In 2005, I traveled to Angola to report on the largest outbreak of Marburg fever ever recorded. It was my job to find out what was happening in a little-known region of Africa and to report on the international effort to fight a dreadful disease. There I saw firsthand the challenges that face doctors and aid workers dealing with epidemics in the Third World, and the suffering inflicted on the victims and their communities by one of the fiercest emerging viruses.

About the Book

Welcome to "the hot zone," where one false step could expose you instantly to one of the world's most lethal viruses. All around you, an illness sweeps over the community. The doctors are overworked, the hospitals are overcrowded, the people are suffering, and relief of any kind is in short supply. Could this happen in America?

Denise Grady asks that very question in her chilling and fascinating new book, Deadly Invaders: Virus Outbreaks Around the World, from Marburg Fever to Avian Flu. Published through a unique partnership between The New York Times and Kingfisher Publications, an imprint of Houghton Mifflin for young readers, Deadly Invaders tracks Grady's perilous journey as she leaves the safety of her life in New York as a science news reporter for The New York Times to enter a country being ravaged by a disease that no one saw coming.

In 2005 an epidemic of Marburg fever struck the already war-torn nation of Angola, killing a frightening number of those infected within a matter of days. Grady courageously travels through villages stricken with victims, observing the relief efforts of tireless doctors and the realities of health care in a developing country.

Deadly Invaders not only explores the Marburg epidemic but features in-depth chapters on the origins of other deadly viruses that threaten our global community, such as avian flu, HIV, SARS, West Nile virus, hantavirus, and monkeypox. Filled with interesting scientific facts that kids will remember and written in an accessible journalistic style for young readers, these chapters bring to life mysterious diseases the very names of which
Children are every day exposed to the realities of diseases in their own country and throughout the world via the media. *Deadly Invaders* helps kids make sense of this information, giving them tools to understand these modern-day diseases, and is perfect for young readers who dream of one day becoming the doctors that cure these epidemics, or the journalists who cover them.

Some facts about deadly viruses found in *Deadly Invaders*:

- Many emerging diseases start out in animals like monkeys, rodents, and birds, and then "jump species" to humans.
- According to the Centers for Disease Control and Prevention, every year 36,000 people die from complications of the flu.
- Of the 6.5 million people in developing countries who need life-saving AIDS drugs, fewer than 1 million are receiving them.
- One of the first occurrences of the West Nile virus was at the Bronx Zoo in 1999, when captive birds began dying by the dozens.

*Deadly Invaders: Virus Outbreaks Around the World, from Marburg Fever to Avian Flu* is an important and timely book that exposes both the diseases themselves and the pressing need for research and relief. Denise Grady touches on the political, social, and economic aspects of global diseases, educating and informing young readers.

**About the Author**

Denise Grady has been a science news reporter for *The New York Times* since 1998. She has written more than five hundred stories about medicine and biology for the *Times*, and has also edited two *New York Times* books for adults. She lives in New York's Hudson River valley.

**A Conversation with Denise Grady**

**Why did you write this book?**

*The New York Times* sent me to Angola in April 2005 to report on an outbreak of a deadly viral disease, Marburg fever, and I came back with more stories than could possibly fit in the newspaper. I couldn't stop thinking about the things I had seen. Alex Ward, an editor who works on books for the *Times*, was especially interested in viruses, and he encouraged me to write a book not just about Marburg, but about other outbreaks of relatively new viral diseases.
How did you become a journalist, and what interested you in the profession?

I have always liked writing, though when I was a college student it never occurred to me that I could make a living at it. I majored in biology, but found I was drawn to writing, literature, and the publishing world. After college I took an entry-level copyediting job at a science magazine, and then went back to graduate school and got a master's degree in English from a nonfiction writing program at the University of New Hampshire. I began writing magazine articles as a freelancer while I was still in graduate school, and later worked as a staff writer or editor for a series of magazines. Not until 1996, when I began writing as a freelancer for The New York Times, did I realize that I loved the quick pace of writing for a daily newspaper. I was hired as a staff reporter by the Times in 1998. What I like best about journalism is the chance to learn about new things, meet fascinating people, ask lots of questions, and tell readers about it — and then move on to something new and do it again. I also believe journalism is important, and it is a wonderful privilege to be able to do work that you believe in. A free press is an essential part of a democratic society, and I want to be part of the process that helps keep people informed about what is happening at home and in the rest of the world.

Why is it important to educate young readers about issues like pandemics and diseases?

This may sound idealistic . . . We are all citizens of the world, and we ought to know and care about what's happening in other countries, especially in developing nations where people lead lives that are so very different from our own. Another reason it's important to know about the emergence of new diseases is that travel and world trade mean that very few places are truly isolated anymore, and an outbreak that starts in a seemingly remote area can reach other parts of the world, and do it faster than we might think. So we ought to know what might be coming our way. In recent years, for example, West Nile virus landed in New York and rapidly spread all over the country. Now we are bracing ourselves, trying to develop vaccines and take other precautions, in case bird flu or another type of flu gains the potential to become a worldwide epidemic. It's also important to understand how people play a role in helping new diseases emerge and spread — for example, by traveling and spreading infections, by using unsterilized needles or other equipment in hospitals or on their own, or by doing things like moving into previously uninhabited forests and jungles that bring them closer to animals — and animal diseases — they had not been in contact with before.

How did you overcome your own understandable fears about entering a hot zone?

I knew Marburg does not generally spread through the air, but is spread by contact with bodily fluids from a sick person. So it seemed to me that if I was careful about where I went, what I touched, and whom I got close to, I could do my job safely. I thought I was taking a chance, but not a very big one. At the same time, I felt free to go because my sons are mostly grown up; if they were younger, I might not have made the trip.
What do you want young readers to learn from this book?

First of all, I hope they just find it interesting and get caught up in the story of what happened in Angola, because it was a fascinating place and also a gripping, frightening, and tragic course of events. And I hope they develop an interest in other cultures and a concern for other people whose lives are much harder than ours. And then I hope they come away with a sense of how new infectious diseases emerge, and an with awareness that new diseases can and probably will erupt again. I gave a talk to some high school students recently, and they were surprised to learn that diseases they have always known about, like AIDS and Lyme disease, are actually relatively new.

Why should young people care about health-care issues here and around the world?

We ought to know what might be on the horizon for the selfish reason that it might help us to avoid outbreaks or at least prepare for them. On a more idealistic or altruistic note, human beings ought to care about each other. Knowing what's happening on the other side of the world may also motivate us to help people who are less fortunate than we are. The Gates Foundation, for example, is doing a tremendous amount of work to provide vaccines and find cures for diseases that are major killers in developing countries.

What can we do to educate and protect ourselves?

Governments can try to make vaccines, as our government is trying to do now in case bird flu becomes more contagious. For diseases such as West Nile virus that are spread by mosquitoes, governments can spray to get rid of the insects. Rich countries can pitch in to help poor ones, as they did during the Marburg outbreak. People in areas with diseases caused by mosquitoes or other biting insects can wear repellent and be aware that bird feeders and planters can turn into breeding grounds for mosquitoes. People who travel overseas can find out what medicines they might need to take. And animal lovers should think twice about buying wild animals or creatures from exotic places as pets, because they can carry exotic germs.

What was the most surprising thing you learned while writing this book?

Disease experts think that hospitals and clinics in Angola using unsterilized needles and other equipment played a huge role in spreading the Marburg virus. I knew that health care had some role in the outbreak, but I didn't realize how big that role was. People in Angola had the best of intentions, but they didn't have enough equipment and so they couldn't afford to throw away items that were supposed to be disposable. And they probably didn't realize the risk. It was also a big surprise to me that the source of the outbreak was never found.

Do you think the media has done a fair job of reporting on epidemics?

I think we should pay more attention to diseases in other countries even if they don't threaten us. Shining a light on outbreaks may help bring in the assistance countries need to stop epidemics, or maybe in some cases even shame governments into getting their act together to help their own people. This year Angola has had a devastating cholera outbreak that so far has infected 47,000 people and killed nearly 2,000. This is way worse than Marburg. Cholera takes off when people don't have clean water. The Times has given the outbreak front-page coverage, but few other news organizations have spent much
time or space on it. Doctors Without Borders has been struggling to care for tens of thousands of sick people and imploring Angola's government to help. Angola has tremendous wealth from its huge petroleum reserves, but the government does very little to take care of its people.

About the Series

Kingfisher Publications' New York Times Books

Through a special partnership with The New York Times, Kingfisher is pleased to present a line of books that puts a whole new spin on nonfiction. These full-color, graphically appealing books combine current affairs with gripping first-person accounts told by the journalists who brought those stories to light. This is science and technology, history, current events, and popular culture reported from the front lines, bringing a unique and informed perspective on the world to middle grade and teen readers.

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September 2006

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September 2006

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"This standout debut should captivate readers' interest." — Publishers Weekly, starred review
A New York times book." Includes bibliographical references (p. 118-122) and index. An emerging threat -- The Marburg story -- Seven deadly diseases -- Epilogue. New York Times science journalist Grady movingly recounts and contextualizes her 2005 visit to Angola to report on the Marburg virus epidemic. She explains and defines the virus and also briefly covers six other epidemics (avian flu, HIV/AIDS, hantavirus pulmonary syndrome, West Nile disease, SARS, and monkeypox). Invader: Ponto-Caspian species. With a name like a Bond villain, this group of invaders launch hostile takeovers of every fresh watercourse they reach. Itâ€™s not a single species but a collection of 24 different crustaceans, molluscs and fish that together introduce their own all-conquering eco-system. Originating in the Ponto-Caspian region of south-east Europe, between the Black, Azov and Caspian Seas, these species have swum and â€˜hitchhikedâ€™ westwards.