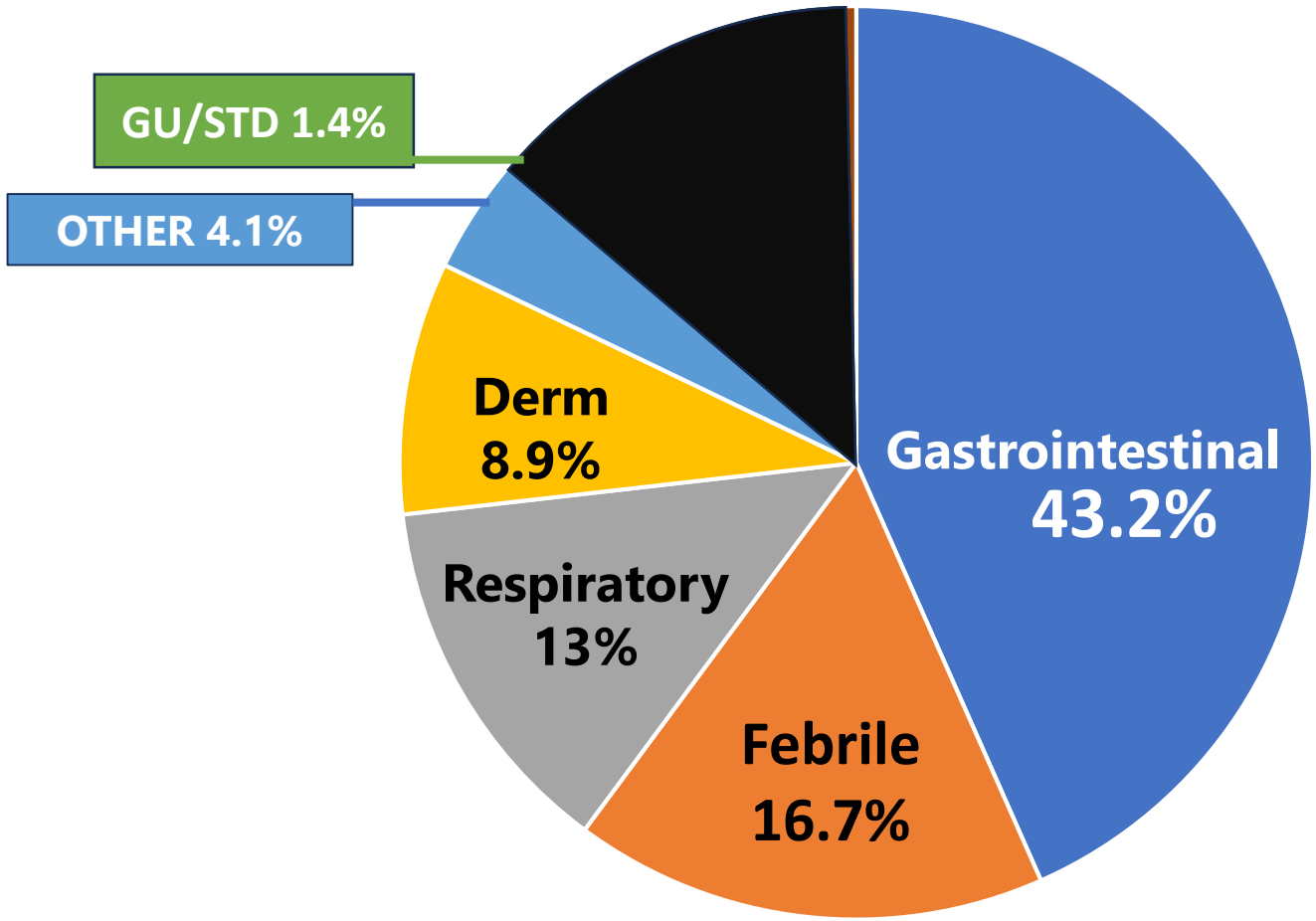


Brown AB, Miller C, Hamer DH, et al. Travel-Related Diagnoses Among U.S. Nonmigrant Travelers or Migrants Presenting to U.S. GeoSentinel Sites — GeoSentinel Network, 2012–2021. MMWR Surveill Summ 2023;72(No. SS-7):1–22. DOI: http://dx.doi.org/10.15585/mmwr.ss7207a1.

Centers for Disease Control and Prevention
MMWR
Surveillance Summaries / Vol. 72 / No. 7

Travel-Related Diagnoses Among U.S. Nonmigrant Travelers or Migrants Presenting to U.S. GeoSentinel Sites — GeoSentinel Network, 2012–2021

Categories of diagnosis

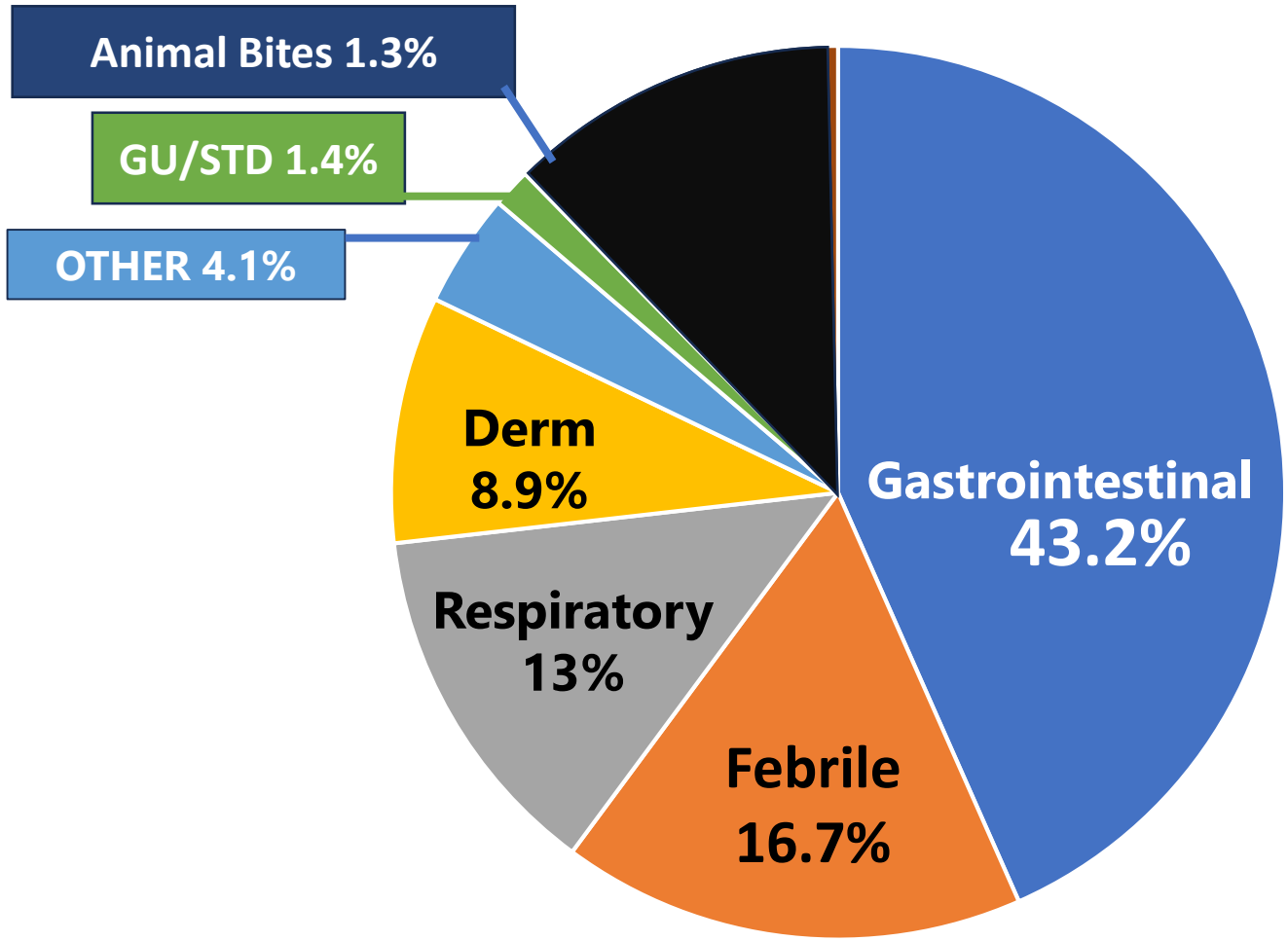


Brown AB, Miller C, Hamer DH, et al. Travel-Related Diagnoses Among U.S. Nonmigrant Travelers or Migrants Presenting to U.S. GeoSentinel Sites — GeoSentinel Network, 2012–2021. MMWR Surveill Summ 2023;72(No. SS-7):1–22. DOI: http://dx.doi.org/10.15585/mmwr.ss7207a1.

Centers for Disease Control and Prevention
MMWR
Surveillance Summaries / Vol. 72 / No. 7

Travel-Related Diagnoses Among U.S. Nonmigrant Travelers or Migrants Presenting to U.S. GeoSentinel Sites — GeoSentinel Network, 2012–2021

Categories of diagnosis

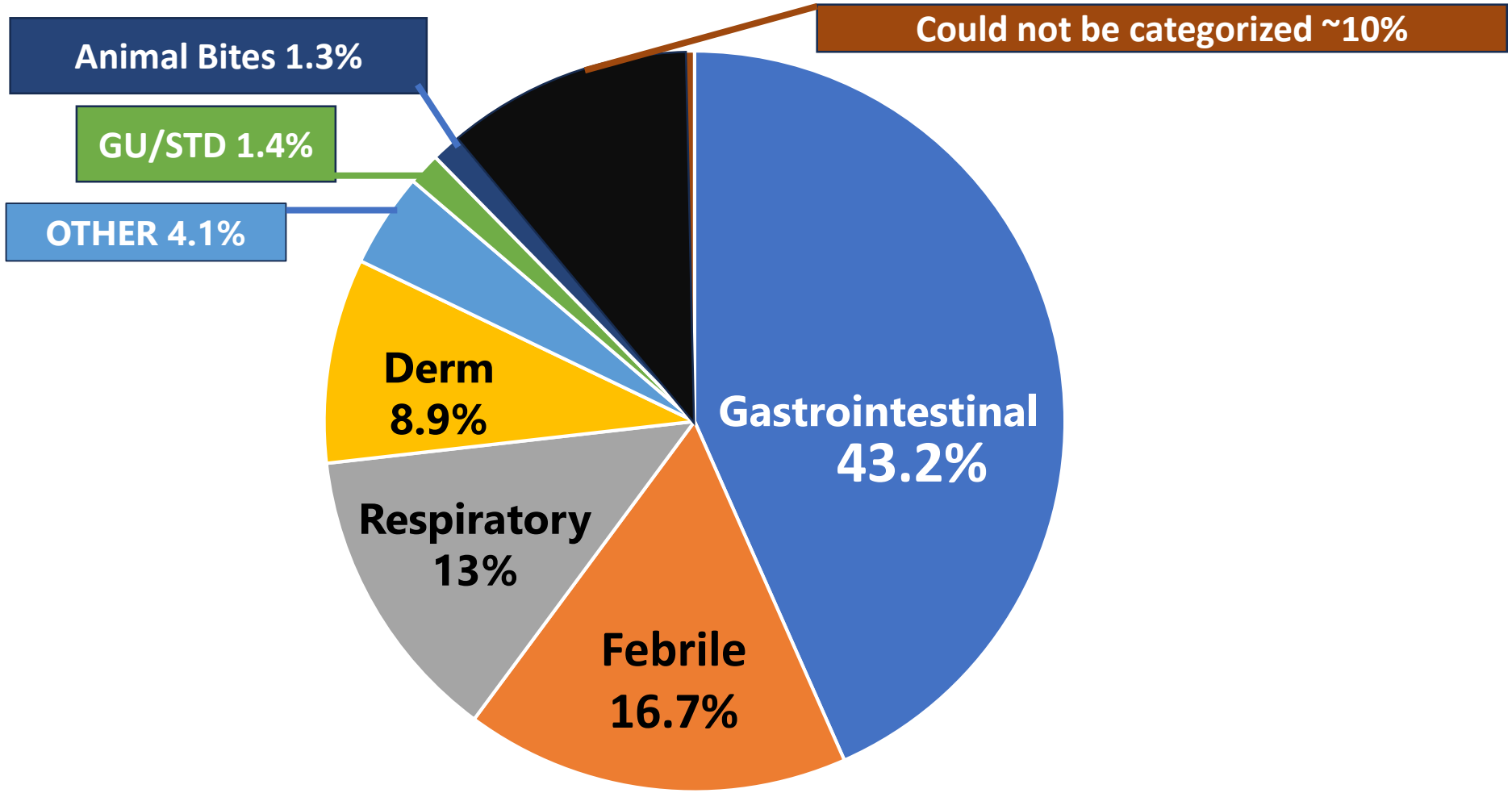


Brown AB, Miller C, Hamer DH, et al. Travel-Related Diagnoses Among U.S. Nonmigrant Travelers or Migrants Presenting to U.S. GeoSentinel Sites — GeoSentinel Network, 2012–2021. MMWR Surveill Summ 2023;72(No. SS-7):1–22. DOI: http://dx.doi.org/10.15585/mmwr.ss7207a1.

Centers for Disease Control and Prevention
MMWR
Surveillance Summaries / Vol. 72 / No. 7

Travel-Related Diagnoses Among U.S. Nonmigrant Travelers or Migrants Presenting to U.S. GeoSentinel Sites — GeoSentinel Network, 2012–2021

Categories of diagnosis

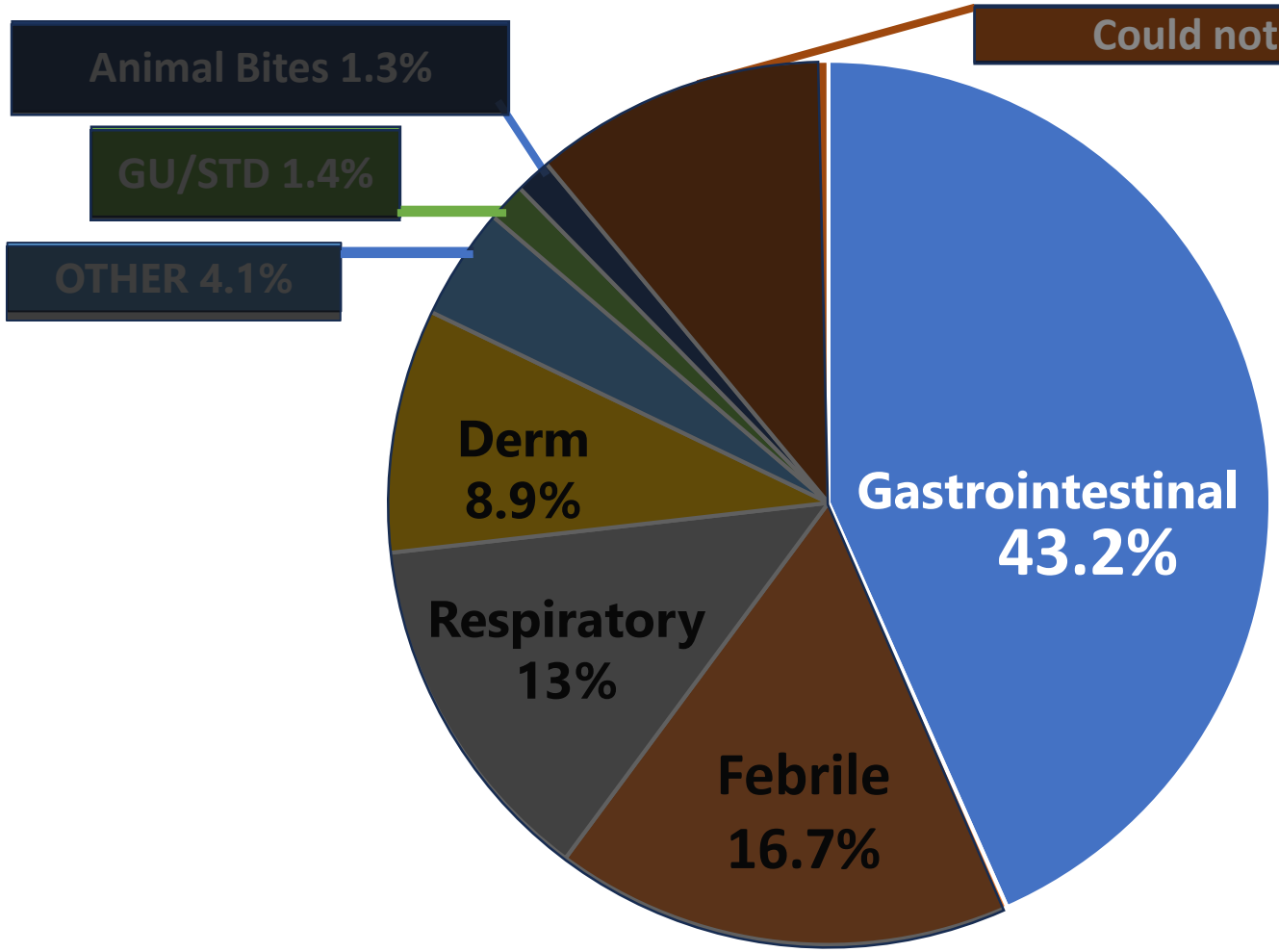


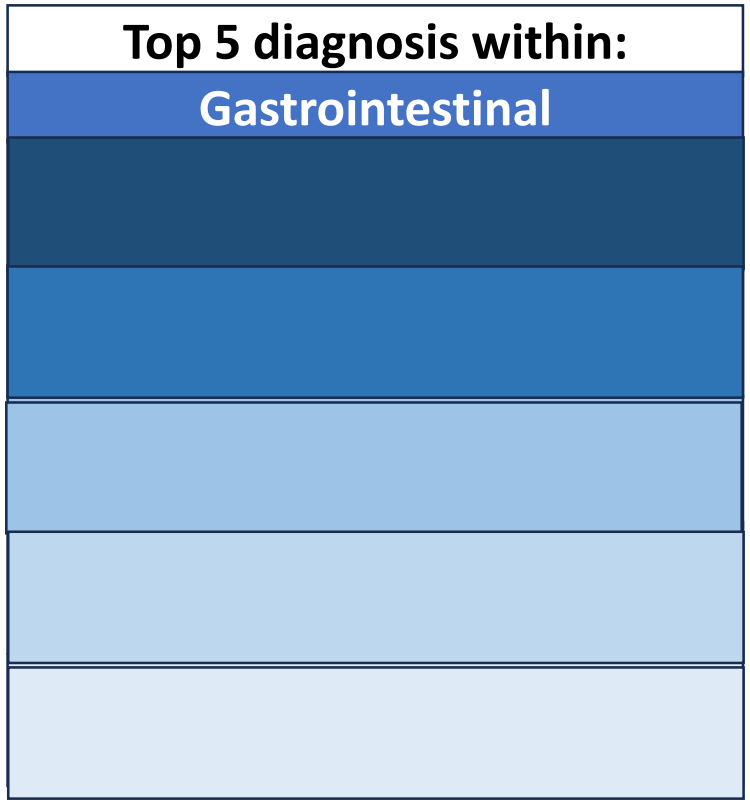
Brown AB, Miller C, Hamer DH, et al. Travel-Related Diagnoses Among U.S. Nonmigrant Travelers or Migrants Presenting to U.S. GeoSentinel Sites — GeoSentinel Network, 2012–2021. MMWR Surveill Summ 2023;72(No. SS-7):1–22. DOI: http://dx.doi.org/10.15585/mmwr.ss7207a1.

Centers for Disease Control and Prevention
MMWR
Surveillance Summaries / Vol. 72 / No. 7

Travel-Related Diagnoses Among U.S. Nonmigrant Travelers or Migrants Presenting to U.S. GeoSentinel Sites — GeoSentinel Network, 2012–2021

Categories of diagnosis



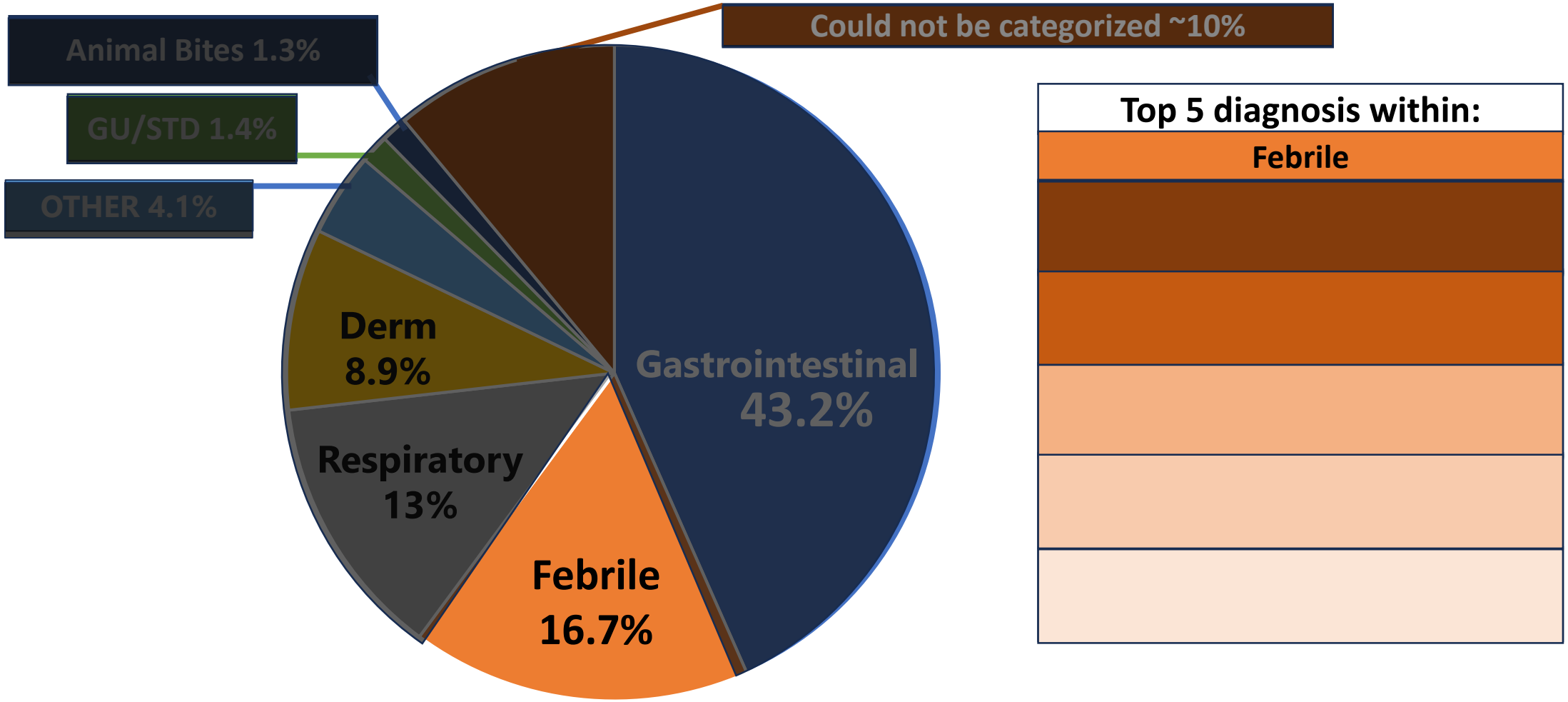


Brown AB, Miller C, Hamer DH, et al. Travel-Related Diagnoses Among U.S. Nonmigrant Travelers or Migrants Presenting to U.S. GeoSentinel Sites — GeoSentinel Network, 2012–2021. MMWR Surveill Summ 2023;72(No. SS-7):1–22. DOI: http://dx.doi.org/10.15585/mmwr.ss7207a1.

Centers for Disease Control and Prevention
MMWR
Surveillance Summaries / Vol. 72 / No. 7

Travel-Related Diagnoses Among U.S. Nonmigrant Travelers or Migrants Presenting to U.S. GeoSentinel Sites — GeoSentinel Network, 2012–2021

Categories of diagnosis

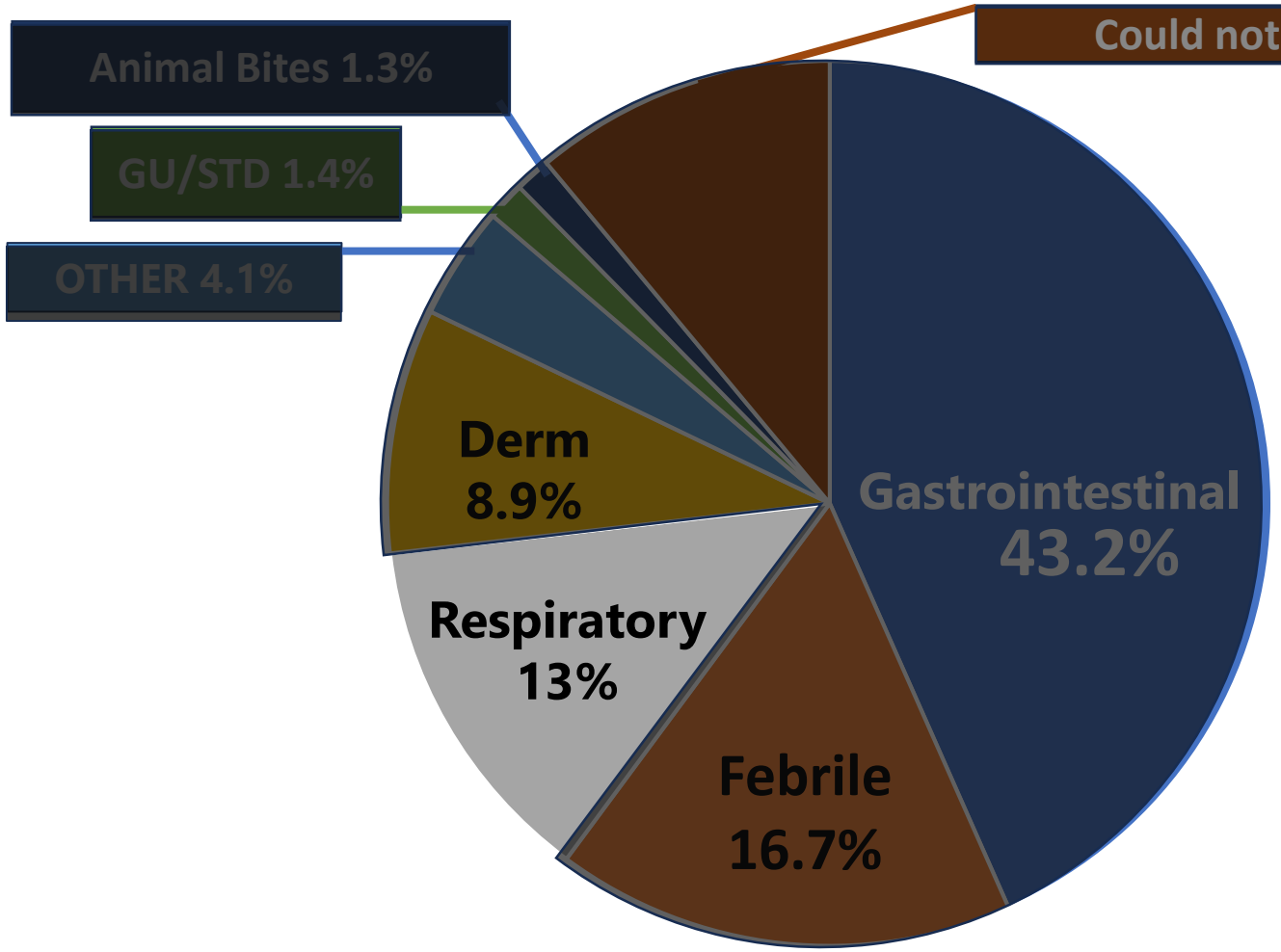


Brown AB, Miller C, Hamer DH, et al. Travel-Related Diagnoses Among U.S. Nonmigrant Travelers or Migrants Presenting to U.S. GeoSentinel Sites — GeoSentinel Network, 2012–2021. MMWR Surveill Summ 2023;72(No. SS-7):1–22. DOI: http://dx.doi.org/10.15585/mmwr.ss7207a1.

Centers for Disease Control and Prevention
MMWR
Surveillance Summaries / Vol. 72 / No. 7

Travel-Related Diagnoses Among U.S. Nonmigrant Travelers or Migrants Presenting to U.S. GeoSentinel Sites — GeoSentinel Network, 2012–2021

Categories of diagnosis



Top 5 diagnosis within:

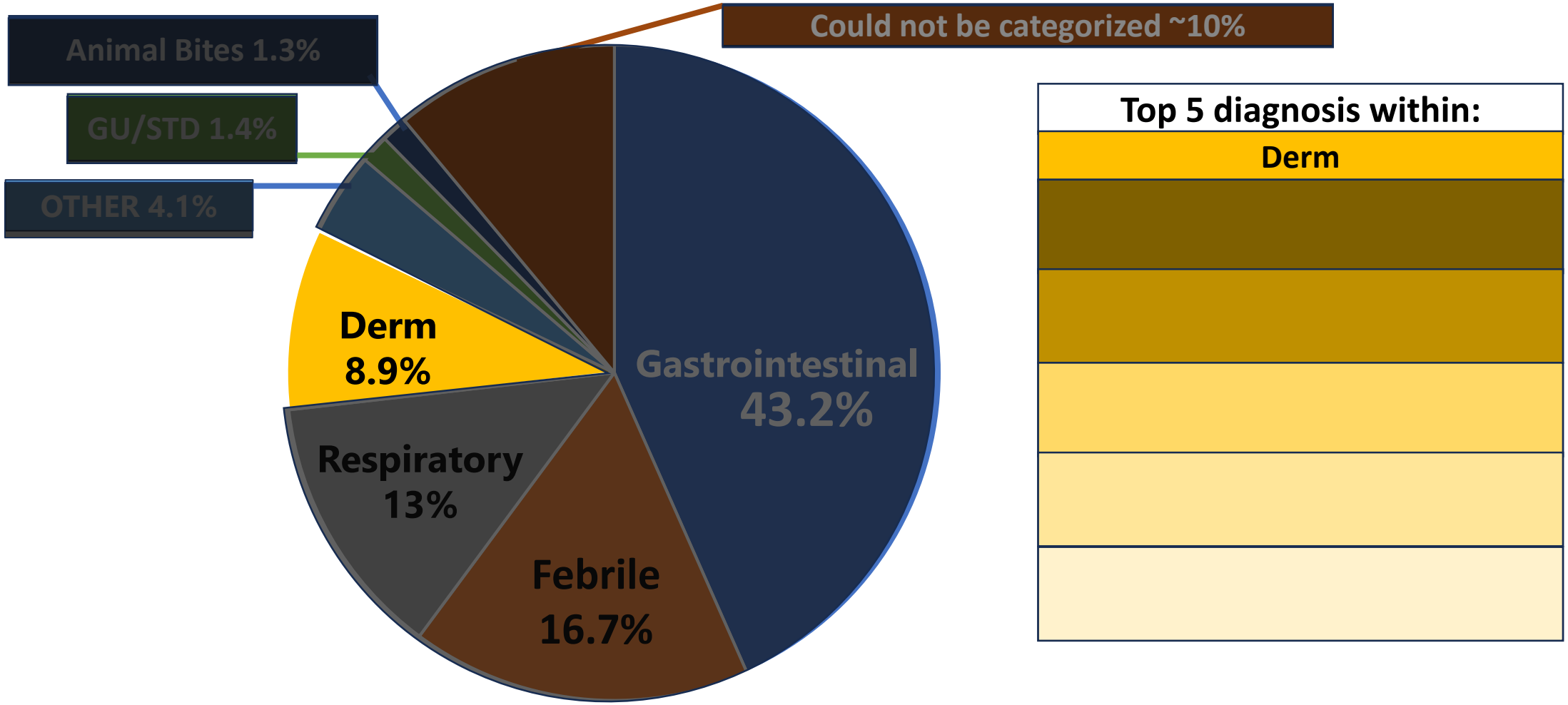
- Respiratory

Brown AB, Miller C, Hamer DH, et al. Travel-Related Diagnoses Among U.S. Nonmigrant Travelers or Migrants Presenting to U.S. GeoSentinel Sites — GeoSentinel Network, 2012–2021. MMWR Surveill Summ 2023;72(No. SS-7):1–22. DOI: http://dx.doi.org/10.15585/mmwr.ss7207a1.

Centers for Disease Control and Prevention
MMWR
Surveillance Summaries / Vol. 72 / No. 7

Travel-Related Diagnoses Among U.S. Nonmigrant Travelers or Migrants Presenting to U.S. GeoSentinel Sites — GeoSentinel Network, 2012–2021

Categories of diagnosis

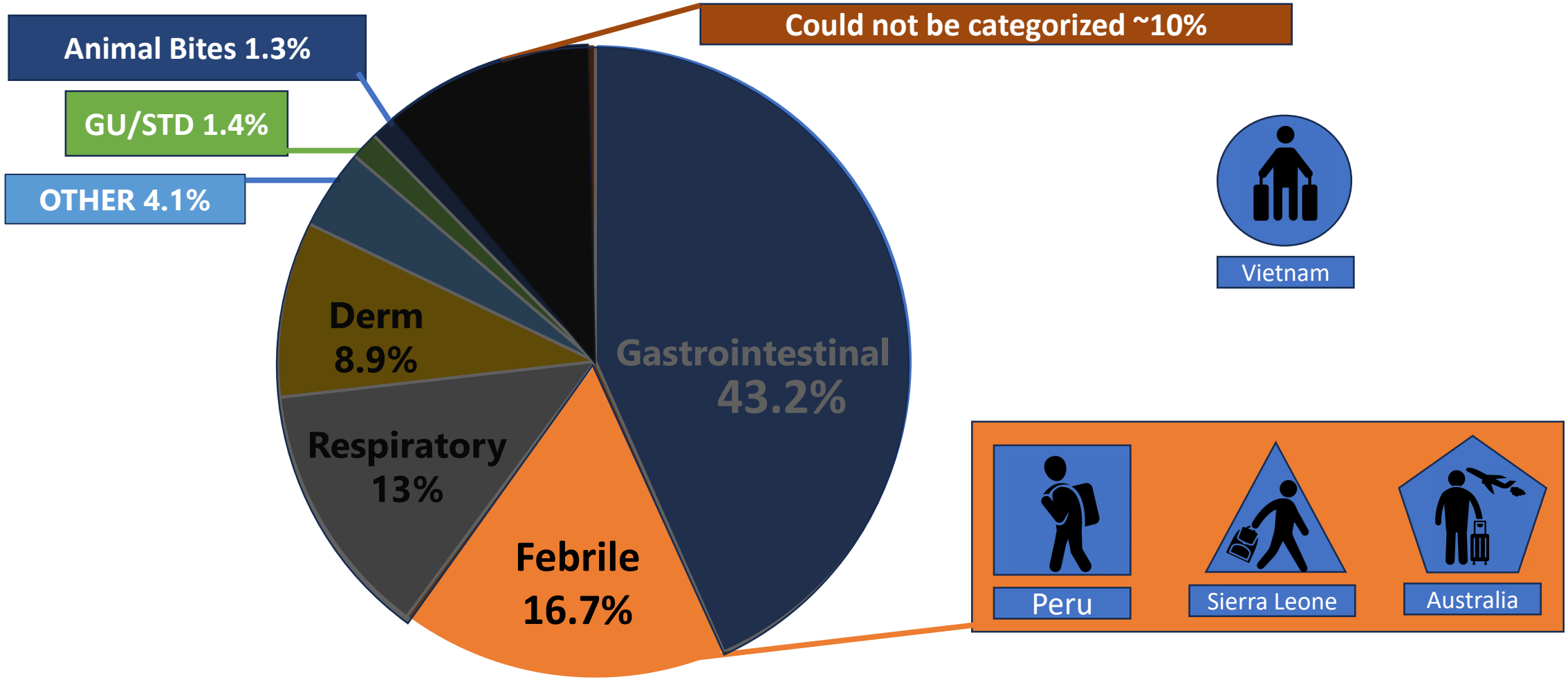


Brown AB, Miller C, Hamer DH, et al. Travel-Related Diagnoses Among U.S. Nonmigrant Travelers or Migrants Presenting to U.S. GeoSentinel Sites — GeoSentinel Network, 2012–2021. MMWR Surveill Summ 2023;72(No. SS-7):1–22. DOI: http://dx.doi.org/10.15585/mmwr.ss7207a1.

Centers for Disease Control and Prevention
MMWR
Surveillance Summaries / Vol. 72 / No. 7

Travel-Related Diagnoses Among U.S. Nonmigrant Travelers or Migrants Presenting to U.S. GeoSentinel Sites — GeoSentinel Network, 2012–2021

Categories of diagnosis

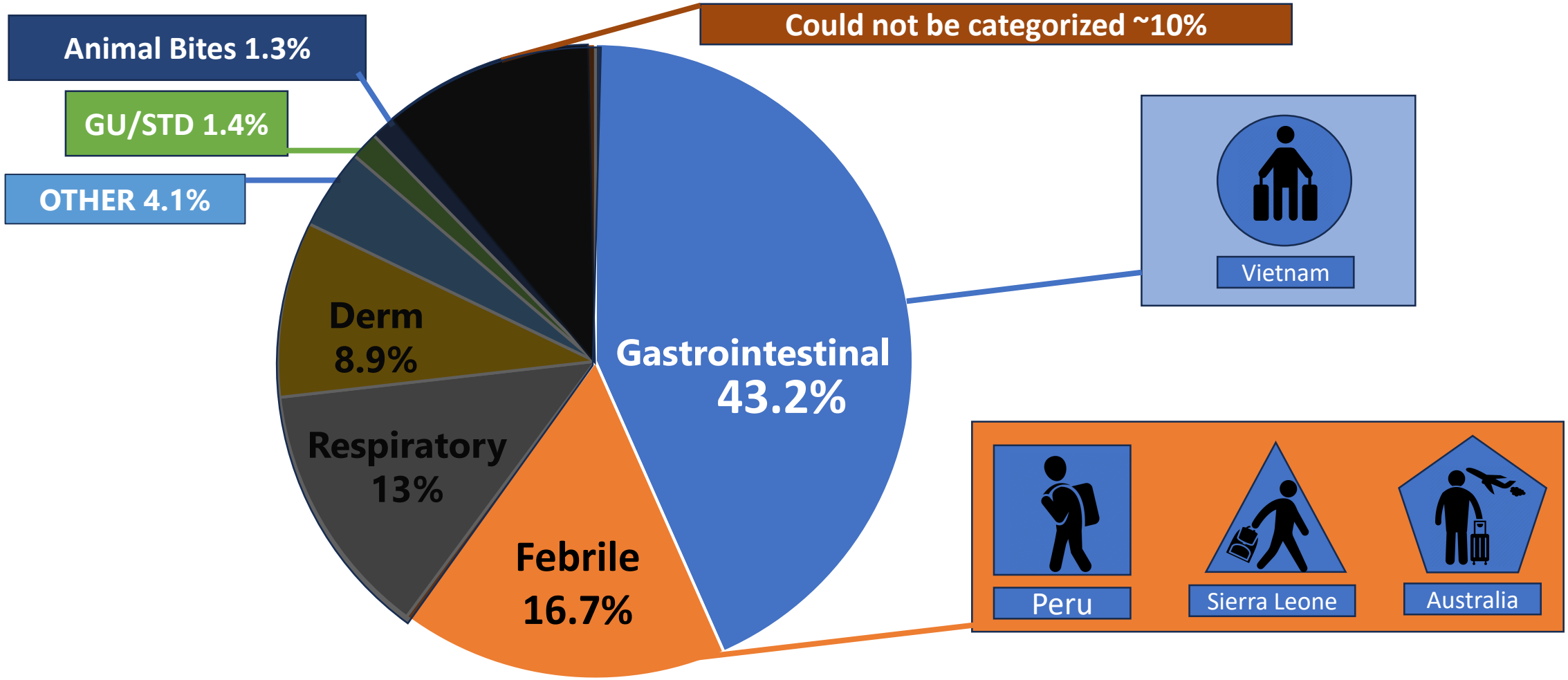


Brown AB, Miller C, Hamer DH, et al. Travel-Related Diagnoses Among U.S. Nonmigrant Travelers or Migrants Presenting to U.S. GeoSentinel Sites — GeoSentinel Network, 2012–2021. MMWR Surveill Summ 2023;72(No. SS-7):1–22. DOI: http://dx.doi.org/10.15585/mmwr.ss7207a1.

Centers for Disease Control and Prevention
MMWR
Surveillance Summaries / Vol. 72 / No. 7

Travel-Related Diagnoses Among U.S. Nonmigrant Travelers or Migrants Presenting to U.S. GeoSentinel Sites — GeoSentinel Network, 2012–2021

Categories of diagnosis



Brown AB, Miller C, Hamer DH, et al. Travel-Related Diagnoses Among U.S. Nonmigrant Travelers or Migrants Presenting to U.S. GeoSentinel Sites — GeoSentinel Network, 2012–2021. MMWR Surveill Summ 2023;72(No. SS-7):1–22. DOI: http://dx.doi.org/10.15585/mmwr.ss7207a1.

Vietnam

Peru

Sierra Leone

Australia

Pre-Travel Counseling

Peru

Vietnam

Sierra Leone

Australia

1. Patient/Traveler Pre-visit Checklist
2. Provider Pre-visit Checklist
3. The TM Consultation visit
4. Pre-departure follow-up

Patient/Traveler Pre-visit Checklist:

Patient/Traveler Pre-visit Checklist: A,B,C,D,E

Consider safe preparation for travel in the same way a patient may prepare for an elective surgery.

“Do I really need a travel consultation?”

Patient/Traveler Pre-visit Checklist: A,B,C,D,E

What is the average morbidity rate in elective surgery in the USA?

JAMA Network™

From: **Risk Associated With Complications and Mortality After Urgent Surgery vs Elective and Emergency Surgery: Implications for Defining "Quality" and Reporting Outcomes for Urgent Surgery**

JAMA Surg. 2017;152(8):768-774. doi:10.1001/jamasurg.2017.0918

Unadjusted Incidence of 30-Day Postoperative Outcomes

30-d Outcome	Elective (n = 130 235)
Mortality	516 (0.4)
Morbidity	8718 (6.7)

What is the rate of illness reported in travelers from the USA?

Patient/Traveler Pre-visit Checklist: A,B,C,D,E

What is the average morbidity rate in elective surgery in the USA?

JAMA Network

From: **Risk Associated With Complications and Mortality After Urgent Surgery vs Elective and Emergency Surgery: Implications for Defining "Quality" and Reporting Outcomes for Urgent Surgery**

JAMA Surg. 2017;152(8):768-774. doi:10.1001/jamasurg.2017.0918

Unadjusted Incidence of 30-Day Postoperative Outcomes

30-d Outcome	Elective (n = 130 235)
Mortality	516 (0.4)
Morbidity	8718 (6.7)

What is the rate of illness reported in travelers from the USA?

Journal of Travel Medicine
International Society of Travel Medicine
Promoting healthy travel worldwide
Established 1991
Journal of Travel Medicine, 2017, 1–8
doi: 10.1093/jtm/tax046
Review

Review

What proportion of international travellers acquire a travel-related illness? A review of the literature

Kristina M. Angelo, DO, MPH&TM[1,*], Phyllis E. Kozarsky, MD[1,2], Edward T. Ryan, MD[3,4], Lin H. Chen, MD[4,5], and Mark J. Sotir, PhD[1]

Patient/Traveler Pre-visit Checklist: A,B,C,D,E

What is the average morbidity rate in elective surgery in the USA?

JAMA Network

From: **Risk Associated With Complications and Mortality After Urgent Surgery vs Elective and Emergency Surgery: Implications for Defining "Quality" and Reporting Outcomes for Urgent Surgery**

JAMA Surg. 2017;152(8):768-774. doi:10.1001/jamasurg.2017.0918

Unadjusted Incidence of 30-Day Postoperative Outcomes

30-d Outcome	Elective (n = 130 235)
Mortality	516 (0.4)
Morbidity	8718 (6.7)

What is the rate of illness reported in travelers from the USA?

Journal of Travel Medicine

What proportion of international travellers acquire a travel-related illness? A review of the literature

Study (participants)	No. (%) of travelers that sought medical care
Chen et al. N=400	73 (18%)
Vilkman et al. N=363	NA
Stoney et al. N=48	NA
Balaban et al. N=33	6 (19%)
Dia et al. N=400	33 (11%)
Rack et al. N=282	44 (16%)
Hill et al. N=501	59 (8%)
Steffen et al. N=1209	659 (55%)
Steffen N=7906	NA

Patient/Traveler Pre-visit Checklist: A,B,C,D,E

What is the average morbidity rate in elective surgery in the USA?

JAMA Network

From: **Risk Associated With Complications and Mortality After Urgent Surgery vs Elective and Emergency Surgery: Implications for Defining "Quality" and Reporting Outcomes for Urgent Surgery**

JAMA Surg. 2017;152(8):768-774. doi:10.1001/jamasurg.2017.0918

Unadjusted Incidence of 30-Day Postoperative Outcomes

30-d Outcome	Elective (n = 130 235)
Mortality	516 (0.4)
Morbidity	8718 (6.7)

What is the rate of illness reported in travelers from the USA?

What proportion of international travellers acquire a travel-related illness? A review of the literature

Study (participants)	No. (%) of travelers that sought medical care
Chen et al. N=400	73 (18%)
Vilkman et al. N=363	NA
Range: 33-7906	8% to 55% sought medical attention
Hill et al. N=501	59 (8%)
Steffen et al. N=1209	659 (55%)
Steffen N=7906	NA

Patient/Traveler Pre-visit Checklist: A,B,C,D,E

What is the average morbidity rate in elective surgery in the USA?

JAMA Network

From: **Risk Associated With Complications and Mortality After Urgent Surgery vs Elective and Emergency Surgery: Implications for Defining "Quality" and Reporting Outcomes for Urgent Surgery**

JAMA Surg. 2017;152(8):768-774. doi:10.1001/jamasurg.2017.0918

Unadjusted Incidence of 30-Day Postoperative Outcomes

30-d Outcome	Elective (n = 130 235)
Mortality	516 (0.4)
Morbidity	8718 (6.7)

What is the rate of illness reported in travelers from the USA?

Journal of Travel Medicine

What proportion of international travellers acquire a travel-related illness? A review of the literature

Study (participants)	No. (%) of travelers that sought medical care

Range: 33-7906

8% to 55% sought medical

8% sought medical attention

Patient/Traveler Pre-visit Checklist: A,B,C,D,E

What is the average morbidity rate in elective surgery in the USA?

JAMA Network™

From: **Risk Associated With Complications and Mortality After Urgent Surgery vs Elective and Emergency Surgery: Implications for Defining "Quality" and Reporting Outcomes for Urgent Surgery**

JAMA Surg. 2017;152(8):768-774. doi:10.1001/jamasurg.2017.0918

Unadjusted Incidence of 30-Day Postoperative Outcomes

30-d Outcome	Elective (n = 130 235)
Mortality	516 (0.4)
Morbidity	8718 (6.7)

What is the rate of illness reported in travelers from the USA?

Journal of Travel Medicine

What proportion of international travellers acquire a travel-related illness? A review of the literature

Study (participants)	No. (%) of travelers that sought medical care

8% sought medical attention

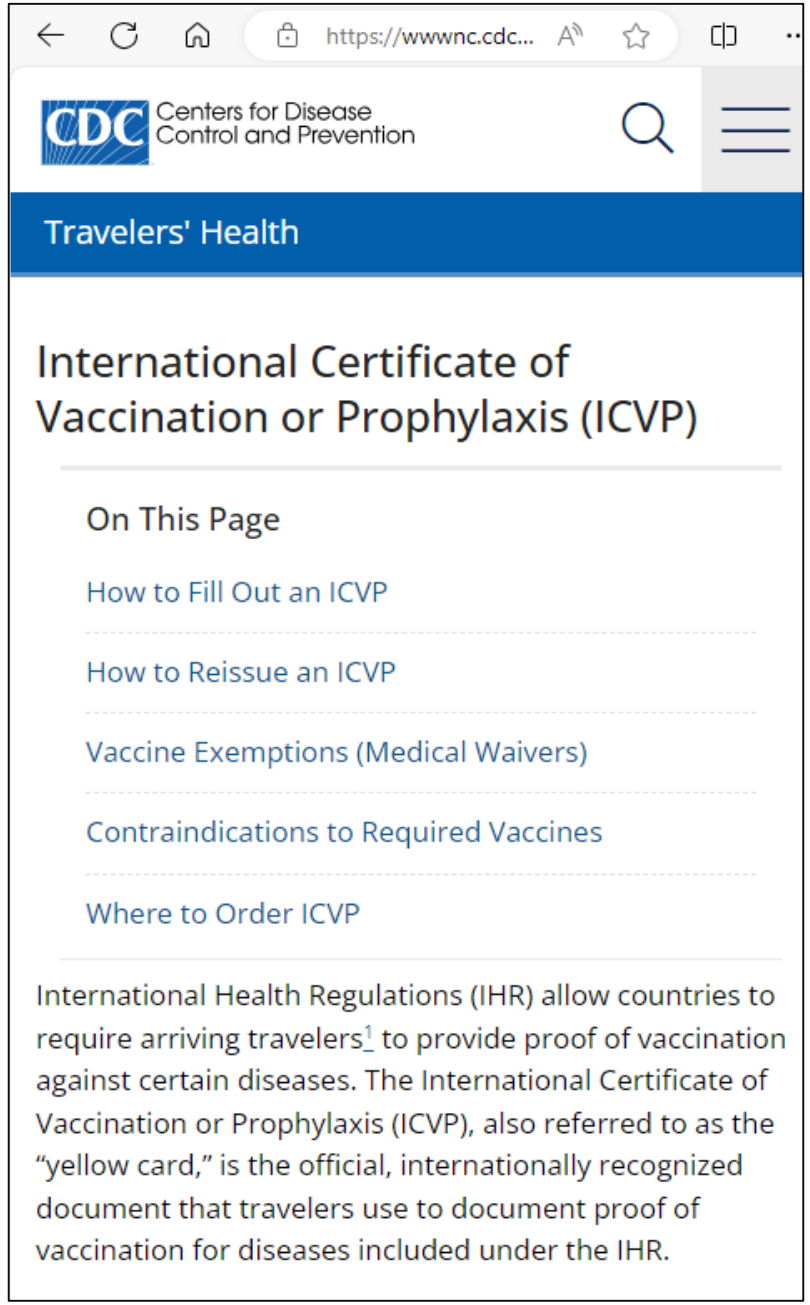
Patient/Traveler Pre-visit Checklist: A,B,C,D,E

Consider safe preparation for travel in the same way a patient may prepare for an elective surgery.

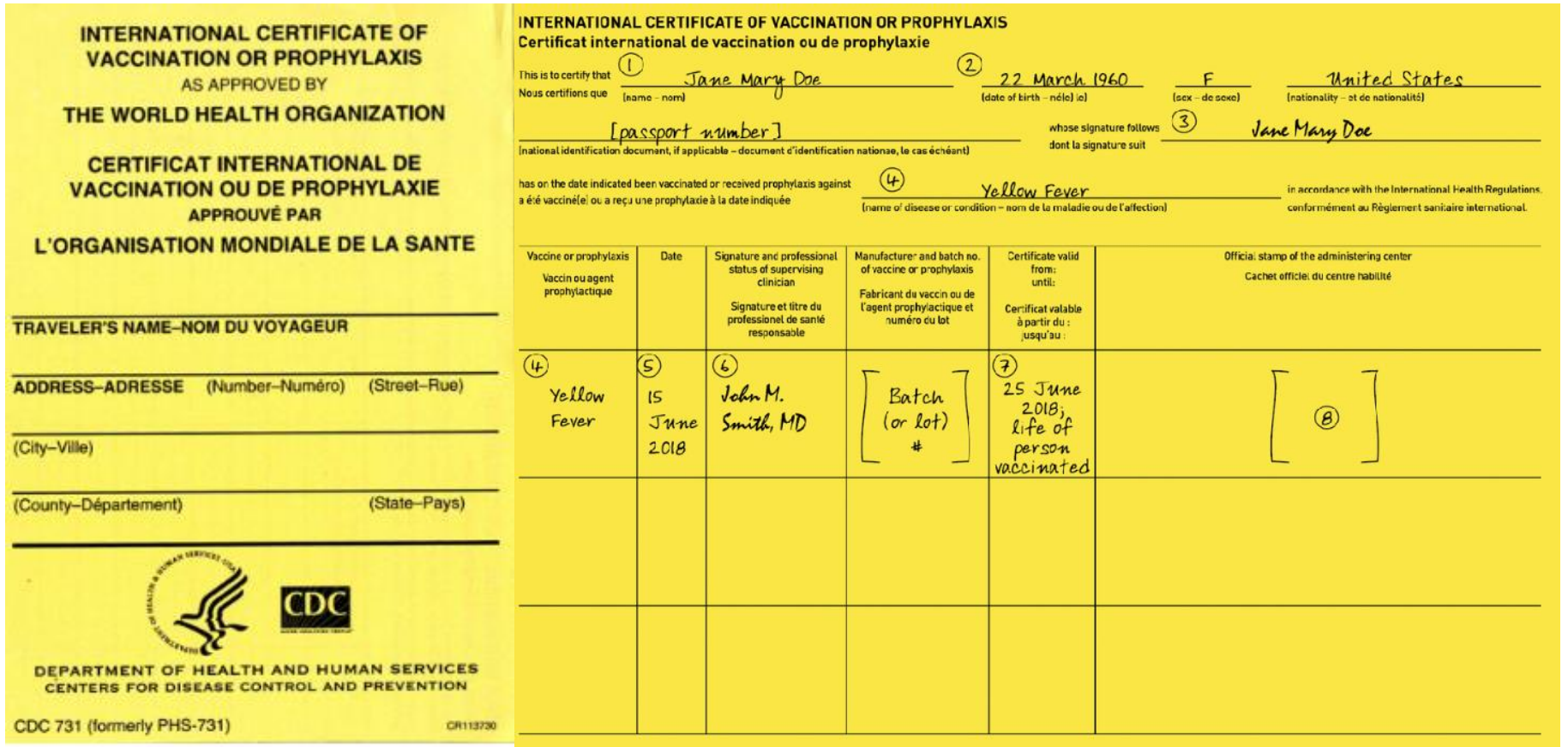
Upon TM consultation scheduling, travelers should prepare for their visit:

- ☑ **A**ctivities/Accommodations
- ☑ **B**ring a record of prior travel vaccinations/chemoprophylaxis use
- ☑ **C**ontact insurance about coverage for TM consultation, vaccines, etc
- ☑ **D**ates: Bring exact travel itineraries with dates including ‘side trip’
- ☑ **E**levation: travelers should know what elevations they will encounter

❑**B**ring a record of prior travel vaccinations



International Certificate of Vaccination or Prophylaxis (ICVP)



INTERNATIONAL CERTIFICATE OF VACCINATION OR PROPHYLAXIS
AS APPROVED BY
THE WORLD HEALTH ORGANIZATION

CERTIFICAT INTERNATIONAL DE VACCINATION OU DE PROPHYLAXIE
APPROUVÉ PAR
L'ORGANISATION MONDIALE DE LA SANTE

TRAVELER'S NAME–NOM DU VOYAGEUR

ADDRESS–ADRESSE (Number–Numéro) (Street–Rue)

(City–Ville)

(County–Département) (State–Pays)

DEPARTMENT OF HEALTH AND HUMAN SERVICES
CENTERS FOR DISEASE CONTROL AND PREVENTION

CDC 731 (formerly PHS-731) CR113730

INTERNATIONAL CERTIFICATE OF VACCINATION OR PROPHYLAXIS
Certificat international de vaccination ou de prophylaxie

This is to certify that / Nous certifions que (1) Jane Mary Doe (name – nom) (2) 22 March 1960 (date of birth – née le) F (sex – de sexe) United States (nationality – et de nationalité)

[passport number] (national identification document, if applicable – document d'identification nationale, le cas échéant) whose signature follows / dont la signature suit (3) Jane Mary Doe

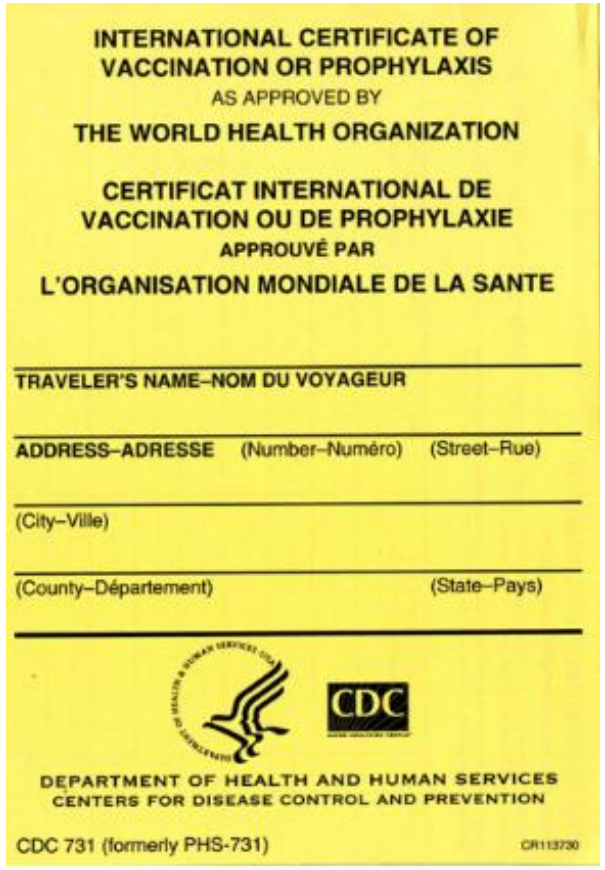
has on the date indicated been vaccinated or received prophylaxis against / a été vacciné(e) ou a reçu une prophylaxie à la date indiquée (4) Yellow Fever (name of disease or condition – nom de la maladie ou de l'affection) in accordance with the International Health Regulations. / conformément au Règlement sanitaire international.

Vaccine or prophylaxis Vaccin ou agent prophylactique	Date	Signature and professional status of supervising clinician Signature et titre du professionel de santé responsable	Manufacturer and batch no. of vaccine or prophylaxis Fabricant du vaccin ou de l'agent prophylactique et numéro du lot	Certificate valid from: until: Certificat valable à partir du : jusqu'au :	Official stamp of the administering center Cachet officiel du centre habilité
(4) Yellow Fever	(5) 15 June 2018	(6) John M. Smith, MD	[Batch (or lot) #]	(7) 25 June 2018; life of person vaccinated	[(8)]

Centers for Disease Control and Prevention

Travelers' Health

International Certificate of Vaccination or Prophylaxis (ICVP)



INTERNATIONAL CERTIFICATE OF VACCINATION OR PROPHYLAXIS
AS APPROVED BY
THE WORLD HEALTH ORGANIZATION

CERTIFICAT INTERNATIONAL DE VACCINATION OU DE PROPHYLAXIE
APPROUVÉ PAR
L'ORGANISATION MONDIALE DE LA SANTE

TRAVELER'S NAME–NOM DU VOYAGEUR

ADDRESS–ADRESSE (Number–Numéro) (Street–Rue)

(City–Ville)

(County–Département) (State–Pays)

DEPARTMENT OF HEALTH AND HUMAN SERVICES
CENTERS FOR DISEASE CONTROL AND PREVENTION

CDC 731 (formerly PHS-731) CR113730

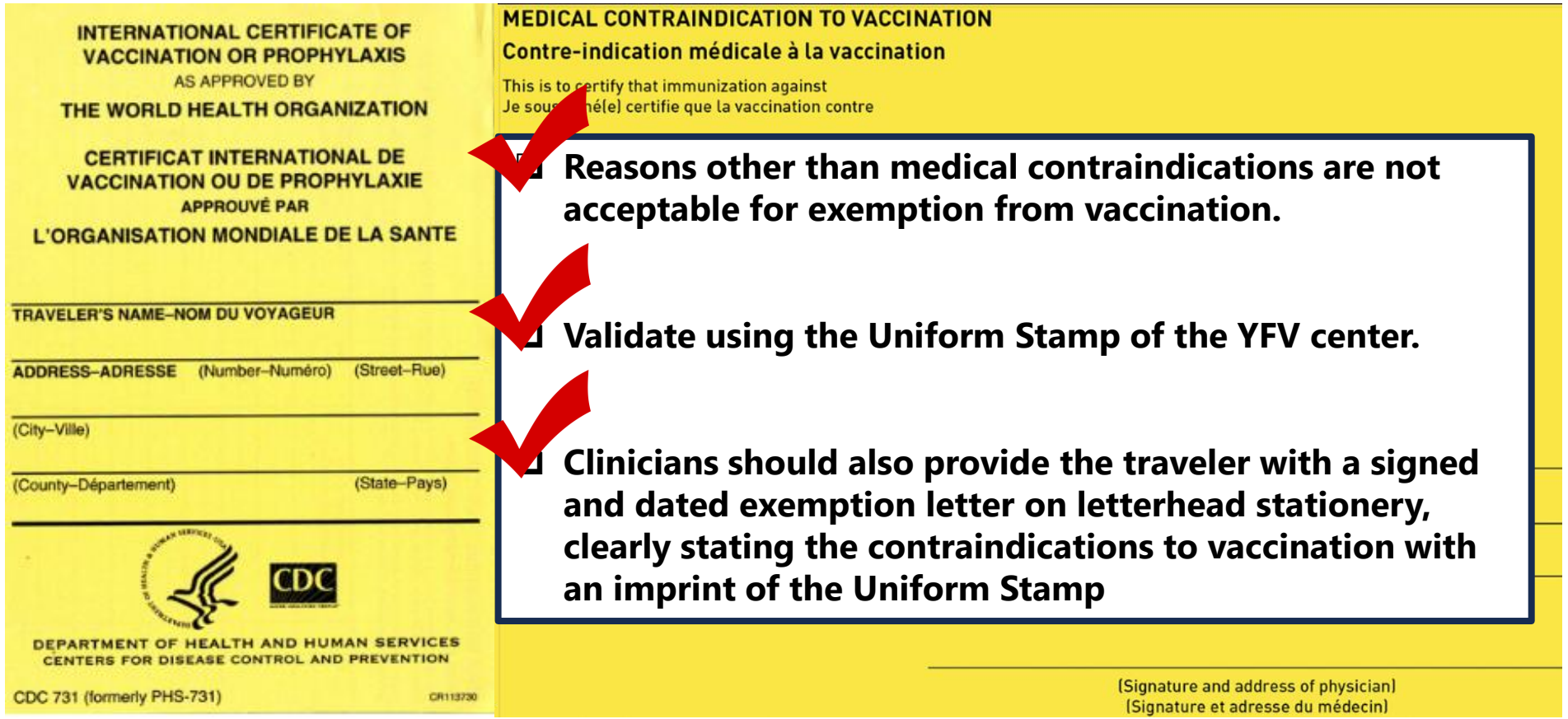
- **Yellow Fever Vaccine:**
- **Inactivated Polio Vaccine (IPV):**
- **Meningococcal Conjugate Vaccine (MenACWY)**

CDC Centers for Disease Control and Prevention

Travelers' Health

International Certificate of Vaccination or Prophylaxis (ICVP)

- How to Fill Out an ICVP
- How to Reissue an ICVP
- Vaccine Exemptions (Medical Waivers)
- Contraindications to Required Vaccines
- Where to Order ICVP



INTERNATIONAL CERTIFICATE OF VACCINATION OR PROPHYLAXIS
AS APPROVED BY
THE WORLD HEALTH ORGANIZATION

CERTIFICAT INTERNATIONAL DE VACCINATION OU DE PROPHYLAXIE
APPROUVÉ PAR
L'ORGANISATION MONDIALE DE LA SANTE

TRAVELER'S NAME–NOM DU VOYAGEUR

ADDRESS–ADRESSE (Number–Numéro) (Street–Rue)

(City–Ville)

(County–Département) (State–Pays)

DEPARTMENT OF HEALTH AND HUMAN SERVICES
CENTERS FOR DISEASE CONTROL AND PREVENTION

CDC 731 (formerly PHS-731) CR113730

MEDICAL CONTRAINDICATION TO VACCINATION
Contre-indication médicale à la vaccination

This is to certify that immunization against
Je sous[illegible]né(e) certifie que la vaccination contre

(Signature and address of physician)
(Signature et adresse du médecin)

- **Reasons other than medical contraindications are not acceptable for exemption from vaccination.**
- **Validate using the Uniform Stamp of the YFV center.**
- **Clinicians should also provide the traveler with a signed and dated exemption letter on letterhead stationery, clearly stating the contraindications to vaccination with an imprint of the Uniform Stamp**

Pre-Travel Counseling

1. Patient/Traveler Pre-visit Checklist
2. Provider Pre-visit Checklist
3. The TM Consultation visit
4. Pre-departure follow-up

Provider Pre-visit Checklist: **C.O.R.E.**

- ❑ **C**
- ❑ **O**
- ❑ **R**
- ❑ **E**

Provider Pre-visit Checklist: **C.O.R.E.**

- ☑ **C**onfirm the traveler has adequate time prior to departure
- ☐ **O**
- ☐ **R**
- ☐ **E**

Ideally 4-6 weeks is recommended for adequate pre-travel medical preparation

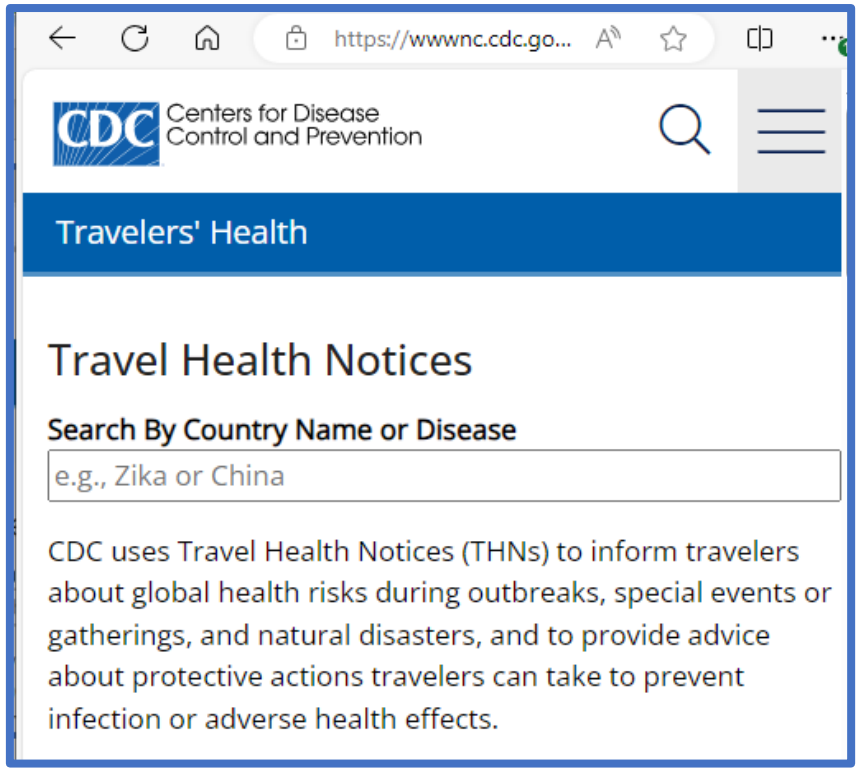
Provider Pre-visit Checklist: **C.O.R.E.**

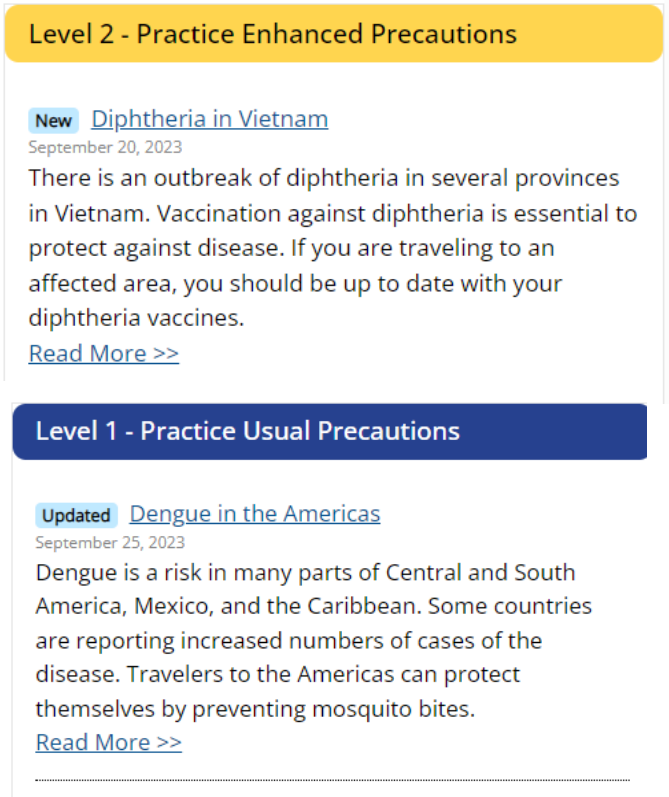
☑ **C**onfirm the traveler has adequate time prior to departure

☑ **O**utbreak News: investigate active disease outbreaks at destination

☐ **R**

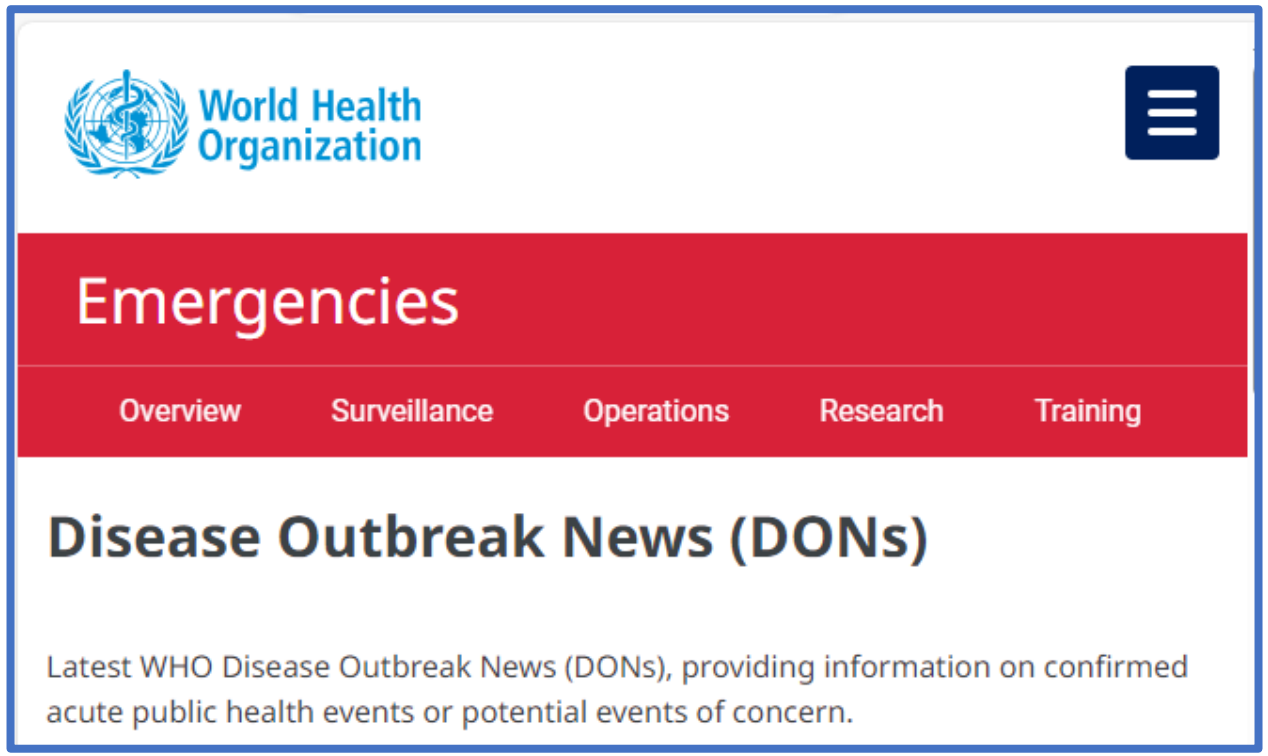
☐ **E**





Provider Pre-visit Checklist: **C.O.R.E.**

- ☑ **C**onfirm the traveler has adequate time prior to departure
- ☑ **O**utbreak News: investigate active disease outbreaks at destination
- ☐ **R**
- ☐ **E**



Disease Outbreak News
21 September 2023 | Suspected triple outbreak of typhoid fever, shigellosis and cholera - Congo

Disease Outbreak News
20 September 2023 | Botulism - France

Disease Outbreak News
14 September 2023 | Legionellosis - Poland

Disease Outbreak News
13 September 2023 | Diphtheria - Nigeria

Provider Pre-visit Checklist: **C.O.R.E.**

- ☑ **C**onfirm the traveler has adequate time prior to departure
- ☑ **O**utbreak News: investigate active disease outbreaks at destination
- ❑ **R**
- ❑ **E**

- ❑ Receive important information from the Embassy about safety conditions in your destination country, helping you make informed decisions about your travel plans
- ❑ Help the U.S. Embassy contact you in an emergency, whether natural disaster, civil unrest, or family emergency
- ❑ Help family and friends get in touch with you in an emergency.

Provider Pre-visit Checklist: **C.O.R.E.**

- ☑ **C**onfirm the traveler has adequate time prior to departure
- ☑ **O**utbreak News: investigate active disease outbreaks at destination
- ☐ **R**eview specific vaccine and prophylaxis for the destination
- ☐ **E**

- ❑ Review specific vaccine and prophylaxis for the destination

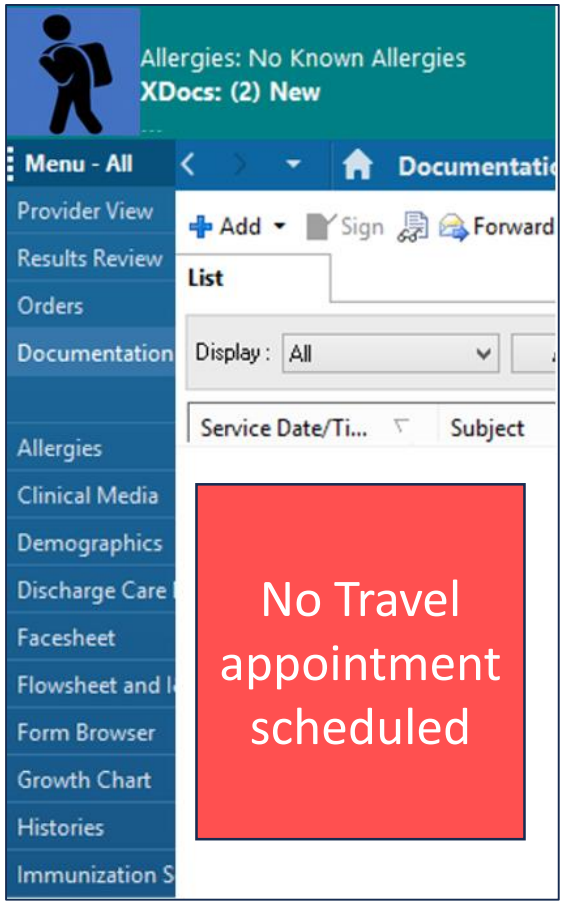
❑Review specific vaccine and prophylaxis for the destination

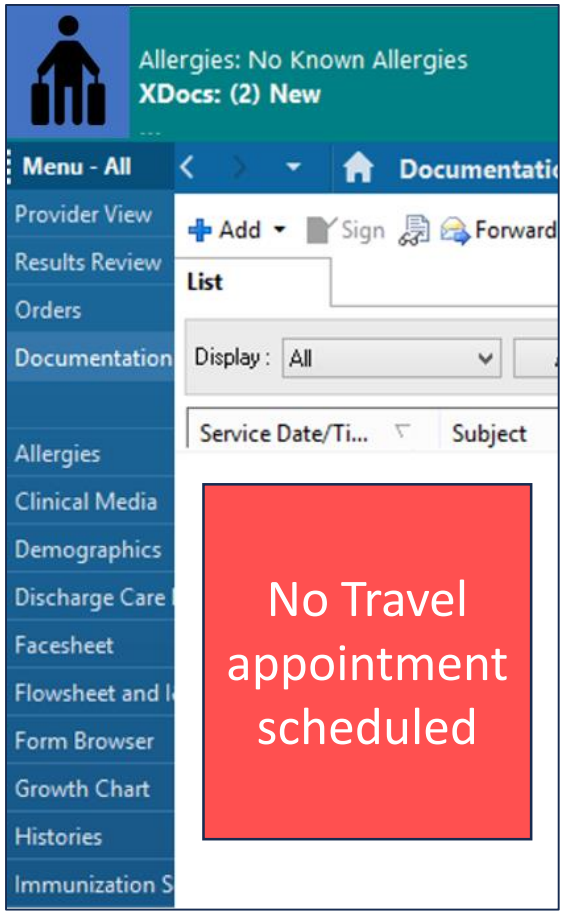
Peru

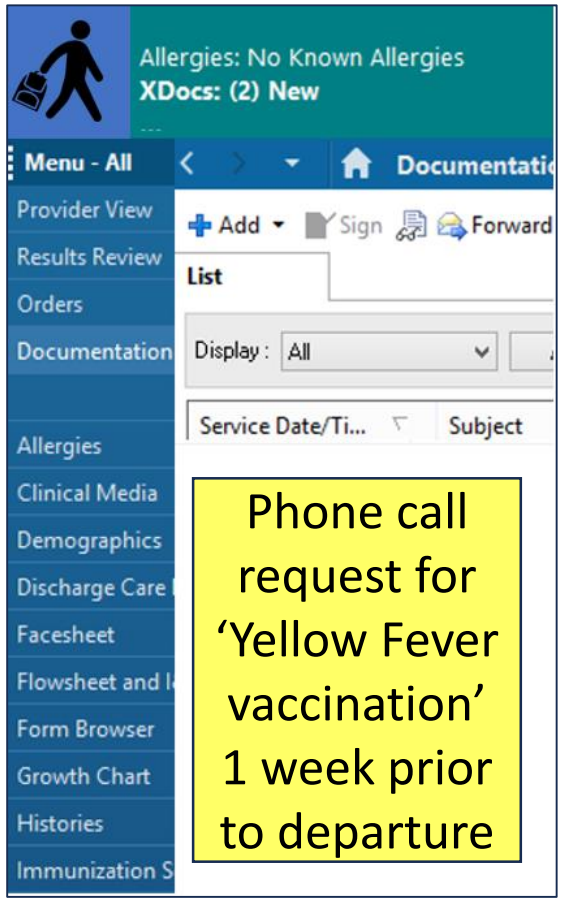
Vietnam

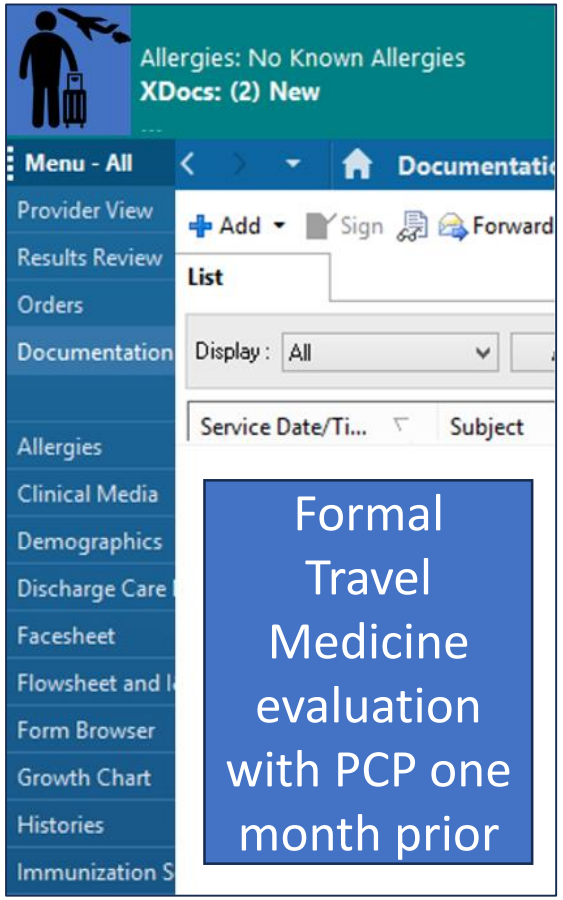
Sierra Leone

Australia









❑Review specific vaccine and prophylaxis for the destination

<u>3 of the highest yield interventions during a travel medication consultation</u>:

1) Providing appropriate vaccines for vaccine preventable illness including routine vaccination update

2) Providing chemoprophylaxis to prevent malaria

3) Prescribing oral antibiotics for the potential treatment of traveler's diarrhea while abroad

❑Review specific vaccine and prophylaxis for the destination

Peru

Vietnam

Sierra Leone

CDC Yellow Book 2024 | Travelers' Health | CDC

https://wwwnc.cdc.gov/travel/page/yellowbook-home

Web **CDC Yellow Book** It compiles the US government's most current travel health guidelines, including pretravel vaccine recommendations, destination-specific health advice, and easy ...

Zika Travel Information

1 These countries have a potential risk of Zika, but we do not ...

Travel Vaccines

Yellow fever; More Information. CDC Yellow Book: Travel Vacc...

❑Review specific vaccine and prophylaxis for the destination

Peru

Vietnam

Sierra Leone

Section 2: Preparing International Travelers

- The Pretravel Consultation
- *Perspectives*: Travelers' Perception of Risk
- Vaccination & Immunoprophylaxis— General Principles
- Interactions Between Travel Vaccines & Drugs
- Yellow Fever Vaccine & Malaria Prevention Information, by Country

View: [All] Go

- Food & Water Precautions
- Water Disinfection
- Travel Health Kits
- Last-Minute Travelers
- Mental Health
- LGBTQ+ Travelers
- Complementary & Integrative Health Approaches to Travel

❑Review specific vaccine and prophylaxis for the destination

Peru

Vietnam

Sierra Leone

CDC Centers for Disease Control and Prevention

Norfolk Island (Australia)
North Korea
North Macedonia
Northern Ireland
Northern Mariana Islands (U.S.)
Norway
Oman
Pakistan
Palau
Panama
Papua New Guinea
Paraguay
Peru
Philippines
Pitcairn Islands (U.K.)
Poland
Portugal
Puerto Rico (U.S.)
Qatar
Réunion (France)

-- Select One --

Go

CDC Centers for Disease Control and Prevention

Tonga
Tortola
Trinidad and Tobago
Tubuai
Tunisia
Turkey
Turkmenistan
Turks and Caicos Islands (U.K.)
Tuvalu
Uganda
Ukraine
United Arab Emirates
United Kingdom
United States
Uruguay
Uzbekistan
Vanuatu
Vatican City
Venezuela
Vietnam

-- Select One --

Go

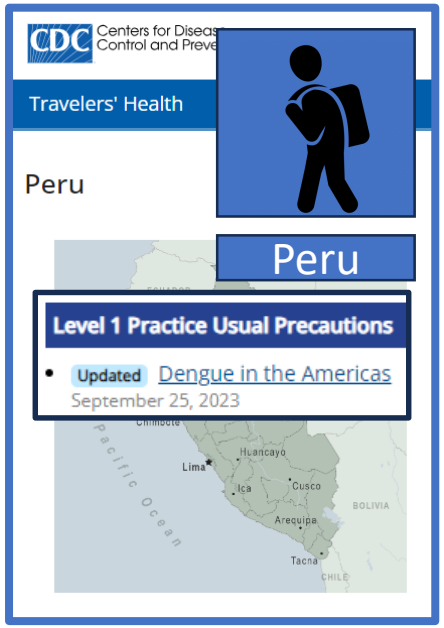
CDC Centers for Disease Control and Prevention

Saint Vincent and the Grenadines
Saipan
Samoa
San Marino
São Tomé and Príncipe
Saudi Arabia
Scotland
Senegal
Serbia
Seychelles
Sierra Leone
Singapore
Sint Eustatius
Sint Maarten
Slovakia
Slovenia
Society Islands
Solomon Islands
Somalia
South Africa

Sierra Leone

Go

❑Review specific vaccine and prophylaxis for the destination

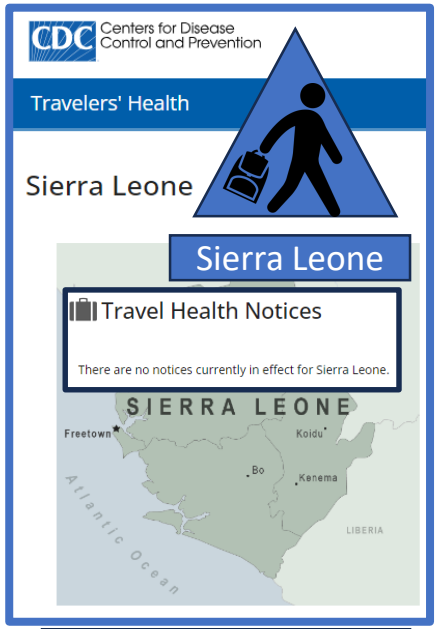


Peru

- Routine vaccines
- COVID-19
- Hepatitis A
- Hepatitis B
- Malaria
- Measles
- Rabies
- Typhoid
- Yellow Fever

Vietnam

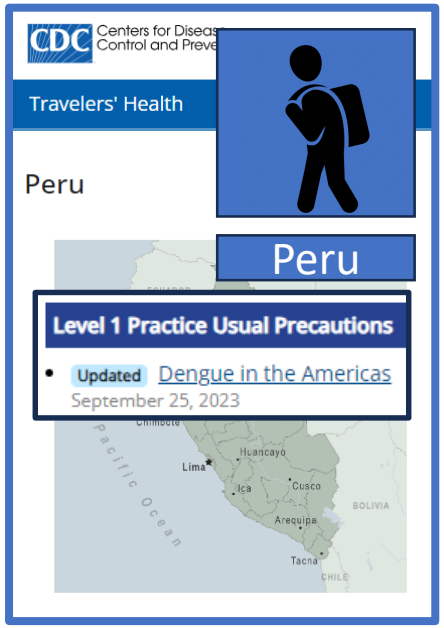
- Routine vaccines
- COVID-19
- Hepatitis A
- Hepatitis B
- Malaria
- Measles
- Rabies
- Typhoid
- Japanese Encephalitis



Sierra Leone

- Routine vaccines
- COVID-19
- Hepatitis A
- Hepatitis B
- Malaria
- Measles
- Rabies
- Typhoid
- Yellow Fever

❑Review specific vaccine and prophylaxis for the destination

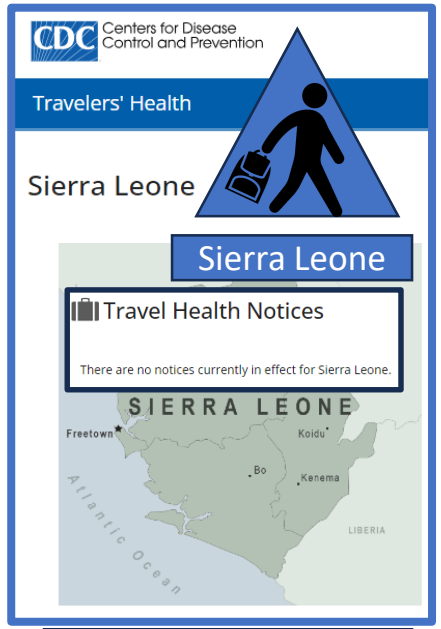


Peru

Routine vaccines

Vietnam

Routine vaccines



Sierra Leone

Routine vaccines

- Chickenpox (Varicella)
- Diphtheria-Tetanus-Pertussis
- COVID-19
- Flu (influenza)
- Measles-Mumps-Rubella (MMR)
- Polio
- Shingles

✔✔✔

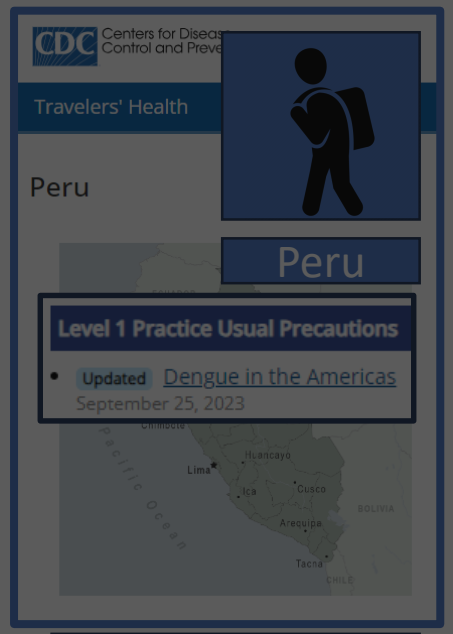
✔✔✔

❑Review specific vaccine and prophylaxis for the destination

Transmission: Fecal-oral route

- contact with “dirty hands”
- infected food preparer
- Waterborne outbreaks
- close physical contact (such as oral-anal sex) but not casual contact

- Traveler's Diarrhea Recommendations



Peru

Routine vaccines

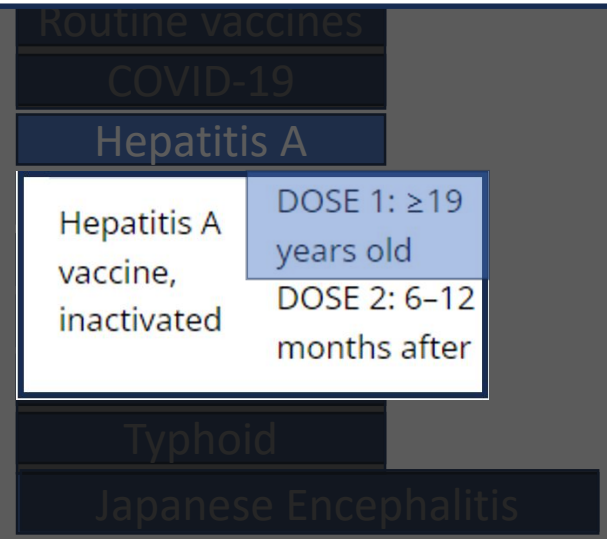
COVID-19

Hepatitis A

Hepatitis A vaccine, inactivated	DOSE 1: ≥19 years old DOSE 2: 6–12 months after

Typhoid

Yellow Fever



Routine vaccines

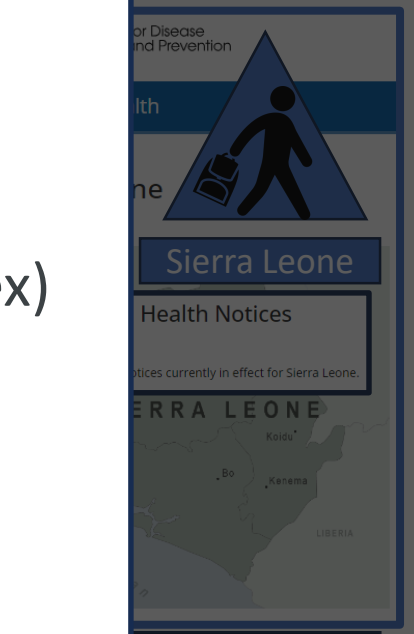
COVID-19

Hepatitis A

Hepatitis A vaccine, inactivated	DOSE 1: ≥19 years old DOSE 2: 6–12 months after

Typhoid

Japanese Encephalitis



Sierra Leone

Routine vaccines

COVID-19

Hepatitis A

Hepatitis A vaccine, inactivated	DOSE 1: ≥19 years old DOSE 2: 6–12 months after

Typhoid

Yellow Fever

Traveler's Diarrhea

- 30%–70% of travelers impacted during a 2-week period

- Infections occur despite exceptional personal hygiene

- ≥80%–90%: *Escherichia coli*> *C.jejuni* > *Shigella* > *Salmonella*
- 5%–15%: astrovirus, norovirus, and rotavirus
- 10%: *Giardia*> *Entamoeba histolytica* >*Cryptosporidium*

- Prophylactic antibiotics are not recommended
- Anticipatory antibiotics are recommended

Traveler’s Diarrhea: treatment

Azithromycin	1,000mg PO X1 OR 500mg QD x 3 days	Preferred for severe diarrhea

Monotherapy with Antimotility: not recommended for bloody diarrhea or diarrhea with fever

❑ Review specific vaccine and prophylaxis for the destination

- Routine vaccines
- COVID-19
- Hepatitis A ✓
- Hepatitis B
- Malaria
- Measles
- Rabies
- Typhoid
- Yellow Fever

Azithromycin Tablets 250 mg*

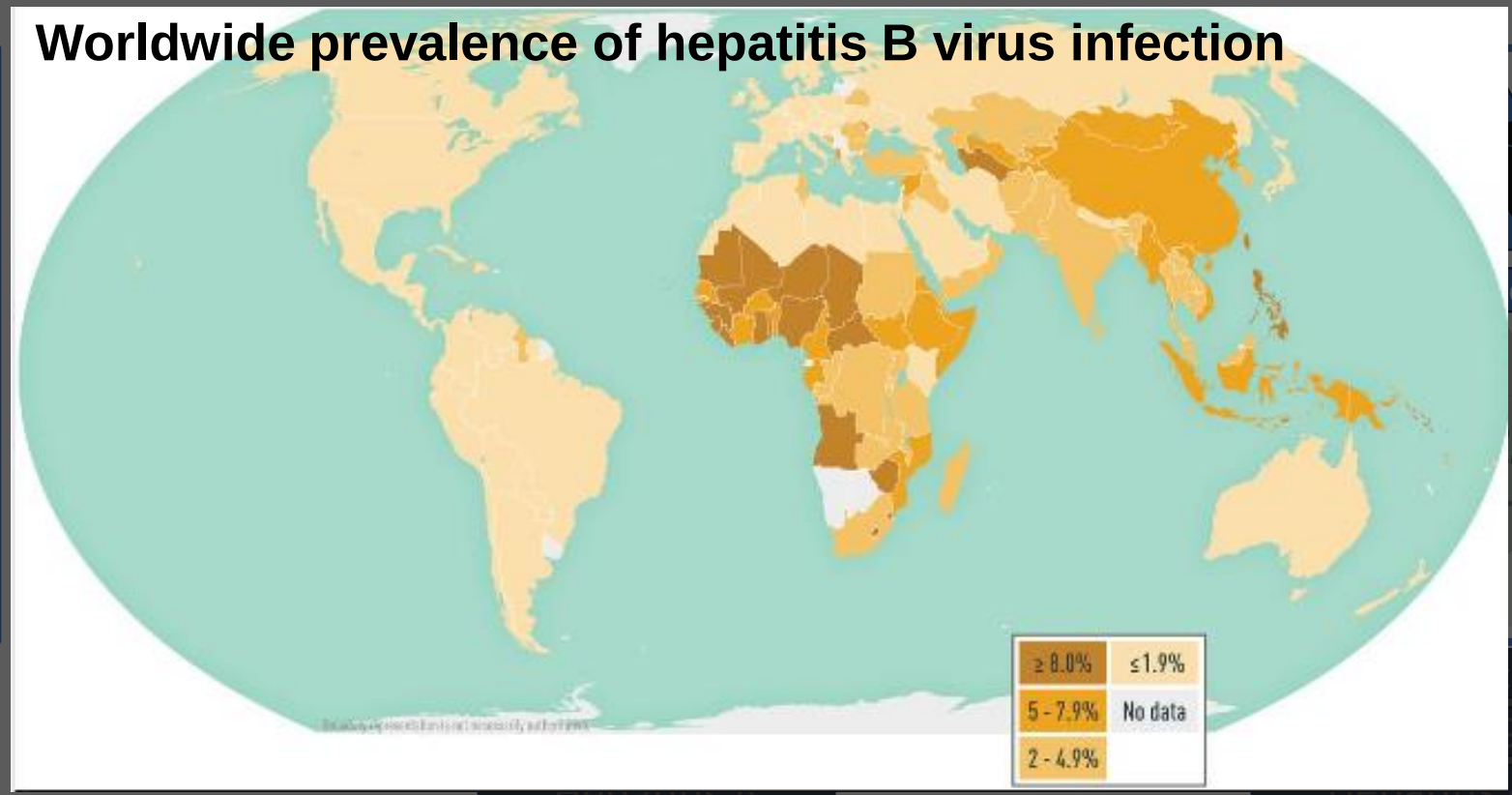
- Routine vaccines
- COVID-19
- Hepatitis A ✓
- Hepatitis B
- Malaria
- Measles
- Rabies
- Typhoid
- Japanese Encephalitis

Azithromycin Tablets 250 mg*

- Routine vaccines
- COVID-19
- Hepatitis A ✓
- Hepatitis B
- Malaria
- Measles
- Rabies
- Typhoid
- Yellow Fever

Azithromycin Tablets 250 mg*

❑ Review specific vaccine and prophylaxis for the destination



CDC Centers for Disease Control and Prevention

Travelers' Health

Peru

Peru

Routine vaccines
COVID-19
Hepatitis A
Hepatitis B
Malaria
Measles
Rabies
Typhoid
Yellow Fever

Hepatitis B
Malaria
Measles
Rabies
Typhoid
Japanese Encephalitis

Hepatitis B
Malaria
Measles
Rabies
Typhoid
Yellow Fever

Disease data source: 2021 estimates of hepatitis B virus disease burden. CDA Foundation Polaris Observatory.

❑ Review specific vaccine and prophylaxis for the destination

- Routine vaccines
- COVID-19
- Hepatitis A
- **Hepatitis B** — ALL travelers <60
- Malaria
- Measles
- Rabies
- Typhoid
- Yellow Fever

- Routine vaccines
- COVID-19
- Hepatitis A
- **Hepatitis B** — ALL travelers
- Malaria
- Measles
- Rabies
- Typhoid
- Japanese Encephalitis

- Routine vaccines
- COVID-19
- Hepatitis A
- **Hepatitis B** — ALL travelers
- Malaria
- Measles
- Rabies
- Typhoid
- Yellow Fever

Disease data source: 2021 estimates of hepatitis B virus disease burden. CDA Foundation Polaris Observatory.

❑ Review specific vaccine and prophylaxis for the destination

Malaria: Peru

Transmission areas

Malaria: Vietnam

Transmission areas

Drug resistance

chemoprophylaxis
•Provinces specific

Malaria: Sierra Leone

Transmission areas

Drug resistance

Recommended chemoprophylaxis

Choosing a Malaria Prophylaxis

All prophylaxis regimens are taken before, during, and after travel!

Choice of drug should reflect:

- ❑the presence of antimalarial drug resistance
- ❑length of travel
- ❑co-morbid conditions
- ❑allergy history
- ❑other medications prescribed
- ❑potential side effects
- ❑cost of the antimalarial

Mosquito avoidance:

- ❑insect repellent
- ❑long sleeves
- ❑long pants
- ❑sleeping in a mosquito-free setting
- ❑using an insecticide-treated mosquito net

Choosing a Malaria Prophylaxis

Antimalarial	Advantages	Disadvantages
ATOVAQUONE-PROGUANIL	BEFORE: Started 1–2 days before travel DURING: once daily AFTER: 7 days after leaving malaria-endemic area, rather than for 4 weeks Side Effects: Well tolerated	<u>Contraindicated:</u> • Pregnancy • Breastfeeding: child that weighs <5 kg • severe renal impairment Cost: $$$
DOXYCYCLINE	BEFORE: 1–2 days before travel DURING: once daily Cost: $ Co-treatment/prevention for rickettsia, leptospirosis, etc	<u>Contraindicated:</u> • Pregnancy • Breastfeeding • child <8 AFTER: 28 days after leaving malaria-endemic area Side Effects: GI distress, photosensitivity, yeast infections

Malaria | CDC Yellow Book 2024

Choosing a Malaria Prophylaxis

Antimalarial	Advantages	Disadvantages
MEFLOQUINE	DURING: once WEEKLY Safe in pregnancy and breastfeeding	<u>Contraindicated:</u> • Mefloquine resistant areas • Psychiatric conditions • Seizure disorder • Some cardiac conditions • BEFORE: > 2 weeks • AFTER: 28 days
TAFENOQUINE	BEFORE: Started 3 days before travel DURING: once WEEKLY AFTER: 1 week	<u>Contraindicated:</u> • G6PD deficiency • Pregnancy • breastfeeding Side Effects: rare psychiatric events; dizziness, GI disturbances, headache, and clinically insignificant decreases in hemoglobin

Malaria | CDC Yellow Book 2024

❑Review specific vaccine and prophylaxis for the destination

Drug resistance
•Chloroquine

Recommended chemoprophylaxis
•Atovaquone-proguanil,
doxycycline
loquine,
tafenoquine

Drug resistance
•Chloroquine and mefloquine

Recommended chemoprophylaxis
•Provinces specific
Atovaquone-proguanil
mefloquine resistance

Drug resistance
•Chloroquine

Recommended chemoprophylaxis
Atovaquone-proguanil
tafenoquine

❑Review specific vaccine and prophylaxis for the destination

Peru

Vietnam

Sierra Leone

Infants 6 to 11 months old traveling internationally should get 1 dose of measles-mumps-rubella (MMR) vaccine before travel. This dose does not count as part of the routine childhood vaccination series.

Routine vaccines
COVID
Hepati
Hepati
Malaria
Measles
Rabies
Typhoid
Yellow Fever

Routine vaccines
Malaria
Measles
Rabies
Typhoid
Japanese Encephalitis

Routine vaccines
Malaria
Measles
Rabies
Typhoid
Yellow Fever

❑Review specific vaccine and prophylaxis for the destination

CDC: Rabies Risk Categories

1. **People working with live rabies virus in research or vaccine production, or testing**
2. **People with frequent bat contact Or people who perform animal necropsies**
3. **People who interact with animals that could be rabid, have occupational or recreational activities with animals**

Selected travelers

4. **Category 3 but with < 3 years exposure risk**
5. **Typical USA citizens**

- Routine vaccines
- COVID-19
- Hepatitis A
- Hepatitis B
- Malaria
- Measles
- **Rabies**
- Typhoid
- Japanese Encephalitis

- Routine vaccines
- COVID-19
- Hepatitis A
- Hepatitis B
- Malaria
- Measles
- **Rabies**
- Typhoid
- Yellow Fever

❑ Review specific vaccine and prophylaxis for the destination

CDC: Rabies Risk Categories

Selected travelers **3**

“Selected Travelers” :

Higher risk activities include:

- **animal handlers**

Routine vaccines
COVID-19
Hepatitis A
Hepatitis B
Malaria
Measles
Rabies
Typhoid
Japanese Encephalitis

Routine vaccines
COVID-19
Hepatitis A
Hepatitis B
Malaria
Measles
Rabies
Typhoid
Yellow Fever

❑ Review specific vaccine and prophylaxis for the destination

CDC: Rabies Risk Categories

Selected travelers **3**

Rabies PreP Schedule:

2 doses, days 0 and 7, plus:

Either a one-time titer check after 1 year and up to 3 years following the first 2-dose vaccination

OR

1-dose booster between 3 weeks and 3 years following the first vaccine in the 2-dose vaccination

Yellow Fever

Routine vaccines
COVID-19
Hepatitis A
Hepatitis B
Malaria
Measles
Rabies
Typhoid
Japanese Encephalitis

Routine vaccines
COVID-19
Hepatitis A
Hepatitis B
Malaria
Measles
Rabies
Typhoid
Yellow Fever

❑Review specific vaccine and prophylaxis for the destination

CDC: Rabies Risk Categories	
People working with live rabies virus in research or vaccine production, or testing	**1**
People with frequent bat contact Or people who perform animal necropsies	**2**
People who interact with animals that could be rabid, have occupational or recreational activities with animals **Selected travelers**	**3**
Category 3 but with < 3 years exposure risk	**4**
Typical USA citizens	**5**

Routine vaccines
COVID-19
Hepatitis A
Hepatitis B
Malaria
Measles
Rabies

Typical USA citizens **5**

Routine vaccines
COVID-19
Hepatitis A
Hepatitis B
Malaria
Measles
Rabies

Typical USA citizens **5**

❑Review specific vaccine and prophylaxis for the destination

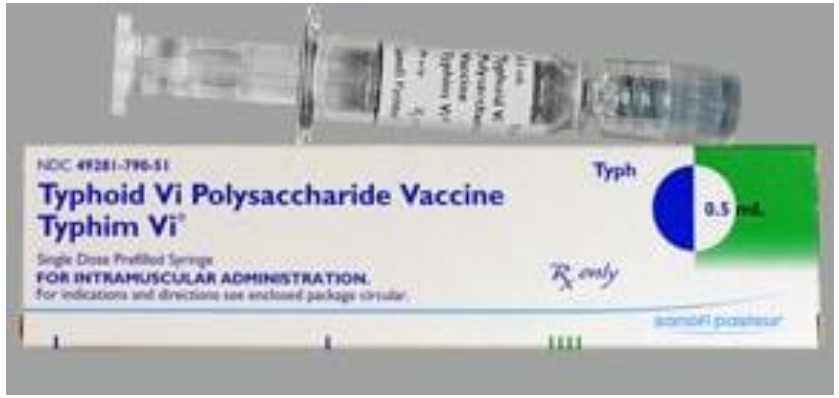
Peru	Vietnam	Sierra Leone
Routine vaccines	Routine vaccines	Routine vaccines
COVID-19		COVID-19
Hepatitis A		Hepatitis A
Hepatitis B		Hepatitis B
Malaria		Malaria
Measles		Measles
Rabies		Rabies
Typhoid	Typhoid	Typhoid
Yellow Fever	Japanese Encephalitis	Yellow Fever

Recommended for most travelers, especially those staying with friends or relatives or visiting smaller cities or rural areas

Typhoid Vaccine Schedules

VACCINE	AGES FOR USE	DOSE & ROUTE	# DOSES	DOSING INTERVAL	REPEAT DOSE
VI Capsular Polysaccharide Vaccine (ViCPS)—Typhim Vi					

VACCINE	AGES FOR USE	DOSE & ROUTE	# DOSES	DOSING INTERVAL	REPEAT DOSE
Live Attenuated Ty21a Vaccine—Vivotif[1]					



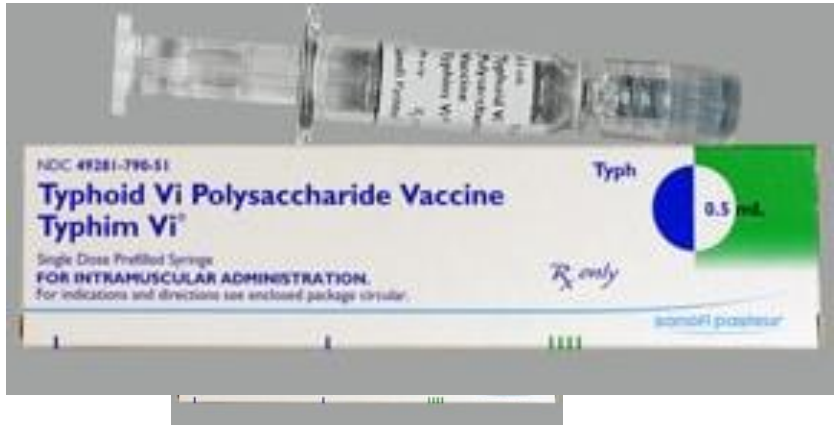
Typhoid Vaccine Schedules

- ❑ kept refrigerated (not frozen)
- ❑ capsule swallowed whole not chewed
- ❑ taken with cool liquid no warmer than 98.6°F (37°C), approximately 1 hour before a meal and ≥2 hours after a previous meal
- ❑ avoiding alcohol consumption 1 hour before and 2 hours after administration, because alcohol can disintegrate the enteric coating
- ❑ Travelers should complete the Ty21a vaccine regimen ≥1 week before potential exposure
- ❑ delayed for >72 hours after the administration of any antimicrobial agent

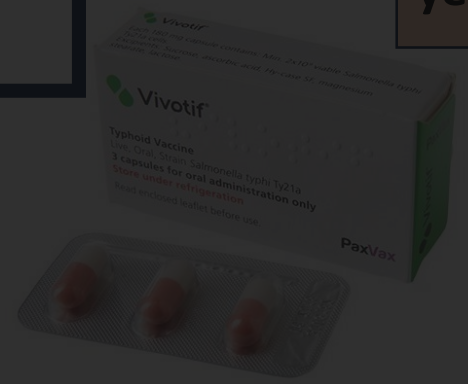
VACCINE	AGES FOR USE	DOSE & ROUTE	# DOSES	DOSING INTERVAL	REPEAT DOSE
Live Attenuated Ty21a Vaccine—Vivotif[1]					
Primary series	≥6 years	1 capsule, orally every other day[2]	4	48 hours	NA
Booster	≥6 years	1 capsule, orally every other day[2]	4	48 hours	**Every 5 years**

Typhoid Vaccine Schedules

VACCINE	AGES FOR USE	DOSE & ROUTE	# DOSES	DOSING INTERVAL	REPEAT DOSE
VI Capsular Polysaccharide Vaccine (ViCPS)—Typhim Vi					
Primary series	≥2 years	0.5 mL, IM injection	1	NA	NA
Booster	≥2 years	0.5 mL, IM injection	1	NA	**Every 2 years**

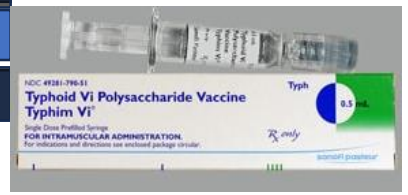


VACCINE	AGES FOR USE	DOSE & ROUTE	# DOSES	DOSING INTERVAL	REPEAT DOSE
Live Attenuated Ty21a Vaccine—Vivotif[1]					
Primary series	≥6 years	1 capsule, orally every other day[2]	4	48 hours	NA
Booster	≥6 years	1 capsule, orally every other day[2]	4	48 hours	**Every 5 years**

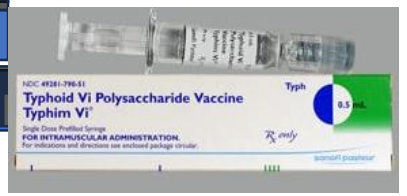


❑Review specific vaccine and prophylaxis for the destination

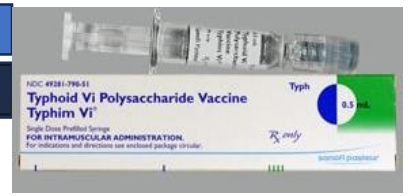
- Routine vaccines
- COVID-19
- Hepatitis A
- Hepatitis B
- Malaria
- Measles
- Rabies
- **Typhoid**
- Yellow Fever



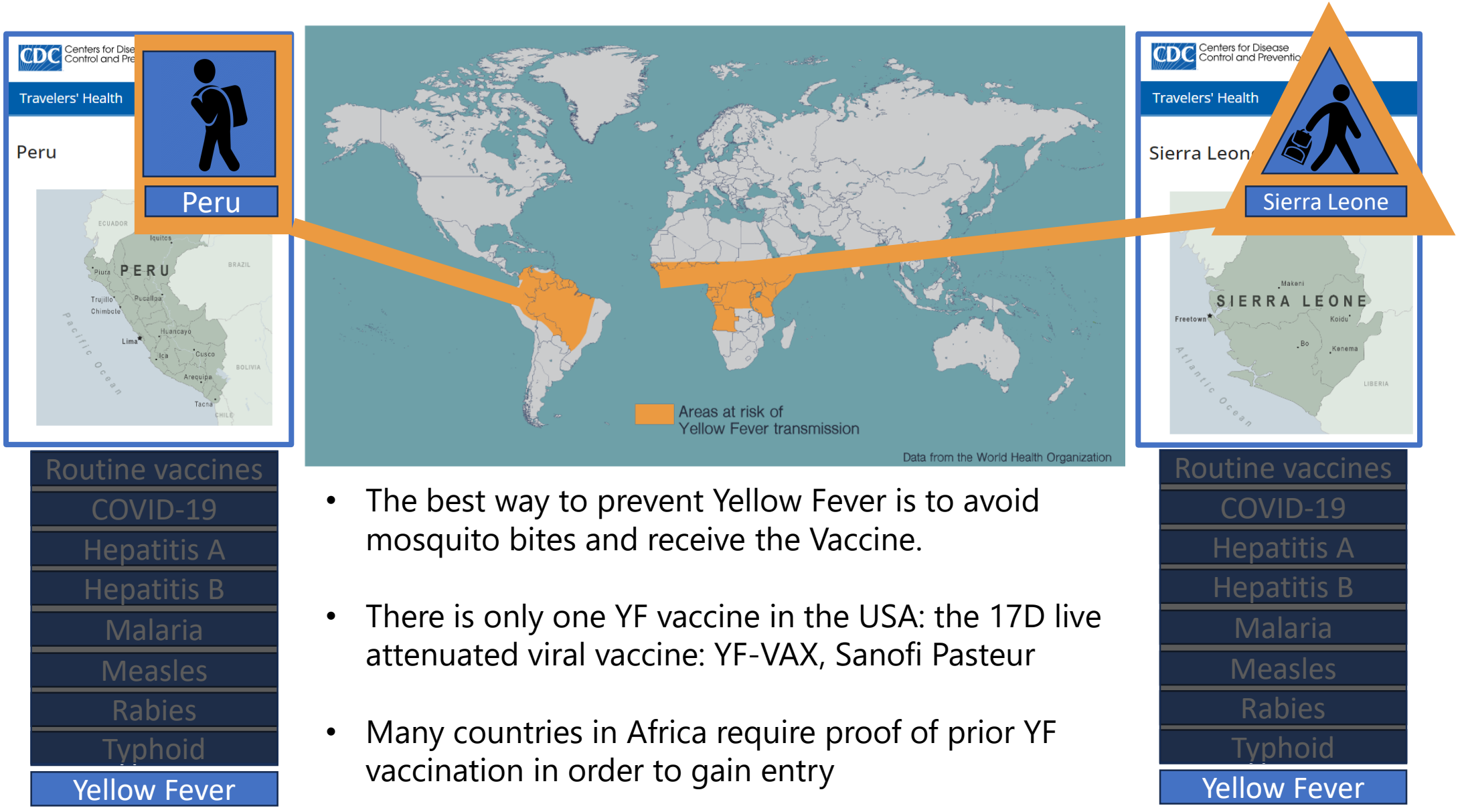
- Routine vaccines
- COVID-19
- Hepatitis A
- Hepatitis B
- Malaria
- Measles
- Rabies
- **Typhoid**
- Japanese Ence



- Routine vaccines
- COVID-19
- Hepatitis A
- Hepatitis B
- Malaria
- Measles
- Rabies
- **Typhoid**
- Yellow Fever



❑Review specific vaccine and prophylaxis for the destination



Routine vaccines
COVID-19
Hepatitis A
Hepatitis B
Malaria
Measles
Rabies
Typhoid
Yellow Fever

- The best way to prevent Yellow Fever is to avoid mosquito bites and receive the Vaccine.
- There is only one YF vaccine in the USA: the 17D live attenuated viral vaccine: YF-VAX, Sanofi Pasteur
- Many countries in Africa require proof of prior YF vaccination in order to gain entry

Routine vaccines
COVID-19
Hepatitis A
Hepatitis B
Malaria
Measles
Rabies
Typhoid
Yellow Fever

❑ Review specific vaccine and prophylaxis for the destination

- Routine vaccines
- COVID-19
- Hepatitis A
- Hepatitis B
- Malaria
- Measles
- Rabies
- Typhoid
- **Yellow Fever**

Yellow Fever Vaccine

Entry requirements: None

CDC recommendations:
Recommended for travelers ≥9 months old going to **areas <2,300 m (≈7,550 ft) elevation** in the regions of Amazonas, Cusco, Huánuco, Junín, Loreto, Madre de Dios, Pasco, Puno, San Martín, and Ucayali, and designated areas of Ancash (far northeast), Apurímac (far north), Ayacucho (north and northeast), Cajamarca (north and east), Huancavelica (far north), La Libertad (east), and Piura (east).

Generally not recommended for travel limited to the specified * areas west of the Andes

Not recommended for travel limited to areas >2,300 m (≈7,550 ft) elevation including the highland tourist areas of Machu Picchu).

❑Review specific vaccine and prophylaxis for the destination

CDC Centers for Disease Control and Prevention

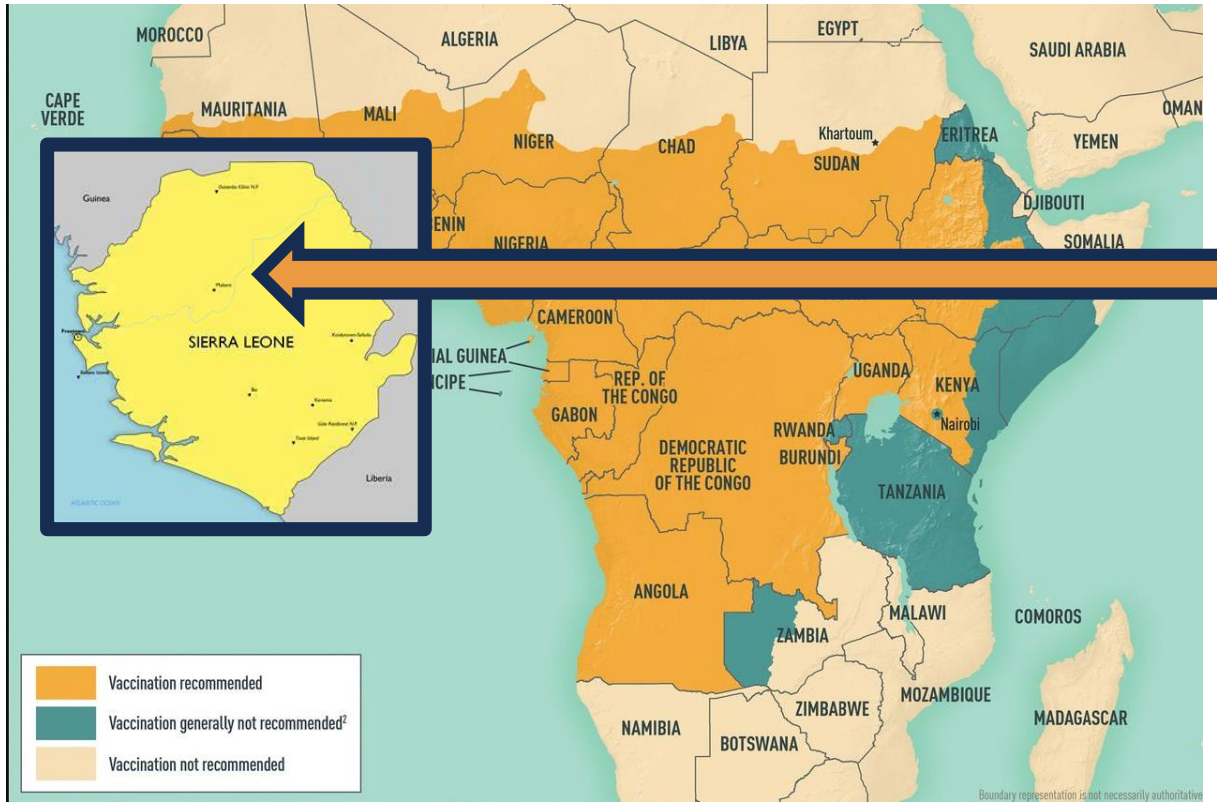
Travelers' Health

Peru

Peru

- Routine vaccines
- COVID-19
- Hepatitis A
- Hepatitis B
- Malaria
- Measles
- Rabies
- Typhoid

Yellow Fever



CDC Centers for Disease Control and Prevention

Travelers' Health

Sierra Leone

Sierra Leone

- Routine vaccines
- COVID-19
- Hepatitis A
- Hepatitis B
- Malaria
- Measles
- Rabies
- Typhoid

Yellow Fever

Receiving the Yellow Fever Vaccine

- ❑ Confirmation of risk of YF at destination
- ❑ Locate a clinic certified to administer YFV
- ❑ Determine if documentation of YFV is required for entry into the country
- ❑ Review the contraindications and precautions with YFV
- ❑ Complete documentation of YFV or documentation of a certified waiver of YF due to medical contraindication.

Receiving the Yellow Fever Vaccine

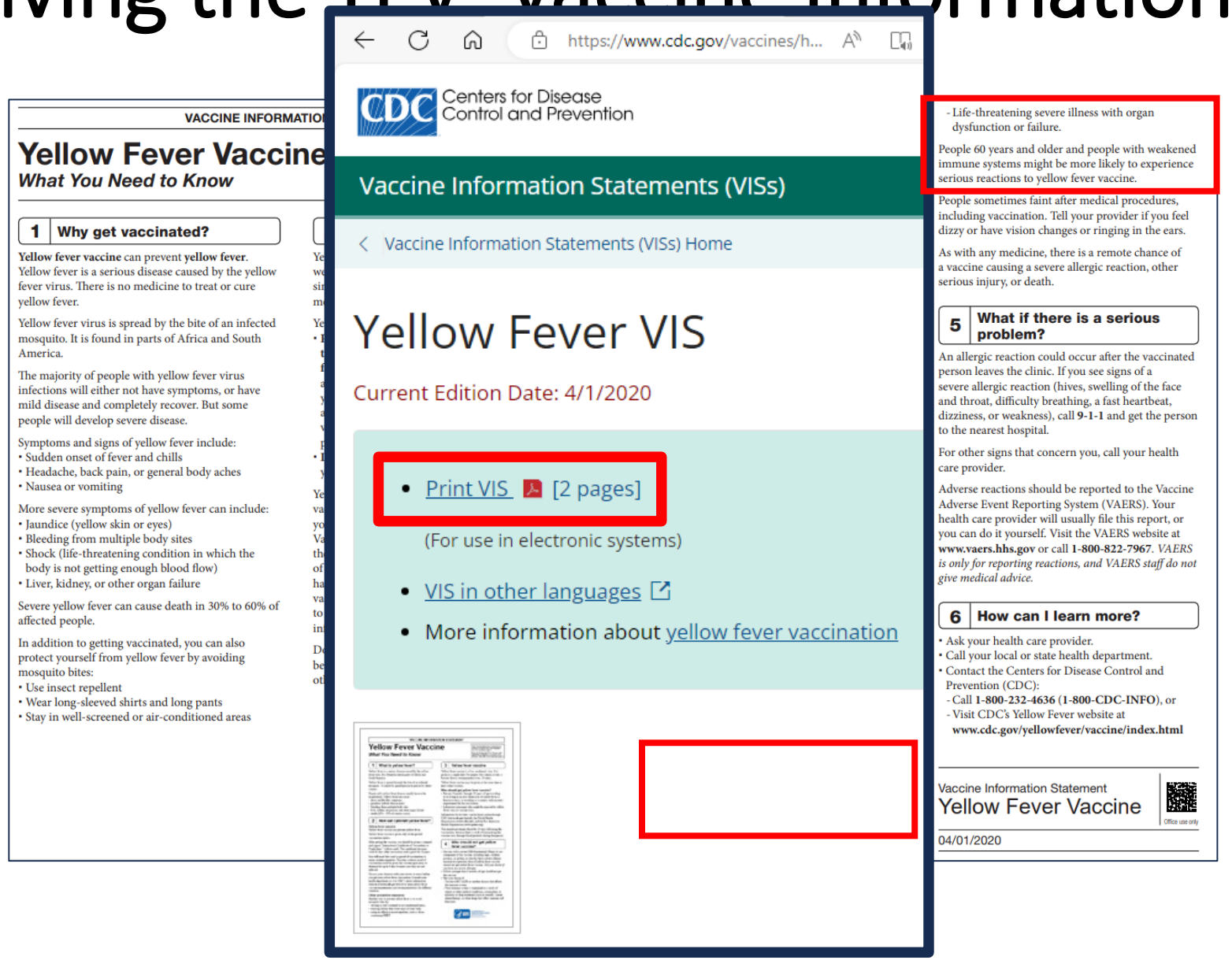
CONTRAINDICATIONS

- Age <6 months
- Allergy to vaccine component
- HIV infection (symptomatic) or CD4 T lymphocyte counts <200/mL (or <15% of total lymphocytes in children aged <6 years)
- Primary immunodeficiencies
- Immunosuppressive and immunomodulatory therapies
- Malignant neoplasms
- Thymus disorder associated with abnormal immune cell function
- Transplantation

PRECAUTIONS

- Age 6–8 months
- Age ≥60 years
- Breastfeeding
- HIV infection (asymptomatic) and CD4 T lymphocyte counts 200–499/mL (or 15%–24% of total lymphocytes in children aged <6 years)
- Pregnancy

Receiving the YFV: Vaccine Information Sheet



VACCINE INFORMATIO

Yellow Fever Vaccine

What You Need to Know

1 Why get vaccinated?

Yellow fever vaccine can prevent **yellow fever**. Yellow fever is a serious disease caused by the yellow fever virus. There is no medicine to treat or cure yellow fever.

Yellow fever virus is spread by the bite of an infected mosquito. It is found in parts of Africa and South America.

The majority of people with yellow fever virus infections will either not have symptoms, or have mild disease and completely recover. But some people will develop severe disease.

Symptoms and signs of yellow fever include:
- Sudden onset of fever and chills
- Headache, back pain, or general body aches
- Nausea or vomiting

More severe symptoms of yellow fever can include:
- Jaundice (yellow skin or eyes)
- Bleeding from multiple body sites
- Shock (life-threatening condition in which the body is not getting enough blood flow)
- Liver, kidney, or other organ failure

Severe yellow fever can cause death in 30% to 60% of affected people.

In addition to getting vaccinated, you can also protect yourself from yellow fever by avoiding mosquito bites:
- Use insect repellent
- Wear long-sleeved shirts and long pants
- Stay in well-screened or air-conditioned areas

https://www.cdc.gov/vaccines/h...

Centers for Disease Control and Prevention

Vaccine Information Statements (VISs)

Vaccine Information Statements (VISs) Home

Yellow Fever VIS

Current Edition Date: 4/1/2020

- Print VIS [2 pages]

(For use in electronic systems)

- VIS in other languages
- More information about yellow fever vaccination

- Life-threatening severe illness with organ dysfunction or failure.

People 60 years and older and people with weakened immune systems might be more likely to experience serious reactions to yellow fever vaccine.

People sometimes faint after medical procedures, including vaccination. Tell your provider if you feel dizzy or have vision changes or ringing in the ears.

As with any medicine, there is a remote chance of a vaccine causing a severe allergic reaction, other serious injury, or death.

5 What if there is a serious problem?

An allergic reaction could occur after the vaccinated person leaves the clinic. If you see signs of a severe allergic reaction (hives, swelling of the face and throat, difficulty breathing, a fast heartbeat, dizziness, or weakness), call **9-1-1** and get the person to the nearest hospital.

For other signs that concern you, call your health care provider.

Adverse reactions should be reported to the Vaccine Adverse Event Reporting System (VAERS). Your health care provider will usually file this report, or you can do it yourself. Visit the VAERS website at **www.vaers.hhs.gov** or call **1-800-822-7967**. *VAERS is only for reporting reactions, and VAERS staff do not give medical advice.*

6 How can I learn more?

- Ask your health care provider.
- Call your local or state health department.
- Contact the Centers for Disease Control and Prevention (CDC):
  - Call **1-800-232-4636** (**1-800-CDC-INFO**), or
  - Visit CDC's Yellow Fever website at **www.cdc.gov/yellowfever/vaccine/index.html**

Vaccine Information Statement
Yellow Fever Vaccine

Office use only

04/01/2020

Receiving the YFV: Adverse Events

Common Adverse Reactions
10%–30% : mild systemic symptoms, including headache, low-grade fever, and myalgia, that begin within days after vaccination and last 5–10 days.

Serious Adverse Reactions

1) HYPERSENSITIVITY REACTIONS

2) YELLOW FEVER VACCINE–ASSOCIATED NEUROLOGIC DISEASE [**YEL-AND**]:
- varies: acute disseminated encephalomyelitis, GBS, meningoencephalitis, and CN palsies.
- Incidence in U.S.: 0.8 per 100,000 **age <60**; 2.2 per 100,000 **≥60 years**.

3) YELLOW FEVER VACCINE–ASSOCIATED VISCEROTROPIC DISEASE [**YEL-AVD**]:
-severe illness similar to wild-type YF disease. Case fatality rate ~48%
-Incidence worldwide: since 2001, >100 confirmed and suspected cases
- [0.3 cases per 100,000] **age <60**
- [1.2 cases per 100,000] **age >60; higher >70**

Receiving the Yellow Fever Vaccine: Dose

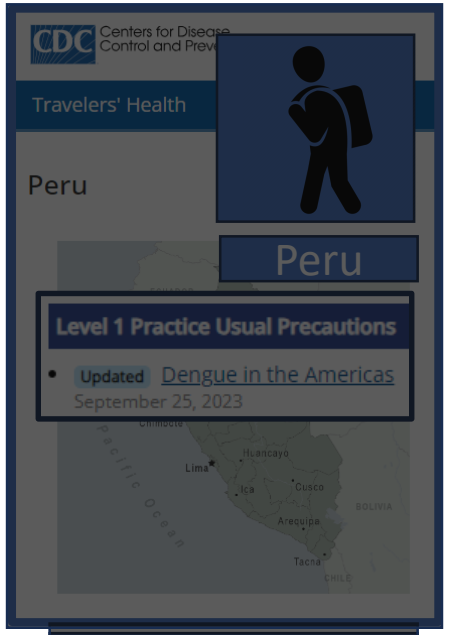
VACCII	TRADE NAME (MANU-FACTURER)	AGE	DOSE	ROUTE	SCHEDULE	BOOSTER
17D	YF-VAX (Sanofi Pasteur)	≥9 months[1]	0.5 mL[2]	Sub-cutaneous	1 dose	Not recommended for most people[3]

❑Review specific vaccine and prophylaxis for the destination

Routine vaccines
COVID-19
Hepatitis A
Hepatitis B
Malaria
Measles
Rabies
Typhoid
Yellow Fever

Routine vaccines
COVID-19
Hepatitis A
Hepatitis B
Malaria
Measles
Rabies
Typhoid
Yellow Fever

❑Review specific vaccine and prophylaxis for the destination

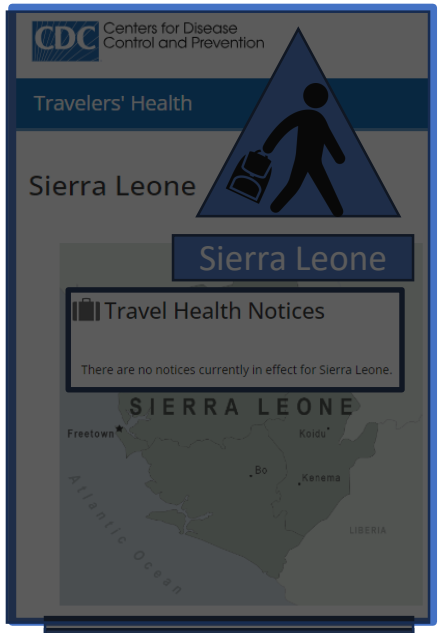


Peru

- Routine vaccines
- COVID-19
- Hepatitis A
- Hepatitis B
- Malaria
- Measles
- Rabies
- Typhoid
- Yellow Fever

Vietnam

- Routine vaccines
- COVID-19
- Hepatitis A
- Hepatitis B
- Malaria
- Measles
- Rabies
- Typhoid
- Japanese Encephalitis



Sierra Leone

- Routine vaccines
- COVID-19
- Hepatitis A
- Hepatitis B
- Malaria
- Measles
- Rabies
- Typhoid
- Yellow Fever

❑Review specific vaccine and prophylaxis for the destination

Routine vaccines

COVID-19

Hepatitis A

Hepatitis B

Malaria

Measles

Rabies

Typhoid

Japanese Encephalitis

Receiving the JE Vaccine: Recommendations

Routine vaccines
COVID-19
Hepatitis A
Hepatitis B
Malaria
Measles
Rabies
Typhoid

•Not recommended:
• <1 month in urban areas or in areas with no clear JE season

Recommended:
• Travelers moving to an area with JE to live
• > 1month or more, in areas with JE
• Frequently travel to areas with JE

Consider vaccination for travelers
• < 1month includes
•visiting rural areas, hiking or camping
•staying in places without air conditioning, screens, or bed nets
•uncertain of their activities or how long they will be there

.

Receiving the JE Vaccine: Adverse Events

Routine vaccines
COVID-19
Hepatitis A
Hepatitis B
Malaria
Measles
Rabies
Typhoid

•NO major safety concerns after >1 million doses of IXIARO given in the U.S.

~10% mild side effects:

- **Fatigue**
- **Headache**
- **myalgia**

Receiving the JE Vaccine: Dose

- Routine vaccines
- COVID-19
- Hepatitis A
- Hepatitis B
- Malaria
- Measles
- Rabies
- Typhoid

Inactivated Vero cell culture–derived vaccine: IXIARO

AGE	DOSE	ROUTE	SCHEDULE	BOOSTER1
2 months–2 years	0.25 mL	IM		
3–17 years	0.5 mL	IM		
18–65 years	0.5 mL	IM		
>65 years	0.5 mL	IM		

Provider Pre-visit Checklist: **C.O.R.E.**

- ☑ **C**onfirm the traveler has adequate time prior to departure
- ☑ **O**utbreak News: investigate active disease outbreaks at destination
- ☑ **R**eview specific vaccine and prophylaxis for the destination
- ☑ **E**arly referral to TM specialist for high risk patients


Sierra Leone
Vietnam
Peru
Australia

Notes from the Field

Fever in a Traveler Returning From Peru — New York, 2016

Alexandra P. Newman, DVM[1]; Rebecca Becraft[2]; Amy B. Dean PhD[3]; Rene Hull[3]; Bryon Backenson, MS[1]; Gillian Hale, MD[4]; Janeen Laven[5]; Julu Bhatnagar, PhD[4]; J. Erin Staples, MD, PhD[5]

In October 2016, a male New York resident aged 74 years developed fever, myalgia, nausea, and vomiting while traveling in Peru, 3 days after visiting the northern Amazon area. During the next 2 days, he experienced fever, abdominal pain, and watery diarrhea and was admitted to a hospital in Peru, where *Entamoeba histolytica* was detected in his stool. He was treated with intravenous fluids and antibiotics and released 1 day after admission. His condition worsened, however, and he returned to New York and immediately sought care at a hospital emergency department, where he was found to be afebrile, slightly confused, and jaundiced. Laboratory tests revealed leukopenia, thrombocytopenia, acute renal failure, liver dysfunction, and a metabolic acidosis (Table). He was transferred from the emergency department to a tertiary care center, where he was admitted and received intravenous flu-

Notes from the Field

Morbidity and Mortality Weekly Report

Fatal Yellow Fever in a Traveler Returning From Peru — New York, 2016

Alexandra P. Newman, DVM[1]; Rebecca Becraft[2]; Amy B. Dean PhD[3]; Rene Hull[3]; Bryon Backenson, MS[1]; Gillian Hale, MD[4]; Janeen Laven[5];

MMWR / September 1, 2017 / Vol. 66 / No. 34

- **Leukopenia**
- **Thrombocytopenia**
- **acute renal failure**
- **liver dysfunction**
- **IVF, antibiotics, and HD**
- **Melena and DIC→ Vfib → death 3 days after admission**

Laboratory test	Result
Leptospiral DNA (urine)	Not detected
Dengue viral RNA (serum)	Not detected
Salmonella H type A/B antibodies (serum)	Positive†
Q fever antibodies (serum)	Negative
Hepatitis A virus antibodies (serum)	Nonreactive
Hepatitis B virus antibodies (serum)	Nonreactive
Hepatitis C virus antibodies (serum)	Nonreactive
Yellow fever virus immunoglobulin M antibodies	Positive†
Yellow fever virus neutralizing antibodies	640†

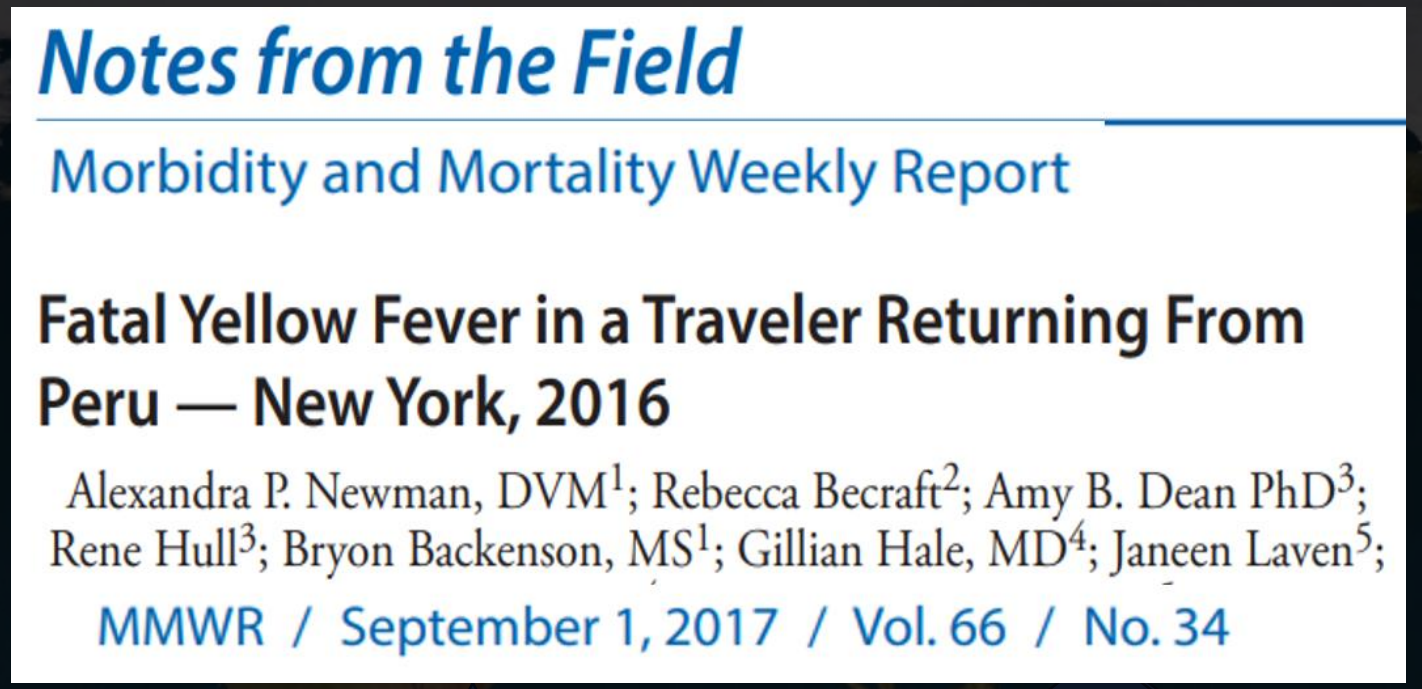
Peru Vietnam Sierra Leone Australia

- # cases: 11
- Outbreak years: 2016-2018
- Travelers infected: 11
- Traveler origins: 1 USA;
  5: Europe; 5: South America
- Ages known: 6 travelers
- Ages: 33, 34, 42, 44, 46, 74
- Condition:
  - 5 death
  - 6 recovered
- Pre-travel Vaccination:

  NO vaccinations received

center, where he was admitted and received intravenous flu-

Peru



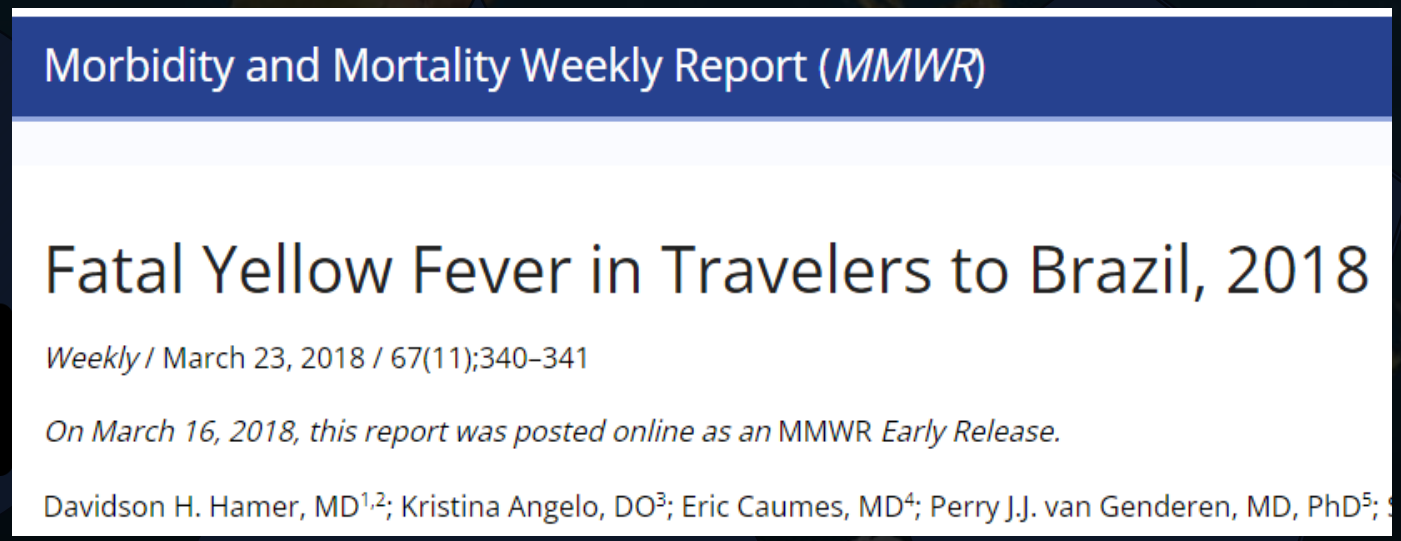
Notes from the Field

Morbidity and Mortality Weekly Report

Fatal Yellow Fever in a Traveler Returning From Peru — New York, 2016

Alexandra P. Newman, DVM[1]; Rebecca Becraft[2]; Amy B. Dean PhD[3]; Rene Hull[3]; Bryon Backenson, MS[1]; Gillian Hale, MD[4]; Janeen Laven[5];

MMWR / September 1, 2017 / Vol. 66 / No. 34



Morbidity and Mortality Weekly Report (*MMWR*)

Fatal Yellow Fever in Travelers to Brazil, 2018

Weekly / March 23, 2018 / 67(11);340–341

On March 16, 2018, this report was posted online as an MMWR *Early Release.*

Davidson H. Hamer, MD[1,2]; Kristina Angelo, DO[3]; Eric Caumes, MD[4]; Perry J.J. van Genderen, MD, PhD[5];

Newman AP, Becraft R, Dean AB, Hull R, Backenson B, Hale G, Laven J, Bhatnagar J, Staples JE. Notes from the Field: Fatal Yellow Fever in a Traveler Returning From Peru - New York, 2016. MMWR Morb Mortal Wkly Rep. 2017 Sep 1;66(34):914-915. doi: 10.15585/mmwr.mm6634a5. PMID: 28859053; PMCID: PMC5657792.

Peru

Notes from the Field

Morbidity and Mortality Weekly Report

Fatal Yellow Fever in a Traveler Returning From Peru — New York, 2016

Alexandra P. Newman, DVM[1]; Rebecca Becraft[2]; Amy B. Dean PhD[3]; Rene Hull[3]; Bryon Backenson, MS[1]; Gillian Hale, MD[4]; Janeen Laven[5];

MMWR / September 1, 2017 / Vol. 66 / No. 34

Morbidity and Mortality Weekly Report (*MMWR*)

Fatal Yellow Fever in Travelers to Brazil, 2018

Weekly / March 23, 2018 / 67(11);340–341

On March 16, 2018, this report was posted online as an MMWR *Early Release.*

Davidson H. Hamer, MD[1,2]; Kristina Angelo, DO[3]; Eric Caumes, MD[4]; Perry J.J. van Genderen, MD, PhD[5];

Newman AP, Becraft R, Dean AB, Hull R, Backenson B, Hale G, Laven J, Bhatnagar J, Staples JE. Notes from the Field: Fatal Yellow Fever in a Traveler Returning From Peru - New York, 2016. MMWR Morb Mortal Wkly Rep. 2017 Sep 1;66(34):914-915. doi: 10.15585/mmwr.mm6634a5. PMID: 28859053; PMCID: PMC5657792.

Notes from the Field

Morbidity and Mortality Weekly Report

Fatal Yellow Fever in a Traveler Returning From Peru — New York, 2016

Alexandra P. Newman, DVM[1]; Rebecca Becraft[2]; Amy B. Dean PhD[3]; Rene Hull[3]; Bryon Backenson, MS[1]; Gillian Hale, MD[4]; Janeen Laven[5];

MMWR / September 1, 2017 / Vol. 66 / No. 34

Peru

Journal of Travel Medicine

International Society of Travel Medicine
Promoting healthy travel worldwide

Journal of Travel Medicine, 2018, 1–4
doi: 10.1093/jtm/tay029
Brief communication

Brief communication

A case of multi-drug resistant ESBL-producing *Shigella sonnei* acute acalculous cholecystitis and gastroenteritis in a returned traveller

Eloise Williams[1,2*], Thomas E. Lew[1], Andrew Fuller[1,2], Denis W. Spelman[1,2],

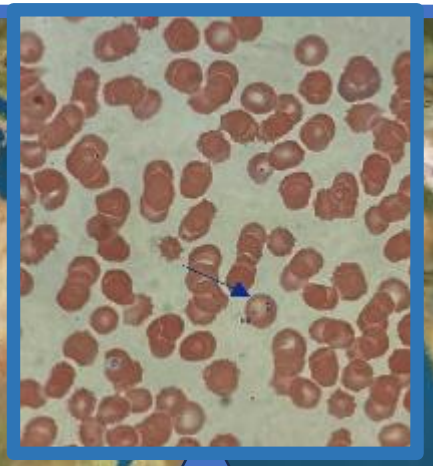
- Rx: azithromycin
- Azithromycin MIC was >256
- Eventually recovered after cipro susceptibility was confirmed

Vietnam

Case Rep Infect Dis. 2023; 2023: 5796881. PMCID: PMC10169240
Published online 2023 May 2. doi: 10.1155/2023/5796881 PMID: 37179741

Severe Malaria with a Rare Tetrad of Blackwater Fever, Acute Renal Failure, Disseminated Intravascular Coagulopathy, and Acute Acalculous Cholecystitis

Hira Hanif,[1] Biraj Shrestha,[1] Salina Munankami,[2] Manish Shrestha,[1] Bidhya Poudel,



Sierra Leone

The NEW ENGLAND JOURNAL of MEDICINE

CORRESPONDENCE

Japanese Encephalitis in Australia — A Sentinel Case

August 18, 2022
N Engl J Med 2022; 387:661-662
DOI: 10.1056/NEJMc2207004
Metrics

Australia

Preparing the Safe Traveler

- ☑ Outbreak awareness is of critical importance for travel safety
- ☑ Motivating patients to seek travel recommendations for all international departures is a high value endeavor
- ☑ Incorporation of routine pre-travel care into primary care fills a practice gap
- ☑ Respecting the changing distributing of global infection and novel pathogens requires life-long learning

References:

- Centers for Disease Control and Prevention (CDC), and Jeffrey B. Nemhauser, *CDC Yellow Book 2024: Health Information for International Travel* (New York, 2023; online edn, Oxford Academic, 23 Mar. 2023), https://doi.org/10.1093/oso/9780197570944.001.0001, accessed 26 Sept. 2023.
- Brown AB, Miller C, Hamer DH, et al. Travel-Related Diagnoses Among U.S. Nonmigrant Travelers or Migrants Presenting to U.S. GeoSentinel Sites — GeoSentinel Network, 2012–2021. MMWR Surveill Summ 2023;72(No. SS-7):1–22. DOI: http://dx.doi.org/10.15585/mmwr.ss7207a1.
- Angelo KM, Kozarsky PE, Ryan ET, Chen LH, Sotir MJ. What proportion of international travellers acquire a travel-related illness? A review of the literature. J Travel Med. 2017 Sep 1;24(5):10.1093/jtm/tax046. doi: 10.1093/jtm/tax046. PMID: 28931136; PMCID: PMC5825178.
- Newman AP, Becraft R, Dean AB, Hull R, Backenson B, Hale G, Laven J, Bhatnagar J, Staples JE. Notes from the Field: Fatal Yellow Fever in a Traveler Returning From Peru - New York, 2016. MMWR Morb Mortal Wkly Rep. 2017 Sep 1;66(34):914-915. doi: 10.15585/mmwr.mm6634a5. PMID: 28859053; PMCID: PMC5657792.
- Hamer DH, Angelo K, Caumes E, van Genderen PJJ, Florescu SA, Popescu CP, Perret C, McBride A, Checkley A, Ryan J, Cetron M, Schlagenhauf P. Fatal Yellow Fever in Travelers to Brazil, 2018. MMWR Morb Mortal Wkly Rep. 2018 Mar 23;67(11):340-341. doi: 10.15585/mmwr.mm6711e1. PMID: 29565840; PMCID: PMC5868208.
- Gershman MD, Staples JE, Bentsi-Enchill AD, Breugelmans JG, Brito GS, Camacho LA, et al. Viscerotropic disease: case definition and guidelines for collection, analysis, and presentation of immunization safety data. Vaccine. 2012;30(33):5038–58.
- World Health Organization. Vaccines and vaccination against yellow fever. WHO position paper—June 2013. Wkly Epidemiol Rec. 2013;88(27):269–83.
- Mullen MG, Michaels AD, Mehaffey JH, et al. Risk Associated With Complications and Mortality After Urgent Surgery vs Elective and Emergency Surgery: Implications for Defining "Quality" and Reporting Outcomes for Urgent Surgery. *JAMA Surg.* 2017;152(8):768–774. doi:10.1001/jamasurg.2017.0918
- Staples JE, Monath TP, Gershman MD, Barrett ADT. Yellow fever vaccine. In: Plotkin SA, Orenstein WA, Offit PA, editors. Vaccines, 7th edition. Philadelphia: Elsevier; 2018. pp. 1181–265.
- Lindsey NP, Rabe IB, Miller ER, Fischer M, Staples JE. Adverse event reports following yellow fever vaccination, 2007–13. J Travel Med. 2016;23(5):taw045.

References:

- Kraemer, M.U.G., Reiner, R.C., Brady, O.J. *et al.* Past and future spread of the arbovirus vectors *Aedes aegypti* and *Aedes albopictus*. *Nat Microbiol* **4**, 854–863 (2019). https://doi.org/10.1038/s41564-019-0376-y

- Ryan SJ, Carlson CJ, Mordecai EA, Johnson LR. Global expansion and redistribution of Aedes-borne virus transmission risk with climate change. PLoS Negl Trop Dis. 2019 Mar 28;13(3):e0007213. doi: 10.1371/journal.pntd.0007213. PMID: 30921321; PMCID: PMC6438455.

- Carlson, C.J., Albery, G.F., Merow, C. *et al.* Climate change increases cross-species viral transmission risk. *Nature* **607**, 555–562 (2022). https://doi.org/10.1038/s41586-022-04788-w

- Ropers G, Krause G, Tiemann F, Du Ry van Beest Holle M, Stark K. Nationwide survey of the role of travel medicine in primary care in Germany. J Travel Med. 2004 Sep-Oct;11(5):287-94. doi: 10.2310/7060.2004.19104. PMID: 15544712.

- Hurley-Kim K, Goad J, Seed S, Hess KM. Pharmacy-Based Travel Health Services in the United States. Pharmacy (Basel). 2018 Dec 27;7(1):5. doi: 10.3390/pharmacy7010005. PMID: 30591674; PMCID: PMC6473888.

- Morgan S, Henderson KM, Tapley A, Scott J, van Driel ML, Spike NA, McArthur LA, Davey AR, Catzikiris NF, Magin PJ. Travel Medicine Encounters of Australian General Practice Trainees-A Cross-Sectional Study. J Travel Med. 2015 Nov-Dec;22(6):375-82. doi: 10.1111/jtm.12216. Epub 2015 Jun 2. PMID: 26031394.

- The Lancet Infectious Diseases. Climate change: the role of the infectious disease community. Lancet Infect Dis. 2017 Dec;17(12):1219. doi: 10.1016/S1473-3099(17)30645-X. PMID: 29173874.

- Williams E, Lew TE, Fuller A, Spelman DW, Jenney AW. A case of multi-drug resistant ESBL-producing Shigella sonnei acute acalculous cholecystitis and gastroenteritis in a returned traveller. J Travel Med. 2018 Aug 1;25(1). doi: 10.1093/jtm/tay029. PMID: 30169854.

- Hanif H, Shrestha B, Munankami S, Shrestha M, Poudel B, Reddy R, Jaleel S, Powell D. Severe Malaria with a Rare Tetrad of Blackwater Fever, Acute Renal Failure, Disseminated Intravascular Coagulopathy, and Acute Acalculous Cholecystitis. Case Rep Infect Dis. 2023 May 2;2023:5796881. doi: 10.1155/2023/5796881. PMID: 37179741; PMCID: PMC10169240.

- Waller C, Tiemensma M, Currie BJ, Williams DT, Baird RW, Krause VL. Japanese Encephalitis in Australia - A Sentinel Case. N Engl J Med. 2022 Aug 18;387(7):661-662. doi: 10.1056/NEJMc2207004. PMID: 36070717.