Authors of the 2000 CDC Report

Breeds of dogs involved in fatal human attacks in the United States between 1979 and 1998
Published September 15, 2000

Two human doctors and three animal doctors

<table>
<thead>
<tr>
<th>Name</th>
<th>Type of Doctor</th>
<th>Opposes BSL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jeffrey J. Sacks, MD, MPH</td>
<td>Human</td>
<td>Yes</td>
</tr>
<tr>
<td>Julie Gilchrist, MD</td>
<td>Human</td>
<td>Yes</td>
</tr>
<tr>
<td>Leslie Sinclair, DVM</td>
<td>Animal</td>
<td></td>
</tr>
<tr>
<td>Gail C. Golab, PhD, DVM</td>
<td>Animal</td>
<td>Yes</td>
</tr>
<tr>
<td>Randall Lockwood, PhD</td>
<td>Animal</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Why was the report more heavily weighted with veterinarian specialists instead of human medical specialists?
CDC Mission

Collaborating to create the expertise, information, and tools that people and communities need to protect their health—through health promotion, prevention of disease, injury and disability, and preparedness for new health threats.

**CDC pledges to the American people:**

| To be a diligent steward of the funds entrusted to it. |
| To provide an environment for intellectual and personal growth and integrity. |
| To base all public health decisions on the highest quality scientific data, openly and objectively derived. |
| To place the benefits to society above the benefits to the institution. |
| To treat all persons with dignity, honesty, and respect. |

Click here to read the CDC’s mission

The CDC's mission is to protect people (not dogs)
Four authors of the CDC report openly oppose breed-specific (pit bull) laws.

Jeffrey J. Sacks, MD, MPH

Julie Gilchrist, MD

Gail C. Golab, PhD, DVM

Randall Lockwood, PhD
Objectives. To update data on fatal dog bites and see if past trends have continued. Design. To merge data from vital records, the Humane Society of the United States, and searches of electronic news files. Setting: United States. Subjects. U.S. residents dying in the U.S. from 1989 through 1994 from dog bites. Results. We identified 109 dog bite-related fatalities, of which 57% were less than 10 years of age. The death rate for neonates was two orders of magnitude higher than for adults and the rate for children one order of magnitude higher. Of classifiable deaths, 22% involved an unrestrained dog off the owner's property, 18% involved a restrained dog on the owner's property, and 59% involved an unrestrained dog on the owner's property. Eleven attacks involved a sleeping infant; 19 dogs involved in fatal attacks had a prior history of aggression; and 19 of 20 classifiable deaths involved an unneutered dog. Pit bulls, the most commonly reported breed, were involved in 24 deaths; the next most commonly reported breeds were rottweilers (16) and German shepherds (10). Conclusions. The dog bite problem should be reconceptualized as a largely preventable epidemic. Breed-specific approaches to the control of dog bites do not address the issue that many breeds are involved in the problem and that most of the factors contributing to dog bites are related to the level of responsibility exercised by dog owners. To prevent dog bite-related deaths and injuries, we recommend public education about responsible dog ownership and dog bite prevention, stronger animal control laws, better resources for enforcement of these laws, and better reporting of bites. Anticipatory guidance by pediatric health care providers should address dog bite prevention.

PMID: 8657532 [PubMed - indexed for MEDLINE]

MeSH Terms

LinkOut - more resources
ASSOCIATED PRESS

WASHINGTON, Sept. 15 — It's not a record anyone would be proud of, but a study released by veterinarians Friday found that rottweilers have passed pit bulls as the deadliest dog breed in the United States. The authors didn't blame the animals, but people for not knowing how to train their dogs and others for not knowing when to stay away from unfamiliar dogs.

"People are more in fear of crime and violence, and this has led to a selection of bigger dogs. If you start selecting bigger dogs, you’ll get bigger bites."

CENTERS FOR DISEASE CONTROL EPIDEMIOLOGIST

ROTTWEILERS were involved in 33 fatal attacks on humans between 1991 and 1998, the American Veterinary Medical Association said.

Pit bulls, which had been responsible for more deaths than any other breed, were involved in 21 fatal attacks over the same period.

Rottweilers, first bred in Germany, surged in popularity during the 1990s as more people sought them for protection, said Jeffrey Sacks, an epidemiologist with the Centers for Disease Control and Prevention.

"People are more in fear of crime and violence, and this has led to a selection of bigger dogs," he said. "If you start selecting bigger dogs, you'll get bigger bites."

FOCUS ON HUMANS

The study’s authors, using data from the Humane Society of the United States and media accounts of dog maulings, reported 27 people — 19 of them children — died from dog attacks in 1997 and 1998.

The numbers highlight widespread mistreatment of dogs and a growing public ignorance of how to behave around them, researchers said. They blamed adults for not teaching children to stay away from unfamiliar dogs.

"It’s not a Rottweiler problem or a pit bull problem," said Randall Lockwood, the Humane Society’s vice president for research and educational outreach. "It’s a people problem."

NONFATAL ATTACKS RISE

The annual number of reported fatal attacks has not varied widely in the past 20 years, the study said. But overall attacks are on the rise — likely because families are busier, leaving them less time to train their dogs and watch their children.

"A dog has to have its behavior monitored and consequences put in place," Sacks said. "People don’t seem to have a lot of time in their lives for that."

Pit bulls led all breeds for fatal attacks between 1979 and 1998, with at least one pit bull involved in 66 mauling deaths, the study said. Rottweilers were blamed for 37 — most of those in the 1990s — followed by German shepherds with 17 and huskies with 15.

Researchers cautioned the breakdown does not necessarily indicate which dogs provide the highest risk of fatal attacks.
Responsible ownership the alternative to breed banning, other restrictions

DEAN J. MONTI

A man is out for a stroll in his community with his Bull Terrier. He is stopped by the local animal control officer and told that "pit bulls" are restricted from his community. The man cannot prove that his dog is not a pit bull-type dog and that it is a well-trained, household pet. The dog is confiscated and euthanized.

Think it could never happen in your community? Although only one state currently has a statewide breed restriction (Ohio), hundreds of communities within the United States are actively pursuing breed bans and breed-restrictive legislation.

When Robert Duffy, executive director of the American Dog Owners Association, learned that breed banning attempts in Germany during the past year included approximately 16 breeds, he worried that the spectrum of breed banning in the United States could increase as incidents characterize certain breeds as dangerous.

"We get involved in many of these issues," he said, "writing to legislators, asking how animal control officers can be charged with enforcing breed bans and restrictions when they have little or no training to identify specific breeds. Even if they could, there is really no way of defining what a 'pit bull' is and isn't."

In an ADOA letter he sends to legislators across the country, Duffy cites approximately 15 breeds that are similar in appearance to breeds that have been targeted as dangerous. "Owners of these dogs would not take kindly to their dogs being misidentified and something bad happening to them as a result," he said. "In a lot of cases the animal control officer is the final judge."

Duffy has identified cities all over the country that are attempting to ban or restrict pit bull-type dogs, and, increasingly, Rottweilers. In October, the village of Broadview, Ill., passed a breed-restrictive ordinance adding Doberman Pinschers to those two categories. According to Duffy, Broadview is not a home rule state, and is therefore bound by Illinois law that doesn't allow for breed-restrictive ordinances. He said that Broadview's passing the ordinance, therefore, may be in violation of Illinois law. Broadview is not unique, however. Duffy added that many communities disregard state laws when pursuing these ordinances, which could open the door for lawsuits if an owner's pet is treated unjustly. Duffy has been keeping a close watch on the kinds of breed that are being singled out.

"Pit bull-type dogs, Bull Terrier, American Staffordshire Terrier, and Staffordshire Terrier are among other breeds being targeted of late," he said. "Rare and mixed breeds are also victims."

According to Dr. Randall Lockwood, vice president of research and educational outreach for the Humane Society of the United States, "Constitutional and practical issues are raised in the enforcement of breed-specific ordinances because of difficulty inherent in determining breed with certainty."

Data in a report published in the Sept 15, 2000 issue of the JAVMA indicate that breed-specific legislation is not the solution to dog bite prevention. The report revealed that, during the past 20 years, at least 25 breeds of dog have been involved in 238 human fatalities. Pit bull-type dogs and Rottweilers were identified as being involved in 66 and 39 fatalities, respectively, over that 20-year period; however, other purebreds and crossbreds caused the remainder of fatalities.
Twenty-four percent of deaths involved dogs that were not restrained and were not on their owners' property, 58 percent of deaths involved dogs that were not restrained but were on their owners' property, 17 percent involved restrained dogs on their owners' property, and one percent involved a restrained dog off its owners' property.

Dr. Gail C. Golab, co-author of the study and assistant director of the AVMA Education and Research Division, confirmed, "Breeds responsible for human fatalities have varied over time. Since 1975, dogs belonging to more than 30 breeds—including Dachshunds, Golden Retrievers, Labrador Retrievers, and a Yorkshire Terrier—have been responsible for fatal attacks on people."

The authors of the study say that, although fatal human attacks may appear to be a breed-related problem, dogs of other breeds may bite and cause fatalities at higher rates.

"A dog of any breed can become dangerous when bred or trained to be aggressive," Dr. Jeffrey Sacks, epidemiologist for the CDC, said. "Fatal attacks represent only a very small proportion of dog bite injuries and shouldn't be the primary factor driving public policy regarding dangerous dogs."

Duffy said that when a breed is restricted in a community, or if certain breeds are put on the "bad dog" list, insurance rates for owners of those dogs become exorbitant.

"It's really a kind of banning," he said, "because the liability rates imposed are so great that most people can't afford the insurance. In some places, you can't even get liability insurance because you own a [dog of a] certain breed."

Inevitably, he says, owners who have trained, well-behaved dogs become affected by the small percentage of owners whose dogs have been involved in aggressive incidents.

"All the responsible owners of the breed are put to financial hardship," Duffy said. "Their insurance is likely to go right out the window."

Duffy would prefer to see communities adopt a law that takes all breeds of dog into consideration and is focused on penalizing the owner of the dog with the objectionable behavior.

Dr. Golab agrees. She favors consistent enforcement of generic, non-breed-specific, dangerous-dog laws with an emphasis on chronically irresponsible owners. She recommends increased enforcement of animal control ordinances such as leash laws and fencing requirements, prohibition of dog fighting, and neutering. Dr. Golab also emphasizes the value of educational programs for adults and children that teach pet selection strategies, pet care and responsibility, and bite prevention.

Pediatrician and medical epidemiologist Dr. Julie Gilchrist from the CDC also promotes the idea of responsible pet ownership. "Dog bite reduction strategies are more likely to be effective if they focus on reducing inappropriate dog and dog owner behaviors, regardless of the dog's breed, instead of on banning specific breeds."

The AVMA’s dog bite prevention campaign continues to inform the public about techniques for avoiding dog bites, and to promote responsible pet ownership. Breeds don't need to be banned, but dog owners' irresponsible behavior should be.

Sharon Granskog, AVMA public information assistant, contributed to this report.
Pit Bulls in the City
-- A Revealing Discussion on Breed Specific Legislation,
Surprising Comments from the Director for the Center for the Human Animal Bond--

BY STEVE DALE

Part 1
"Pit bulls are different; they're like wild animals," says Alan Beck, director for the Center for the Human Animal Bond at Purdue University School of Veterinary Medicine, West Lafayette, IN. "They're not suited for an urban environment. I believe we should open our eyes and take a realistic approach to pit bulls."

Those who condemn pit bulls and call for breed bans targeting these dogs tend to be members of the general population, or most often, it seems, politicians. Beck isn't calling for breed bans – he stops just short of that. Instead, he stops just short of that resulting from research yet to be published. Still, it's exceedingly rare for an animal expert to vilify a breed of dog, and few would doubt Beck's credentials. He's renowned for his decades of groundbreaking research on using animals in therapeutic settings, such as nursing homes. He's the co-author of "Between Pets and People: The Importance of Animal Companionship" (Purdue University Press, West Lafayette, IN, 1996; $29.95).

Controversy about dangerous dogs seems to be in the media daily, and mostly it's pit bull-type dogs who are guilty. Many communities around the world have responded with breed specific bans, but many experts contend that's not the right answer.

In 2000, the Humane Society of the United States (HSUS), American Veterinary Medical Association (AVMA) and the Centers for Disease Control and Prevention (CDC) teamed to investigate whether or not breed specific legislation (banning individual breeds, such as pit bulls, from communities) is effective. The results of their studies were published in several scientific journals.

"We learned breed specific legislation is not the way to tackle the issue of dog bites," says Dr. Julie Gilchrist of the CDC Injury Center in Atlanta, GA. "Instead, we should look at the people with those dogs responsible for the bites."

Animal Behaviorist Randy Lockwood, Vice President of research and education at the HSUS in Washington D.C. says about 100 percent of dogs involved in fatal attacks were unaltered males, also in the overwhelming majority of instances the dogs were previously complained about but animal control or law enforcement failed to take action. Other risk factors include dogs who roamed the neighborhood or dogs who were tethered.

"I believe the answer is to strengthen and then enforce laws that encourage responsible dog ownership for all dogs of all breeds," says Dr. Bonnie Beaver, a veterinary behaviorist in College Station, TX who has worked on breed specific issues, and is now the president of the AVMA. The thinking is if dogs
As state and local lawmakers work to pass laws to keep the pit bull population under control, specific laws unfairly label pit bulls as vicious even if a dog hasn't attacked a person.

For a dog of any other breed to be considered "vicious" under Ohio law, it has to kill a person.

Under Ohio law, people owning "vicious" dogs must pay more for liability insurance and keep their animal confined in a locked, fenced yard or a secure enclosure with a roof.

In Toledo, residents may own only one pit bull, which must have a leash and be muzzled when in a public place.

Pain at the pound

Toledo resident Emmanuel Rodriguez shook his head in frustration last week at the Lucas County dog pound when an employee told him he couldn't take his pit bull, Bo Stank, home because of the city's laws applying to vicious dogs.

"My dog's the friendliest dog in the world," he said angrily. But the employee told Mr. Rodriguez he must pay a $100 fine and an additional $100 to have Bo neutered if he wants his dog back, because of a recently passed Toledo City Council ordinance.

"You have until July 24 to pay all your fees," a pound employee told him. "You need to know if you don't pay by then, your dog will be euthanized."

Mr. Rodriguez's pit bull was seized by county dog catchers after it was seen running loose without a collar near children on July 6 near Asbury Park in West Toledo.

Witnesses said Bo returned home without incident. But when police arrived, they said Bo approached them in an aggressive manner and one officer threatened to shoot the dog.

Mr. Rodriguez said Bo never has bitten anyone.

"He was only out for 10 minutes," Mr. Rodriguez told Karla Hamlin, a Lucas County deputy dog warden.

"It only takes a minute for somebody to get hurt," she responded.

Nature vs. nurture

Dr. Gail Golab, director of animal welfare for the American Veterinarian Medical Association, called Mr. Rodriguez irresponsible for not confining his dog properly. But she said breed-specific laws are a "knee-jerk" reaction by lawmakers who don't address the real issue.

"[The veterinarian association does] not believe that the breeds considered to be pit bulls are inherently vicious," she said. "It's not so much nature as it is nurture. It's about teaching dogs how to behave around people and teaching people how to behave around dogs."

Dr. Golab said dog-bite statistics that suggest pit bulls bite most often are not necessarily accurate. They are hard to properly formulate, she said, because it's hard for some people to identify what breed bit them and the only bites that typically get recorded are ones reported in the media, to lawyers, or police.

The breed of dog that supposedly bites the most has changed over time, and there's a correlation with the breed's popularity, she said.

"If you were to look back 20 years ago, you'd see German shepherds. Five years later, you saw pit bulls. At other times you saw Rottweilers and Doberman pinschers."

Defining 'pit bull'

Many experts have a hard time determining what a pit bull is.

The veterinarian association, which along with the American Kennel Club and the United Kennel Club set the standards for dog breeds in the United States, says the term pit bull does not refer to a specific breed of dog. It's a generic label that refers to several breeds.
Randall Lockwood

While Randall Lockwood openly opposes breed-specific (pit bull) laws, his very research about pit bulls was used to uphold the City and County of Denver's pit bull ban.

The following is an excerpt taken from this source:
DISTRCT COURT
CITY AND COUNTY OF DENVER
STATE OF COLORADO

CITY AND COUNTY OF DENVER, a home rule municipal corporation of the State of Colorado, and JOHN W. HICKENLOOPER, as Mayor of the City and County of Denver, Plaintiffs,

v.

STATE OF COLORADO and BILL OWENS, in his official capacity as governor of the State of Colorado, Defendants.

Case No: 04 CV 3756

Courtroom: 7

TRIAL EXHIBIT

suggested by veterinarians called upon to treat fighting animals, as well as the experiences of myself and Humane Society field investigators in working with several hundred such animals seized in actions against illegal dog fighting.

Scott & Fuller (1965) reported a genetically based decrease in the latency to show intra-specific aggression in terriers. This simply confirmed a characteristic long-associated with such breeds. Within fighting breeds this characteristic can be even more exaggerated. Among dog fighters, an animal’s tendency to attack other animals, despite fatigue or injury, is termed ‘gameness’. It is a quality that is strongly selected for by breeders within the ‘sport’, but which has not been subjected to any formal genetic analysis.

Fighting breeds also appear to have a much higher tolerance of pain, which may be mediated by peculiarities in neurotransmitters or opiate receptor sites. A single anecdotal report of unusual responsiveness to morphine and naloxone in a pit bull (Brown et al., 1987) suggests that there may be physiological differences in the breed, although no definitive studies have been reported in the literature.

In addition to a lowered threshold for attack and higher pain thresholds in many fighting animals, selection for fighting has apparently resulted in the disruption of normal communication in individuals from recent fighting lineages. Under natural conditions, the aggression of wild canids is held in check by a detailed set of postural and facial signals that clearly indicate mood and intent (Fox, 1971a; Schenkel, 1967). In addition, aggressive encounters are normally ended rapidly when one individual emits the appropriate ‘cut-off’ behavior, such as infantile vocalizations (whining, yelping) and submissive displays (Fox, 1971b). Dogs from fighting lineages have been under selective pressures that suppress or eliminate accurate communication of aggressive motivation or intent. It is to a fighting dog’s advantage for its attack to be unexpected. Many accounts of such attacks on people note that the incident occurred ‘without warning’. Similarly, once initiated, such attacks are often not ended by the withdrawal of the opponent or the display of species-typical submissive behavior. Combat involving fighting dogs can continue for several hours and separation of the animals may require the use of a ‘parting stick’ to physically pry the animals apart.

The extent to which such characteristics are genetically determined within the fighting breeds has been the subject of considerable controversy (Lockwood & Rindy, 1987; Clifford, Green & Watterson, 1990). Although complex behaviors such as pointing, retrieving, herding and livestock guarding are generally accepted to have a strong genetic component, many fanciers of the fighting breeds attribute the comparatively simple lowering of the threshold for aggression to purely environmental influences of irresponsible owners.

It is also important to distinguish between selective influences on inter-specific vs. intra-specific aggression. Dog fighters and advocates of fighting breeds note that, historically, fighting animals that showed aggression to people were generally removed from the gene pool, either by being destroyed or being deemed unsuitable for breeding. It is true that contemporary dogs still employed in fighting are often easily handled by others (such as Humane Society investigators). However, there is no indication that the same selective pressures are in operation since there is currently a market for even the most intractable animals in the guard dog trade.

Clearly, genetic history can influence aggressiveness of breeds and individual dogs, either increasing or decreasing these tendencies. Throughout the history of dogs, many breeds such as the Irish wolfhound and Great Dane have earned a reputation for ferocity, only to become far more docile as trends in breeding shift. Indeed part of the problem with the ‘pit bull’ controversy is that the lineages of fighting and non-fighting animals within the fighting breeds have been separated for many generations, but have shown relatively little physical divergence. As a result, an American pit bull terrier from recent fighting stock may be physically indistinguishable from an American or English Staffordshire (bull) terrier 50 generations removed from the fighting pits, yet the two animals could be behaviorally very different.

Selective breeding can increase or decrease the tendency for dogs to bite in different contexts. Since the level of aggressiveness can be affected by several factors with likely genetic influence, including basic temperament, timidity and the presence of painful genetic disorders, it is possible for the lack of any directional selection in breeding to produce an increased tendency toward aggressiveness. For example, genetic factors underlying fearfulness may
What does the CDC currently suggest regarding prevention to serious and fatal dog attacks?

Click here to see CDC webpage
A Community Approach to Dog Bite Prevention

Created by the American Veterinary Medical Association (AVMA)

Click here to see full report
Why does the entire U.S. Army, U.S. Marine Corps, the New York Housing Authority and over 500 U.S. cities regulate pit bulls?

"These specific breeds present an unreasonable risk to the health and safety of our residents and are therefore prohibited."

Camp Lejeune base commanding officer Col. Richard P. Flatau Jr.
Breeds of dogs involved in fatal human attacks in the United States between 1979 and 1998

Published September 15, 2000
Breeds of dogs involved in fatal human attacks in the United States between 1979 and 1998

Jeffrey J. Sacks, MD, MPH; Leslie Sinclair, DVM; Julie Gilchrist, MD; Gail C. Golab, PhD, DVM; Randall Lockwood, PhD

Objective—To summarize breeds of dogs involved in fatal human attacks during a 20-year period and to assess policy implications.

Animals—Dogs for which breed was reported involved in attacks on humans between 1979 and 1998 that resulted in human dog bite-related fatalities (DBRF).

Procedure—Data for human DBRF identified previously for the period of 1979 through 1996 were combined with human DBRF newly identified for 1997 and 1998. Human DBRF were identified by searching news accounts and by use of The Humane Society of the United States’ registry databank.

Results—During 1997 and 1998, at least 27 people died of dog bite attacks (18 in 1997 and 9 in 1998). At least 25 breeds of dogs have been involved in 238 human DBRF during the past 20 years. Pit bull-type dogs and Rottweilers were involved in more than half of these deaths. Of 227 reports with relevant data, 55 (24%) human deaths involved unrestrained dogs off their owners’ property, 133 (58%) involved unrestrained dogs on their owners’ property, 38 (17%) involved restrained dogs on their owners’ property, and 1 (1%) involved a restrained dog off its owner’s property.

Conclusions—Although fatal attacks on humans appear to be a breed-specific problem (pit bull-type dogs and Rottweilers), other breeds may bite and cause fatalities at higher rates. Because of difficulties inherent in determining a dog’s breed with certainty, enforcement of breed-specific ordinances raises constitutional and practical issues. Fatal attacks represent a small proportion of dog bite injuries to humans and, therefore, should not be the primary factor driving public policy concerning dangerous dogs. Many practical alternatives to breed-specific ordinances exist and hold promise for prevention of dog bites. (J Am Vet Med Assoc 2000;217:836–840)

From 1979 through 1996, dog attacks resulted in more than 300 human dog bite-related fatalities (DBRF) in the United States. Most victims were children. Studies indicate that pit bull-type dogs were involved in approximately a third of human DBRF reported during the 12-year period from 1981 through 1992, and Rottweilers were responsible for about half of human DBRF reported during the 4 years from 1993 through 1996. These data have caused some individuals to infer that certain breeds of dogs are more likely to bite than others and should, therefore, be banned or regulated more stringently. The purposes of the study reported here were to summarize breeds associated with reported human DBRF during a 20-year period and assess policy implications.

Procedure

We collected data from The Humane Society of the United States (HSUS) and media accounts related to dog bite attacks and fatalities, using methods from previous studies. The HSUS maintains a registry of human DBRF, including date of death, age and sex of decedent, city and state of attack, number and breeds of dogs involved, and circumstances relating to the attack. To supplement HSUS reports, as in the past, a database was searched for accounts of human DBRF that occurred in 1997 and 1998. Our search strategy involved scanning the text of newspapers and periodicals for certain words and word combinations likely to represent human DBRF followed by a review of articles containing those terms. Data obtained from HSUS and news accounts were merged to maximize detection of human DBRF and avoid duplicate reports. One new human DBRF from 1996 was identified in the 1997 and 1998 reports and was added to the existing data for 1996.

A human DBRF was defined as a human death caused by trauma from a dog bite. In addition to excluding 9 human deaths, as described in previous reports (eg, dying of rabies from a dog bite, strangling on a leash or scarf pulled by a dog, dying from fire ant
Results

Fatalities during 1997 and 1998—During 1997 and 1998, at least 27 people died as the result of dog bite attacks (18 people in 1997 and 9 in 1998). Of 27 human DBRF; 19 (70%) were children (1 was ≤ 30 days old, 3 were between 7 and 11 months old, 9 were between 1 and 4 years old, and 6 were between 5 and 11 years old), and 8 were adults (ages 17, 44, 64, 70, 73, 75, 75, and 87). Approximately half (n = 15 [56%]) of the human DBRF were male.

Five (19%) deaths involved unrestrained dogs off the owners’ property, 18 (67%) involved unrestrained dogs on the owners’ property, 3 (11%) involved restrained dogs on the owners’ property, and 1 (4%) involved a restrained dog off the owner’s property. Eighteen (67%) deaths involved 1 dog, 5 (19%) involved 2 dogs, and 4 (15%) involved 3 dogs. Sixty percent of attacks by unrestrained dogs off the owners’ property involved more than 1 dog.

Fatal attacks were reported from 17 states (California [4 deaths]; Georgia and North Carolina [3 each]; Kansas, Texas, and Wisconsin [2 each]; and Alaska, Arkansas, Colorado, Florida, Kentucky, Massachusetts, Michigan, Missouri, New York, South Dakota, and Tennessee [1 each]).

Some breed information was reported for all 27 attacks. As in recent years, Rottweilers were the most commonly reported breed involved in fatal attacks, followed by pit bull-type dogs (Table 1). Together, these 2 breeds were involved in approximately 60% of human deaths.

Twenty-year data—Some breed information was available for 238 human DBRF. More than 25 breeds of dogs were involved in DBRF during the past 20 years (Table 2). Of 227 human DBRF for which data were

Table 1—Breeds of dogs involved in human dog bite-related fatalities (DBRF) in the United States, by 2-year period, between 1979 and 1998. Death-based approach of counting most frequent purebreds and crossbreds involved in 7 or more human DBRF

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Purebred</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pit bull-type</td>
<td>2</td>
<td>5</td>
<td>10</td>
<td>9</td>
<td>11*</td>
<td>8</td>
<td>6</td>
<td>5</td>
<td>4*</td>
<td>6</td>
<td>65</td>
</tr>
<tr>
<td>Rottweiler</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>3</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>39</td>
</tr>
<tr>
<td>German Shepherd Dog</td>
<td>2</td>
<td>1</td>
<td>4*</td>
<td>1</td>
<td>1</td>
<td>4*</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>17</td>
</tr>
<tr>
<td>Husky-type</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>15</td>
</tr>
<tr>
<td>Malamute</td>
<td>2</td>
<td>0</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>12</td>
</tr>
<tr>
<td>Doberman Pinscher</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>9</td>
</tr>
<tr>
<td>Chow Chow</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>3</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>Great Dane</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>Saint Bernard</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>Crossbred</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wolf-dog hybrid</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>14</td>
</tr>
<tr>
<td>Mixed-breed</td>
<td>0</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>12</td>
</tr>
<tr>
<td>German Shepherd Dog</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>2†</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>10†</td>
<td>101</td>
</tr>
<tr>
<td>Pit bull-type</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>3</td>
<td>2†</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>Husky-type</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>Rottweiler</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1†</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>5†</td>
</tr>
<tr>
<td>Alaskan Malamute</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Chow Chow</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Doberman Pinscher</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Saint Bernard</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1†</td>
<td>0†</td>
</tr>
<tr>
<td>Great Dane</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>No. deaths for which breed was known</td>
<td>10</td>
<td>20</td>
<td>26*</td>
<td>24</td>
<td>22</td>
<td>34*</td>
<td>24</td>
<td>25</td>
<td>26*</td>
<td>27</td>
<td>238</td>
</tr>
</tbody>
</table>

*Numbers differ from previous reports because police/guard dogs “at work” were excluded, and 1 new DBRF was identified as occurring in 1996. †A purebred dog and a crossbred dog of this breed were involved in a single fatality; therefore, that breed is counted only once in the total column.
available, 55 (24%) deaths involved unrestrained dogs off the owners’ property, 133 (58%) involved unrestrained dogs on the owners’ property, 38 (17%) involved restrained dogs on the owners’ property, and 1 (<1%) involved a restrained dog off the owner’s property.

Four hundred three dogs were responsible for these attacks. There were almost twice as many dogs involved in off-owner-property attacks, compared with attacks occurring on the owners’ properties. In 160 human deaths, only 1 dog was involved; in 49 deaths, 2 dogs were involved; and in 15 deaths, 3 dogs were involved. Four and 7 dogs were involved in 3 deaths each; 5, 6, and 10 dogs were involved in 2 deaths each; and 11 and 14 dogs were responsible for 1 death each.

**Discussion**

Ideally, breed-specific bite rates would be calculated to compare breeds and quantify the relative dangerousness of each breed. For example, 10 fatal attacks by Breed X relative to a population of 10,000 Xs (1/1,000) implies a greater risk than 100 attacks by Breed Y relative to a population of 1,000,000 Ys (0.1/1,000). Without consideration of the population sizes, Breed Y would be perceived to be the more dangerous breed on the basis of the number of fatalities.

Considering only bites that resulted in fatalities, because they are more easily ascertained than nonfatal bites, the numerator of a dog breed-specific human DBRF rate requires a complete accounting of human DBRF as well as an accurate determination of the breeds involved. Numerator data may be biased for 4 reasons. First, the human DBRF reported here are likely underestimated; prior work suggests the approach we used identifies only 74% of actual cases. Second, to the extent that attacks by 1 breed are more newsworthy than those by other breeds, our methods may have resulted in differential ascertainment of fatalities by breed. Third, because identification of a dog’s breed may be subjective (even experts may disagree on the breed of a particular dog), DBRF may be differentially ascribed to breeds with a reputation for aggression. Fourth, it is not clear how to count attacks by crossbred dogs. Ignoring these data underestimates breed involvement (29% of attacking dogs were crossbred dogs), whereas including them permits a single dog to be counted more than once. Therefore, we have elected to present data separately for purebred and crossbred dogs to demonstrate at least 2 alternative counting methods. Relative rankings do not differ greatly whether one focuses only on purebred dogs or includes crossbred dogs. The crossbreed issue is also problematic when estimating denominators (ie, breed-specific population sizes).

The denominator of a dog breed-specific human DBRF rate requires reliable breed-specific population data. Unfortunately, such data are not currently available. Considering American Kennel Club registration data for Rottweilers in parallel with fatality data for that breed indicates that as the breed has soared in pop-
ularity, so have Rottweiler-related deaths (24,195 registrations from 1979 through 1982 and 0 deaths; 272,273 registrations from 1983 through 1990 and 6 deaths; and 692,799 registrations from 1991 through 1998 and 33 deaths). However, official registration or licensing data are likely to be biased, as owners of certain dog breeds may be less likely than those owning other breeds to register or license their dogs and, thus, should not be used to calculate these rates. Finally, it is imperative to keep in mind that even if breed-specific bite rates could be accurately calculated, they do not factor in owner-related issues. For example, less responsible owners or owners who want to foster aggression in their dogs may be drawn differentially to certain breeds.

Despite these limitations and concerns, the data indicate that Rottweilers and pit bull-type dogs accounted for 67% of human DBRF in the United States between 1997 and 1998. It is extremely unlikely that they accounted for anywhere near 60% of dogs in the United States during that same period and, thus, there appears to be a breed-specific problem with fatalities.

Although the fatality data are concerning, one must broaden the context to consider both fatal and nonfatal bites when deciding on a course of action. Nonfatal dog bites continue to be a public health problem in the United States. Although this and prior reports document more than 330 DBRF during a 20-year period, these tragedies represent only the most severe manifestation of the problem. In 1986, nonfatal dog bites resulted in an estimated 585,000 injuries that required medical attention or restricted activity! By 1994, an estimated 4.7 million people (1.8% of the US population) sustained a dog bite; of these, approximately 800,000 (0.3% of the US population) sought medical care for the bite (332,000 in emergency departments), and 6,000 were hospitalized. This 36% increase in medically attended bites from 1986 to 1994 draws attention to the need for an effective response, including dog bite prevention programs. Because (1) fatal bites constitute less than 0.00001% of all dog bites annually, (2) fatal bites have remained relatively constant over time, whereas nonfatal bites have been increasing, and (3) fatal bites are rare at the usual political level where bite regulations are promulgated and enforced, we believe that fatal bites should not be the primary factor driving public policy regarding dog bite prevention.

Several interacting factors affect a dog’s propensity to bite, including heredity, sex, early experience, socialization and training, health (medical and behavioral), reproductive status, quality of ownership and supervision, and victim behavior. For example, a study in Denver of medically-attended dog bites in 1991 suggested that male dogs are 6.2 times more likely to bite than female dogs, sexually intact dogs are 2.6 times more likely to bite than neutered dogs, and chained dogs are 2.8 times more likely to bite than unchained dogs. Communities have tried to address the dog bite problem by focusing on different factors related to biting behavior.

To decrease the risk of dog bites, several communities have enacted breed-specific restrictions or bans. In general, these have focused on pit bull-type dogs and Rottweilers. However, breeds responsible for human DBRF have varied over time. Pinckney and Kennedy studied human DBRF from May 1975 through April 1980 and listed the following breeds as responsible for the indicated number of deaths: German Shepherd Dog (n = 16); Husky-type dog (9); Saint Bernard (8); Bull Terrier (6); Great Dane (6); Malamute (5); Golden Retriever (3); Boxer (2); Dachshund (2); Doberman Pinscher (2); Collie (2); Rottweiler (1); Basenji (1); Chow Chow (1); Labrador Retriever (1); Yorkshire Terrier (1); and mixed and unknown breed (15). As ascertained from our data, between 1979 and 1980, Great Danes caused the most reported human DBRF; between 1997 and 1998, Rottweilers and pit bull-type dogs were responsible for about 60% of human DBRF. Indeed, since 1975, dogs belonging to more than 30 breeds have been responsible for fatal attacks on people, including Dachshunds, a Yorkshire Terrier, and a Labrador Retriever.

In addition to issues surrounding which breeds to regulate, breed-specific ordinances raise several practical issues. For optimal enforcement, there would need to be an objective method of determining the breed of a particular dog. Pedigree analysis (a potentially time-consuming and complicated effort) combined with DNA testing (also time-consuming and expensive) is the closest to an objective standard for conclusively identifying a dog’s breed. Owners of mixed-breed or unregistered (ie, by a kennel club) dogs have no way of knowing whether their dog is one of the types identified and whether they are required to comply with breed-specific ordinances. Thus, law enforcement personnel have few means for positively determining a dog’s breed and deciding whether owners are in compliance or violation of laws.

Some municipalities have attempted to address this classification issue of unregistered and mixed-breed dogs by including within their ordinances a description of the breed at which the ordinance is directed. Unfortunately, such descriptions are usually vague, rely on subjective visual observation, and result in many more dogs than those of the specified breed being subject to the restrictions of the ordinance.

When a specific breed of dog has been selected for stringent control, 2 constitutional questions concerning dog owners’ fourteenth amendment rights have been raised: first, because all types of dogs may inflict injury to people and property, ordinances addressing only 1 breed of dog are argued to be underinclusive and, therefore, violate owners’ equal protection rights; and second, because identification of a dog’s breed with the certainty necessary to impose sanctions on the dog’s owner is prohibitively difficult, such ordinances have been argued as unconstitutionally vague, and, therefore, violate due process. Despite such concerns, a number of breed-specific ordinances have been upheld by the courts.

Another concern is that a ban on a specific breed might cause people who want a dangerous dog to simply turn to another breed for the same qualities they sought in the original dog (eg, large size, aggression easily fostered). Breed-specific legislation does not address the fact that a dog of any breed can become dangerous when bred or trained to be aggressive. From a scientific point of view, we are unaware of any formal...
evaluation of the effectiveness of breed-specific legislation in preventing fatal or nonfatal dog bites.

An alternative to breed-specific legislation is to regulate individual dogs and owners on the basis of their behavior. Although, it is not systematically reported, our reading of the fatal bite reports indicates that problem behaviors (of dogs and owners) have preceded attacks in a great many cases and should be sufficient evidence for preemptive action. Approaches to decreasing dangerous dog and owner behaviors are numerous. The potential importance of strong animal control programs is illustrated by our data; from 1979 through 1998, 24% of human DBRF were caused by owned dogs (typically more than 1) that were roaming off the owners’ property. Some deaths might have been averted through more stringent animal control laws and enforcement (eg, leash laws, fencing requirements). Although the bite prevention effectiveness of such animal control ordinances and programs has not been systematically evaluated, free-roaming dogs and dogs with menacing behavior are problems that need to be addressed even if they do not bite (eg, causing bicycle or car crashes).

Generic non–breed-specific, dangerous dog laws can be enacted that place primary responsibility for a dog’s behavior on the owner, regardless of the dog’s breed. In particular, targeting chronically irresponsible dog owners may be effective. If dog owners are required to assume legal liability for the behavior and actions of their pets, they may be encouraged to seek professional help in training and socializing their pets. Other options include enforcing leash laws and laws against dog fighting. We noticed in the fatal cases, that less than one half of 1% of DBRF were caused by leashed animals off the owners’ property. Subdivisions and municipalities that outlaw fences or limit fences to heights insufficient for controlling large dogs may be increasing the probability of children interacting with unsupervised dogs. Scientific evaluations of the effects of such regulations are important.

Education of dog owners can address several issues: (1) understanding breed profiles may assist owners in selecting the appropriate dog for their lifestyle and training abilities, (2) convincing owners to seriously consider the sex and reproductive status of their dogs is important because male and sexually intact dogs are more likely to bite than are female and neutered dogs; and (3) teaching owners about the importance of socialization and training may decrease their likelihood of owning a dog that will eventually bite.

Veterinarians play a key role in educating pet owners, but because many dogs that bite may not be seen by a veterinarian prior to the bite incident, programs that encourage responsible ownership must also be presented through other venues. Public education strategies should include school-based and adult educational programs addressing bite prevention and basic canine behavior, care, and management. Programs should strive to ensure that dogs receive proper socialization, exercise, and attention; that they are given adequate food, water, shelter, and veterinary care; that they are neutered if they are not maintained for legitimate and responsible breeding purposes; and that they are trained humanely and confined safely. However, like breed-specific legislation, all these approaches appear formally unevaluated for effectiveness.

Targeting and evaluation of prevention efforts requires improved surveillance for fatal and nonfatal dog bites. Dog bites should be reported as required by local or state ordinances, and reports of such incidents should include information about the circumstances of the bite, ownership, breed, sex, reproductive status of the dog, history of prior aggression, and the nature of restraint prior to the bite incident. Collection of data on the entire dog population (eg, breed, age, sex) would help resolve comparative risk issues and may be accomplished by combining paperwork on mandatory rabies immunizations with registration of breed and sex. Only with numerator and denominator data and with formal evaluations of the impacts of strategies tried by various communities will we be able to make science-based recommendations for decreasing the number of dog bites. In the interim, adequate funding for animal control agencies, enforcement of existing animal control laws, and educational and policy strategies to reduce inappropriate dog and owner behaviors will likely result in benefits to communities and may well decrease the number of dog bites that occur.

References
Profiles of Authors
cruelty. The authors go beyond the parameters of the crime scene tape, challenging us to team up with the forensic experts who have masterfully conquered what was once considered uncharted territory.

-- Paul L. Howard, Jr., District Attorney, Fulton County, Georgia

Leslie Sinclair, D.V.M., is a principle with Shelter Veterinary Services in Columbia, Maryland. She is the former director, Companion Animal Veterinary Issues, for The Humane Society of the United States and previously served as chief veterinarian for the Houston (Texas) SPCA. She is a graduate of the Texas A&M University College of Veterinary Medicine.

Melinda Merck, D.V.M., is the veterinary forensic consultant for the Fulton County District Attorney’s Office in Atlanta, Georgia. She also conducts veterinary forensic examinations for Gwinnett County Animal Control and Cobb County Animal Control (Georgia). She is vice president of veterinary and forensic affairs for Georgia Legal Professionals for Animals, which won the ASPCA 2003 Pet Protector Award. She is a graduate of Michigan State University and owner of The Cat Clinic (Roswell, Georgia). She is a member of the American Veterinary Medical Association, American Animal Hospital Association, American Association of Feline Practitioners, and the Georgia Veterinary Medical Association. She lectures to veterinarians and law enforcement and legal professionals around the United States on veterinary forensics.

Randall Lockwood, Ph.D., is senior vice president for anti-cruelty initiatives and training for the American Society for the Prevention of Cruelty to Animals in New York City. He is the former vice president, Research and Educational Outreach, for The Humane Society of the United States, where he was on the staff for twenty years. He moderated a track on veterinary forensics at the 2005 Western Veterinary Conference. He is the co-editor (with Frank Ascione) of Cruelty to Animals and Interpersonal Violence (Purdue University Press). He lives in suburban Virginia.
AVMA director is first American veterinarian credentialed in animal welfare

Dr. Gail C. Golab enjoys the distinction of being the only American member of the Australian College of Veterinary Scientists certified in animal welfare.

There is no American equivalent to the certification, so having the director of the AVMA Animal Welfare Division as a member of the ACVS Animal Welfare Chapter is seen as a plus for the Association.

"We've long recognized and valued Dr. Golab's expertise and national recognition in animal welfare," said Dr. W. Ron DeHaven, AVMA CEO and executive vice president. "This new certification from Australia adds international recognition and reflects positively on her as well as the overall level of expertise of the AVMA staff."

Dr. Golab is the only American veterinarian to be credentialed in animal welfare, according to the AVMA. She achieved membership in the Australian College of Veterinary Scientists' Animal Welfare Chapter July 3. The ACVSc and Royal College of Veterinary Surgeons are the only organizations that offer animal welfare certifications for veterinarians.

Candidates for ACVSc certification must demonstrate a high degree of competence in animal welfare and have spent at least four years in full-time veterinary activity. Dr. Golab dedicated two years to preparing for the examinations, which consisted of written and oral portions and covered a wide range of theory and practical applications relating to the humane treatment of animals.

"There was no species or topic specificity associated with the examinations," noted Dr. Golab, who traveled to Queensland, Australia, in June to complete the final part of the test.

Dr. Golab had to take the examination as though she were an Australian veterinarian, meaning she had to address not only universal animal welfare questions but also acquire background on Australia's regulatory framework and its huge animal export industry.

"These issues are already complicated," Dr. Golab said, "but they get even more complicated when you consider how countries vary in their philosophies toward animal welfare and the unique challenges they face. One of the best things about this experience is how it broadened my perspective."

Dr. Golab joined the AVMA staff in 1995 as an assistant editor in the Publications Division. She later worked in the Education and Research and Communications divisions. At the AVMA, Dr. Golab quickly became involved in issues relevant to human-animal interactions. She is staff consultant to the Animal Welfare Committee and Committee on the Human-Animal Bond. She served on the Animal Welfare Governance Task Force and was staff consultant to the Task Force on the Housing of Pregnant Sows and Animal Welfare Advisory Committee. She was appointed director of the Animal Welfare Division in 2007.

Dr. Golab credited her years of working on complex animal welfare issues as great preparation for
populations,” says the senior medical officer in ATSDR’s Exposure Investigations Branch. Mistry manages on-site investigations of environmental public health problems. She believes that pediatric-trained CDC staff can serve as both an “advocate and a voice for children.”

**Julie Gilchrist, MD, (CDR, USPHS), Medical Epidemiologist, Division of Unintentional Injury Prevention, NCIPC**

Injuries are the leading cause of death among children, and much of what causes children to be admitted to a hospital Emergency Department or ICU are injury-related and preventable. That simple realization brought Julie Gilchrist, a pediatrician specializing in sports medicine, to CDC a decade ago.

“I wanted my work to have impact on a broader scale than one patient at a time,” says the former EIS officer, who oversees research and programs in many of the injury topic areas that affect children, including water safety/drowning prevention; sports and recreation-related injury prevention; dog-bite prevention; and choking/suffocation/strangulation prevention.

Gilchrist brings a “passion for helping kids be kids” by helping them be challenged yet safe in their activities.

**Athena Kourtis, MD, PhD, MPH, Senior Service Fellow, Women’s Health and Fertility Branch, Division of Reproductive Health, NCCDPHP**

Large-scale clinical research on pediatric HIV prevention was a huge draw for Athena Kourtis, a pediatrician specializing in infectious diseases, to join CDC.

The Johns Hopkins University alumnus joined CDC in 2001 after serving as a pediatric faculty member at Emory University’s School of Medicine, where she continues clinical work. Today, she is part of the Women’s Health and Fertility Branch in the Division of Reproductive Health.

“I have the opportunity to be involved in several research studies both locally and internationally,” says Kourtis, whose work on pediatric HIV pathogenesis and prevention was recently honored by the Atlanta Executive Federal Board. “I work with a very productive group of people, and our contributions to advancing the knowledge in the field have been multiple and varied,” she says. “It is very gratifying to have the chance to save the lives of some of the world’s most disadvantaged children through HIV prevention.”

**Amanda Cohn, MD, Medical Epidemiologist, Meningitis and Vaccine Preventable Diseases Branch, Division of Bacterial Diseases, NCIRD**

As a medical epidemiologist focused on meningococcal disease and pertussis, Amanda Cohn knows how much more common these diseases are among adolescents and how challenging it is to get kids in this age group vaccinated.

“There are so many opportunities to prevent diseases – both infectious and chronic – in children,” says Cohn, who joined CDC three years ago. Her experience includes seeing kids in a pediatric clinic, where she uses CDC’s immunization schedule to treat young patients.

“Having first-hand knowledge of how important it is to provide parents and providers with clear guidance for immunizations continues to inform the work I do here,” she says.
Jeffrey J Sacks, MD
Preventive Medicine
Male - 34 years experience

Profile Summary
Atlanta, GA
Address not verified
Map this Address

Specialty
Preventive Medicine

Education
Dr. Sacks was educated at the following institutions:

Medical School
State University of New York
Downstate College of Medicine
Internal Medicine, Completed: 1972

Residency
Usphs Hosp
General Preventive Medicine,
Completed: 1979

Awards & Distinctions
Awards:
CM, USPHS
DSM, USPHS
MSM, USPHS
OSM, USPHS

More Vitals Tools
Your Opinion Matters
Click this button to be a Vitals contributor.

Receive Alerts
when there is new important
information about this doctor.

Best Spine Surgeon
Dr. Biscup has been a
leader in spine surgery
for over 30 years.
www.BiscupSpineInstitute.com

Kaplan University
Online®
Earn Your Nursing
Degree at Home
100% Online with
Kaplan University
www.Kaplan.edu

Denver Fibromyalgia
Free 1/2 hr consult
with MDs who listen &
understand.
www.FibroAndFatigue.com

CMBY Clinic - Dr. Hamby
Internal Medicine
Clinic Dedicated to
Diagnostic &
Preventive Medicine
www.cmbyclinic.com

Herbal Doctor Formulae
Dr. Schulze’s Official
Website Dr. Schulze’s
Original Formula.
HerbDoc.com

Enter Condition
Select Gender
Select State

Have more information on this doctor?
Email us at ImproveVitals@vitals.com or review this doctor now.

Are you a doctor? Click here to sign in to Vitals.

Powered by