

*Special
Edition*

Vaccine-Preventable Disease

Measles

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Vaccine-Preventable Disease: Measles

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Special Edition

This book is dedicated to the individuals and families portrayed herein,
whose stories serve as a daily reminder of the purpose of our work
and whose courage inspires us to do what we do.

Contents

5	Introduction
	<i>Profiles:</i>
7	Diodato Fierro
9	Nikolai Ingles
11	Vaughn Johnson
13	Mobius Loop
14	Measles Facts
15	References
15	Acknowledgments
16	Authors' Note



Introduction

In 2000, measles was declared eliminated in the United States, a historic public health achievement. Despite this important achievement, we continue to experience outbreaks of measles throughout the country due to increasing numbers of parents who have chosen to delay or refuse vaccines, including the measles-mumps-rubella, or MMR, vaccine. As a result, communities with large groups of unvaccinated individuals have experienced outbreaks of this highly infectious disease. The majority of measles cases occur in unvaccinated individuals, reinforcing one clear truth – the best way to protect children is to get them vaccinated.

Before the introduction of the MMR vaccine, millions of children were impacted by measles. One of these children – Olivia Dahl, the daughter of renowned author Roald Dahl – died from measles in 1962. In 1986, a time in Great Britain when many parents were refusing the MMR vaccine for their children, Dahl published an influential piece on his experience:


“Olivia, my eldest daughter, caught measles when she was 7 years old. As the illness took its usual course, I can remember reading to her often in bed and not feeling particularly alarmed about it. Then one morning, when she was well on the road to recovery, I was sitting on her bed showing her how to fashion little animals out of coloured pipe-cleaners, and when it came to her turn to make one herself, I noticed that her fingers and her mind were not working together and she couldn’t do anything.

‘Are you feeling all right?’ I asked her. ‘I feel all sleepy,’ she said. In an hour, she was unconscious. In 12 hours, she was dead. The measles had turned into a terrible thing called measles encephalitis and there was nothing the doctors could do to save her. That was 24 years ago, in 1962, but even now, if a child with measles happens to develop the same deadly reaction from measles as Olivia did, there would still be nothing the doctors could do to help her.

On the other hand, there is today something that parents can do to make sure that this sort of tragedy does not happen to a child of theirs. They can insist that their child is immunized against measles. I was unable to do that for Olivia in 1962, because in those days a reliable measles vaccine had not been discovered. Today a good and safe vaccine is available to every family and all you have to do is to ask your doctor to administer it.” – Roald Dahl

Sadly, more than 50 years after the introduction of the vaccine, Dahl’s message remains remarkably relevant. Olivia died one year before the MMR vaccine was first licensed in 1963.

Today, we have an irrefutably safe vaccine that has been tested, trusted and proven effective for decades. As parents, we are lucky to have the opportunity to learn from Dahl and others who were either unable to, or perhaps who failed to, vaccinate their child. The stories in this publication aim to do the same: demonstrate the importance of vaccinating on time, every time. As mothers and vaccine advocates, we are grateful to these families for placing their trust in us to share their stories and for their courage in doing so.

A close-up portrait of a young child with dark hair and eyes. The child's face shows signs of skin irritation, including red, inflamed patches on the forehead, cheeks, and around the mouth. The child is wearing a light blue shirt. The background is blurred, showing an indoor setting with a doorway.

“He suffered greatly,
and, as a mother,
I wanted to take
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but I couldn’t.”

Diodato Fierro

In July 2019, Allysa and Salvatore Fierro took their three older children on vacation, leaving their 1-year-old son, Diodato, with Allysa's mom in their hometown of El Paso, Texas. The day before their trip, Diodato was running a low fever that his parents attributed to teething. They never anticipated it developing into something serious, especially not measles.

After the Fierros left, Diodato's fever increased and he developed his first red spots. Allysa's mom, Mary, took him to the hospital where he was diagnosed with an ear infection. Because Diodato suffered from eczema, a condition that makes skin red and itchy, the doctors initially believed the red spots were related to his eczema.

However, over the next two days, Diodato's condition worsened as his fever increased, climbing as high as 106°F. He began refusing to eat and the red spots spread all over his body. Mary made several trips to the hospital and urgent care where she inquired about the possibility of Diodato having measles.

Originally from the Philippines, where measles has become increasingly common, Mary recognized the signs and symptoms of the disease. Moreover, several cases of measles were reported in El Paso in

the summer of 2019. Health officials tested Diodato and confirmed that he had measles, a vaccine-preventable disease once considered rare in the U.S.

By this time, Allysa and Salvatore had returned to El Paso, having cut their vacation short to care for their son. Diodato remained in isolation for two weeks, during which time he continued to have a persistent fever, rash, lethargy and lack of appetite.

"It was tough," Allysa said. "It was a really hard few weeks for Diodato and for us. He suffered greatly, and, as a mother, I wanted to take the pain from him but I couldn't."

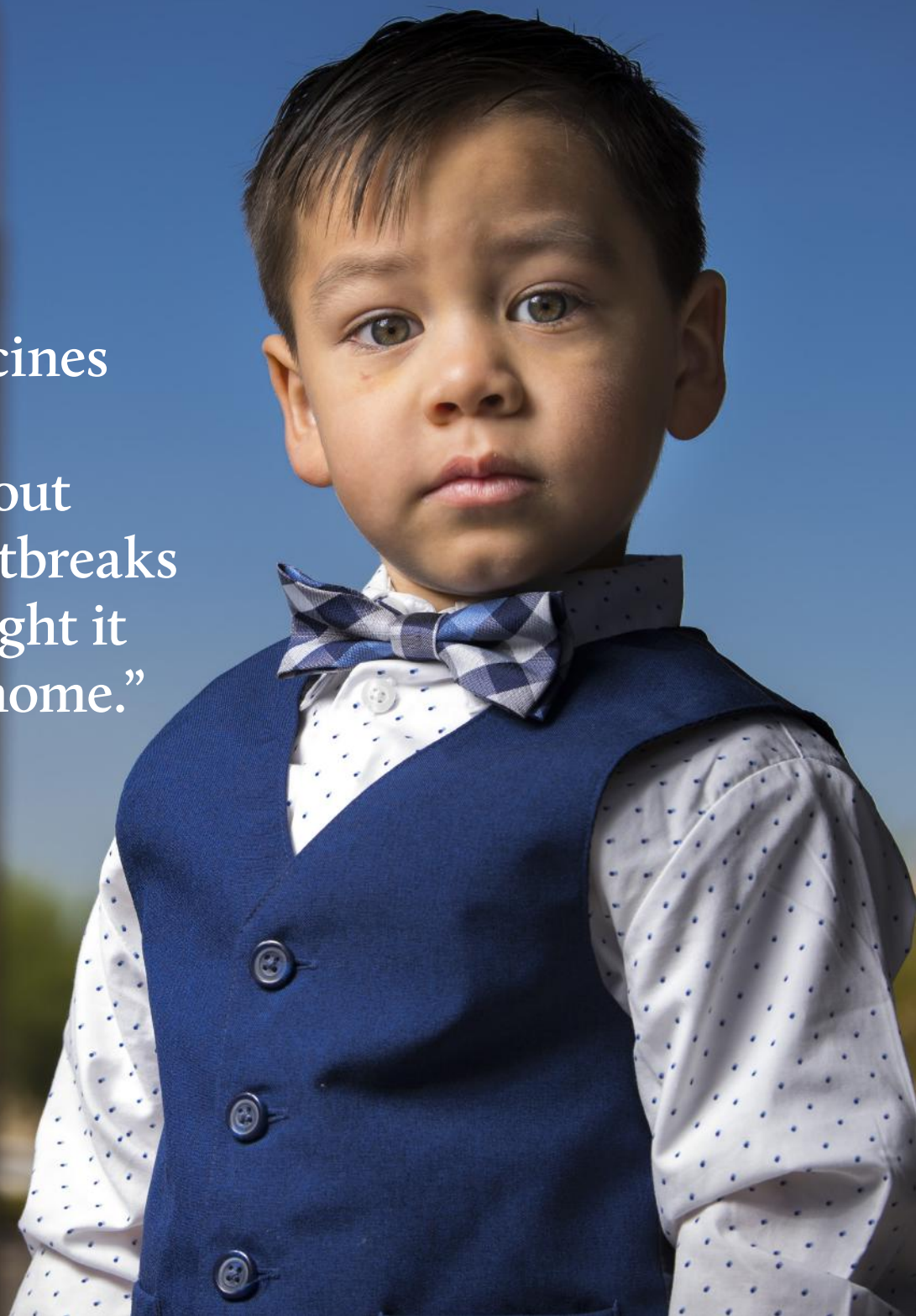
Unfortunately, Allysa and Salvatore had overlooked his shot record and didn't realize he was overdue for his first MMR, or measles-mumps-rubella, vaccine which is recommended at 12 to 15 months. "We made a mistake

and didn't realize he was a little bit behind on his shots. I don't want other parents to make the same mistake. Vaccines are important."

Once considered a common childhood illness, measles was eliminated in the U.S. in 2000; however, an increasing number of measles cases have occurred in the U.S. in the past few years, primarily among unvaccinated individuals. Measles complications include diarrhea, pneumonia, encephalitis and even death.



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Nikolai Ingles

Like everyone, the Ingles family is always busy. As an active duty member in the U.S. Army, Robert is frequently deployed while Nazira stays busy homeschooling and caring for their 3 boys – Robert Jr. or RJ (7), Nikolai (3) and Aurelius (8 months). Relocating from Los Angeles to El Paso caused additional stress, and as a result, Robert and Nazira lost track of the boys' vaccine records. They didn't think much of it until Nikolai suddenly developed red spots and an unrelenting fever.

Unable to lower his fever, his parents took Nikolai to the emergency room at their local children's hospital. By then, Nikolai also had a rash all over his body, white spots in his mouth and lethargy. It was then that Robert and Nazira were told their son possibly had measles, a highly contagious vaccine-preventable disease. The hospital was able to reduce Nikolai's fever and sent him home; however, by the next morning, his condition had worsened. Nikolai had developed conjunctivitis, was increasingly lethargic and needed to return to the hospital. Nazira describes Nikolai's condition as frightening. She says, "My son did not look like himself. I was so scared."

To avoid exposing other families, Nikolai and Robert were escorted by ambulance to the hospital and placed in a negative pressure isolation room. Because Nikolai's baby brother, Aurelius, was too young to be

vaccinated, Nazira remained home with him and Robert Jr. to minimize their exposure risk. Nikolai spent six days in the hospital. He had a fever, refused to eat, was very weak and received oral rehydration therapy. As Robert describes it, "He was miserable for six days." After a week, Nikolai began to recover and was finally discharged from the hospital.

Over the last several decades, measles outbreaks

have increased at an alarming rate due to lagging vaccination rates, creating a growing public health crisis. The majority of cases have occurred among unvaccinated individuals.

"We know vaccines are important. I had heard about the measles outbreaks but never thought it would hit my home. You don't know how bad it is until you go through it," says Nazira. "It's your child, someone you love, going through something dangerous and

awful that he didn't have to go through. We're lucky he made it through."

The measles vaccine is given in combination with the rubella and mumps vaccine, known as MMR. The MMR vaccine is recommended for infants 12-15 months, with a booster dose at 4-6 years of age. However, it's important to note, it's never too late to get protected; simply ask your doctor to get you or your child up-to-date.





“Most people have the misconception that these diseases don’t exist anymore, but I can promise you, they do.”

Vaughn Johnson

When Eric and Delia Johnson took their two young children on vacation to Cabo San Lucas, they never imagined they'd bring measles home.

While in Mexico, Delia noticed that one of the employees had an unusual rash, but she didn't think much of it. However, when they returned to the U.S., 19-month-old Vaughn came down with a similar rash, a high fever, an ear infection and lethargy. On the advice of their pediatrician, Eric and Delia took Vaughn to the emergency room. He was admitted to the hospital, but even though doctors worked hard to identify Vaughn's illness, the rash became worse and extremely painful. He also developed severe conjunctivitis and ear infections. A few days later, Delia also developed flu-like symptoms and a rash. Both Delia and Vaughn developed sores in their mouth that prevented them from eating.

After four days in the hospital, Vaughn was sent home. Delia turned to the Harris County Health Department to test for the measles virus after several doctors failed to test for it. Finally, Delia and Vaughn were tested

and diagnosed with measles. While the disease was eliminated in the U.S. in 2000, and very few doctors in this country have seen it, measles is resurging in the U.S.

Vaughn's vaccination had been delayed because he had chronic ear infections, and he had not been vaccinated before traveling to Mexico. "It breaks my heart that Vaughn wasn't vaccinated before our trip," she says. "We should have made it a priority, but we had no idea that this would happen."



The measles vaccine is given with the rubella and mumps vaccine, known as MMR. The MMR vaccine is recommended for infants 12 months or older, with a booster dose at 4 to 6 years of age. As a mother of five boys, Delia guarantees her children will

be vaccinated on time, every time. She warns other parents not to underestimate the risks.

"Most people have the misconception that these diseases don't exist anymore, but I can promise you, they do," she says. "It's so easy to just get a shot and be protected."

“Even as a nurse,
I didn’t know
that measles
could kill you.”



Mobius Loop

In 2015, like many new parents, the Loops were careful about taking their infant son Mobius, out in public. After Mobius received his first two round of vaccines, Chris and Ariel were excited to introduce him to one of their favorite places, Disneyland. They never expected it to be the source of a serious health concern for their young son.

Shortly after a trip to Disneyland, four-month-old Mobius woke up with a 102°F fever and red spots on his chest and the back of his head. Aware of the measles outbreaks stemming from Disneyland at that time, Ariel, a nurse, immediately became concerned. She called his pediatrician who directed them to go to the emergency room.

In an effort to limit exposure to others, the Loops warned the emergency room that their son may have measles and a negative pressure isolation room was ready for them when they arrived. A blood test soon confirmed that Mobius had measles. He was discharged from the hospital and placed in quarantine at home for four additional days. Mobius experienced conjunctivitis, severe coughing, fever and rash for nearly a month before he fully recovered.



The Loops learned that measles has long-term implications, particularly for infants, and can cause a rare but serious complication called subacute sclerosing panencephalitis (SSPE), a progressive, usually fatal, brain disorder occurring months to years after a measles infection. “Even as a nurse, I didn’t know measles could kill you,” Ariel states as she describes her persistent fear that Mobius could develop SSPE.

The Loops turned their experience into action, becoming advocates for the importance of vaccines. “Vaccinating is not just a decision for your child. It’s for the community you live in – not just children but everyone who can’t get vaccinated because of cancer or other diseases that make you immune compromised. They’re relying on everyone else to be vaccinated,” states Chris.

The Loops strongly urge parents to not underestimate the seriousness of measles. “It’s easy to not be as scared by measles as you should be because we don’t see it much anymore,” urges Ariel. However, with the recent increases in measles cases across the U.S. and the globe, it is more important than ever to ensure your child is vaccinated – on time, every time.

Measles Facts

- Measles is a highly contagious virus that can remain airborne for up to two hours after an infected person occupies an area. It causes fever, rash, cough, runny nose, conjunctivitis and white spots in the mouth. Complications from measles include diarrhea, ear infections, pneumonia, encephalitis and death.
- Prior to the introduction of a measles vaccine in 1963, measles infection was nearly universal, with an estimated 3 to 4 million cases, 500 deaths and 48,000 hospitalizations per year in the U.S.
- After the introduction of the measles vaccine, the incidence of measles decreased by 95% in the U.S. In 2000, measles was declared eliminated in the U.S. Between 2000-2010, the average number of cases of measles diagnosed per year in the U.S. was 72.
- Measles outbreaks continue to occur across the U.S. and in many parts of the world. Outbreaks in the U.S. can occur when unvaccinated individuals contract measles abroad or when an international traveler brings measles into the U.S.
- The majority of measles cases occur in unvaccinated individuals or those with unknown vaccination status.
- Ensuring high rates of measles immunization coverage throughout the U.S. is critical to preventing further outbreaks and maintaining measles elimination.
- The best way to prevent measles is to get vaccinated with the measles-mumps-rubella (MMR) vaccine. The Centers for Disease Control and Prevention recommends the MMR vaccine in a series of two doses – the first given at 12 to 15 months and the second at 4 to 6 years of age.
- One dose of the MMR vaccine is 93% effective against measles; two doses of the vaccine are 97% effective against preventing measles.
- The MMR vaccine has been in use for more than 50 years and has been found to be very safe and effective.
- Measles infections in children can diminish the immune system's memory of illnesses that they have developed over their lifetime, leaving these children vulnerable to diseases they previously may have been protected from before their encounter with measles.

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First and foremost, we are incredibly thankful to the families portrayed in this book. We appreciate your courage in sharing your stories, without which this book would not be possible. Thank you for allowing us to share your experiences and hard-learned lessons so that other parents may more fully understand the importance of vaccines.

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Authors' Note

In recent decades, many public health experts warned that the widespread protection from vaccine-preventable diseases we achieved in the U.S. was under threat. As parental vaccine hesitancy increased and unvaccinated individuals clustered geographically, experts believed these trends were creating an untenable situation in the U.S., which would eventually result in the reemergence of vaccine-preventable diseases. This is precisely what has occurred.

As the Centers for Disease Control and Prevention and public health departments across the U.S. are fighting to get measles under control, we at Texas Children's Hospital knew we had a job to do. We needed to make parents aware of the risk measles poses to the U.S. After all, most parents, ourselves included, have never experienced measles. We have no memory of its painful reality. As a result, some parents fail to understand and appreciate the impact measles can have on our children and communities. Such complacency and failure to vaccinate allowed measles to take a foothold in our country and it could do so again if we don't learn from our mistakes and ensure we vaccinate our children, on time, every time.

In an effort to help parents better understand the importance of vaccinating for measles, we engaged several families who were profoundly impacted by the disease. Families just like ours – busy and loving, but also human. These families courageously shared their stories with us, hoping other parents will learn from their mistakes. Here were young families who, although not vaccine-hesitant, made the common mistake of losing track of their children's shots. Sadly, there are enough unvaccinated children in the U.S. that these families could no longer rely on community immunity for even a brief delay in vaccines. Instead, the loss of collective immunity in their community led to their children contracting measles.

We are honored to bring their stories directly to you and hope you will be as moved as we were by their message.

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