1) first evaluate each disease on its own. Pretend the question is about whether you should get this ONE vaccine for this ONE illness. Ignore the giant pile of diseases/vaccines. Focus on ONE til you have your answer for that ONE disease. The ultimate question is-- is it worth the risk to get the vaccine for it?

2) initially figure out what "worth the risk" even means to you. If your child has a 1 in a million chance of catching the disease and having a really bad outcome from having said disease, then is that worth the risk of an adverse reaction from this drug they'd take to prevent the disease? For me personally, the risk has to be "scarier" than 1 in 5000 for me to "care" about trying to prevent that scenario. Maybe for you its 1 in 10,000 or maybe 1 in 1000... For me, if there's a 1 in 5000 chance of something "horrible" happening... I don't actually care. Maybe because I'm comfortable with statistics and math and know that 1 in 5000 is prettttty darn unlikely. So I'm not going to go out of my way to deal with anything that is less risky than 1 in 5000. That such a slim chance. And if it DID happen-- so be it. Sometimes in life you will get unlucky. But rarely. 1 in 5000 is very VERY good odds.

3) know / be aware of the fact that we HAVE NO IDEA really what the number of adverse reactions from vaccines really are because:

a) doctors have a bias in thinking vaccines are totally safe and thus they don't even LOOK for adverse reactions usually. This is why a baby can die immediately after vaccination and they will literally "wonder what caused that..." If it were ANY other drug (and vaccines are drugs!) this would not be the case.

But somehow vaccines are seen as the equivalent of sugar water. (((But they're not!!!)))

b) not all adverse reactions are reported and tracked.

c) there have been ZERO long term studies on the safety of vaccines. Thus ...We have no idea if they're behind the asthma epidemic or adhd or allergies or gastrointestinal issues or not. No one is or has ever done a study on that. (Eek!)

For me.... I put the risk of an adverse reaction (a long term issue) around 1 in 8.... Mainly because I DO think vaccines are causing the lion's share of asthma, allergies, neurological disorders, etc.

But you have to assess this for yourself. And yes it's impossible to truly assess. Just go with what you think. For me, it makes sense that vaccines could be behind these epidemics because they are all issues with the immune system (autoimmune disorders) or issues with the central nervous system. And vaccines f--- with both those things.

But... I can't prove this and no one can prove im wrong either. So you really just have to go wth what you think. Maybe you arrive at believing adverse reactions are at 1 in 100 or 1 in 10,000. Whatever "works" for you. Come up with some number to use for compassion.

4) so then-- set out to find out how risky this disease is. This is three fold:

1) how many cases were there in the us last year? (Is it common??)

2) how easily is transmission? It is airborn? Sexually transmitted? Or is it caught through contact with feces? And Who are the most "at risk" populations for getting it?

3) and what are the chances of - IF your child did somehow manage to catch it- of there being an complication or something "really bad happening." What % of cases have serious complications? And are those numbers for the world or for the U.S. - because it makes a HUGE difference. (Getting measles while starving in Africa is a totally different scenario than getting it in suburban US...)

Almost all of that stuff can be found on CDC website.

Then- compare your own "risk of an adverse reaction" to "risk of the illness"- and see which one is riskier.

I'll walk you thru polio since that's an easy one.

Polio--

- Not a single case reported in US in 20 years.

- you get it by contact with feces. (Not easily spread ie)

- In 95% of cases of polio, the person is JUST fine. Only 5% develop any paralysis/complications.

So to me.... This puts the risk profile of "OMG getting paralyzed by polio" at least at 1 in a billion given there have been zero cases of it in the US in SO long.

And so, even if it turns out i am just flat out wrong about vaccines and their risk is really "just" one in a million, then the vaccine is STILL more risky!

So- my answer for the polio vaccine is a crystal clear NO THANK YOU.

"Next"....

Do this exercise for them ALL and you will likely decline them all, and bonus-- you will know EXACTLY WHY you are declining them or why you are choosing them. You may even educate your doctor in the process. You'll be in a very powerful position to defend your decision making either way and you won't ever get sucked into fear mongering statements like "well, hope your baby doesn't die from polio!" -- instead you will laugh in their face.

Something to keep in mind: these vaccines only protect against viral meningitis, not bacterial. Bacterial is the most dangerous.
Also take note that although not every vaccine pamphlet says death or serious injury, the one that do say: As with any medicine, there is a very remote chance of a vaccine causing a serious injury or death.
That is a general statement. All vaccines could cause serious injury or death.

Hepatitis B
850,000–2.2 million persons affected in US in the last year
Spread through bodily fluids or blood ie using tooth brush of infected person, being bitten by an infected person, sexually transmitted
5-10% of chronically affected adults in sub-saharan Africa and East Asia
1% of adults chronically affected in Western Europe and North America
80-90% of infants infected during the first year of life develop chronic infections; and
30-50% of children infected before the age of 6 years develop chronic infections.

Most commonly spread at birth from mother to baby
Symptoms include: (jaundice), dark urine, extreme fatigue, nausea, vomiting and abdominal pain. Small amount of persons will develop liver failure or liver cancer

Side effects of vaccine
Mild side effects: soreness where injected, fever
Other side effects: fainting, severe pain at injection site
Serious side effects: severe allergic reaction (swelling of face or throat, unusual sleepiness, hives, or difficulty breathing), death or serious injury

Ingredients
https://www.cdc.gov/vaccines/pubs/pinkbook/downloads/appendices/b/excipient-table-2.pdf

Rotavirus
As of April 2016, 215,000 deaths globally
Spread from not washing hands after using the restroom
Prior to vaccine only 20-60 children died yearly in the US from rotavirus
Very common. All children develop rotavirus by 5 years old whether vaccinated or not. Unvaccinated children normally develop rotavirus by age 3.
Symptoms include diarrhea, vomiting, fever and in severe cases dehydration
Typically resolves self within 3-7 days
Babies and children at most risk
Can easily be treated at home

Side effects of vaccine
Mild side effects include: diarrhea, vomiting, irritability
Serious side effects include: intussusception (bowel blockage which must be treated with a hospital stay and sometimes surgery), death, severe allergic reaction (swelling of face or throat, unusual sleepiness, hives, or difficulty breathing), serious injury
Serious side effects range from 1 in 20,000 to 1 in 100,000 US infants that received vaccine

Ingredients

HIB
Bacteria that can lead to: pneumonia, severe swelling in the throat, making it hard to breathe, infections of the blood, joints, bones, and covering of the heart, death, meningitis, brain damage, deafness.
Spread from person to person ie kissing, coughing. Not airborne or as easily contracted as the flu. Not spread through casual contact.

Treated with antibiotics
Symptoms in babies include fever, slow or inactive, stiffness, irritable, vomiting, abnormal refluxes, bulging of soft spot.
Most at risk under 5 years of age
4,100 cases between 2003-2007 with 500 deaths

Side effects of vaccine
Mild side effects: swelling, redness, or warmth where vaccine was given. Fever
Serious side effects: fainting, dizziness, ringing in ears, vision changes, severe shoulder pain, unable to move arm, severe allergic reactions, death or severe injury

Ingredients

Diphtheria
In the past decade there have only been 5 cases reported in the US
0 cases in 2015
In 2014 there were 7,312 cases reported globally
Spread from person to person by coughing or sneezing. Rarely spread from touching open wounds of a person that has diphtheria, touching clothing that has touched the open sores or from toys that have the bacteria on it that causes diphtheria.
Symptoms include weakness, sore throat, fever, swollen glands in the neck.
The bacteria that causes diphtheria gets into the respiratory system, produces a poison and kills kills the healthy cells in the respiratory system. Within two to three days a thick grey coating of dead cells builds up on the nose, throat, tonsils, and voice box making it very hard to breathe and swallow. Can get into bloodstream and cause damage to kidneys, heart, and nerves.
With treatment 1 in 10 patients may die
Without treatment as many as 1 in 2 patients may die (before there was treatment)
Cured with antibiotics or an antitoxin
People who aren't up to date on vaccinations are at risk, people living in unsanitary conditions, or anyone that travels to another country where there is an diphtheria outbreak.

Tetanus
An average of 29 cases yearly from 1996 to 2009
Not spread from person to person. Bacteria found in soil, manure, and dust enter body through breaks in the skin. Usually cuts or wounds from contaminated objects.
Time from exposure to illness is one day to several months. An average of 14 days
Symptoms include headache, jaw cramping, sudden involuntary muscle tightening often in the stomach (muscle spasms), painful muscle stiffness all over the body, trouble swallowing, jerking or staring (seizures), fever and sweating, high blood pressure and fast heart rate
To treat tetanus a hospital stay is often required. Antibiotics, a antitoxin, a tetanus shot, and medicines for muscle spasms are given.

Left untreated can result in broken bones from severe spasms, blockage of a lung artery, or death.

Pertussis (whooping cough)
Fewer than 200,000 cases per year in US
Spreads easily through hugs, kisses, coughing, sneezing, shared drinks, handshakes
Resolves within days to weeks
Half of babies that get disease will need hospitalization
Early symptoms (1-2 weeks) include runny nose, low fever, apnea, and mild cough
Later symptoms (after the 1-2 weeks) include fits of many rapid coughs followed by a high-pitched whooping sound, vomiting after coughing fits, exhaustion after coughing fits.
1 in 4 (23%) will develop pneumonia
1 in 100 (1.1%) will have convulsions
3 out of 5 (61%) will have apena
1 in 300 (.3%) will get disease of the brain
1 in 100 (1%) will die
Treated with antibiotics. Need to catch early, by 3 weeks damage already done.
Immunity for 20 years
Preventable by good hygiene ie covering mouth with tissue when coughing or sneezing, washing hands often, germ-x, throwing tissue away.

<u>Side effects of DTap vaccine</u>
Common (1 in 4): fever, swelling or redness where shot was given, soreness or tenderness where shot was given
Other mild side effects: fussiness (1 in 3), tiredness or poor appetite (1 in 10), vomiting (1 in 50). These problems occur 1-3 days after shot.
Uncommon: seizure (1 in 14,000), non-stop crying for 3 hours or more (1 in 1,000), high fever over 105 (1 in 16,000)
Severe: severe allergic reaction (1 in a million), long-term seizures, coma, or lowered consciousness, permanent brain damage.

Pneumococcal disease
One of the most common causes of severe pneumonia
Also causes ear infections, sinus infections, meningitis, and bacteremia (infection in blood)
Most at risk under 2 years of age, attending daycare or other child group activities, illnesses like sickle cell, or certain races (american indian, african american, alaska native)
Spread person to person through direct contact with saliva or mucus
Many people, especially children, are already carriers of the disease but never get sick from it
About 1 in 15 children under 5 who develop meningitis will die
1 in 100 children under 5 who develop bacteremia will die

Antibiotics are given as treatment. Resistant to one or more strains of antibitoics in 3 of 10 cases.
Estimated that 900,000 adults in US get pneumococcal pneumonia yearly and 5-7% die. As many as 400,000 hospitalizations annually
90% of people infected with pneumococcal meningitis or bacteremia are adults.
3,700 deaths in 2013 from pneumococcal meningitis and bacteremia

Side effects of PCV13
Half became drowsy after the shot, had a temporary loss of appetite, or had redness or tenderness where the shot was given.
About 1 out of 3 had swelling where the shot was given.
About 1 out of 3 had a mild fever, and about 1 in 20 had a fever over 102.2°F.
8 out of 10 became fussy or irritable.
Children at receive flu vaccine at same time are at risk of seizures.
Fainting or feeling dizzy, ringing in ears, vision changes.
Severe pain where shot was given and unable to move arm
Severe allergic reaction
Death or severe injury

Polio
Extremely rare, 0 cases in 2015
Between 1980 and 1999 there were 162 confirmed cases
Still exists in Pakistan and Afghanistan
Decreased by 99% since 1988 from 350,000 cases globally to 74 cases in 2015
Not curable
1 in 4 people will develop flu like symptoms for 2-5 days before going away
Many people don't develop any symptoms but can still spread disease for up to 2 weeks
72 out of 100 people will not have any symptoms
1 in 200 people will become paralyzed from polio
Between 2-10 people out of 100 will die from polio because it paralyzes the muscles you use to breathe
Very contagious and spreads from contact with an infected person's feces. Also spreads through contaminated food or water. Rarely spread through coughing or sneezing.
99 children out of 100 will be protected from polio if vaccinated

Side effects of vaccine
Mild: sore spot where spot was given
Less common: fainting, vision changes, or ringing in ears, severe shoulder pain
Other: severe allergic reaction, death or severe injury

Influenza
Very common
More than 3 million cases per year in US

Spreads easily
Vaccine doesn't fully protect
Usually self treatable but sometimes need for prescribed medications
Symptoms include fever, cough, aching muscles, chills, headache, fatigue, nasal congestion, sore throat
Short term illness, usually resolves within days to weeks
Spread from coughing, sneezing, hugs, handshakes, shared drinks, kissing, contaminated door handles, blankets, etc.
Young children, pregnant women, and elderly people are most at risk
2014-2015 148 pediatric deaths
2015-2016 77 pediatric deaths so far
Death becomes a risk when other illnesses develop like pneumonia

Vaccine side effects
Minor: soreness/redness/swelling where the shot was given, hoarseness, sore/red or itchy eyes, cough, fever, aches, headache, itching, fatigue. Usually resolves within 2 days of vaccine.
Serious: 2 cases per million vaccinated will develop GBS. Young children that receive flu shot with DTaP or PCV13 are at risk of seizures.
Other: severe allergic reaction, severe shoulder pain, dizziness, ringing ears, changes in vision, severe injury, death

Measles
Extremely rare
188 cases in 2015 in US
Resolves within days to weeks
In 1963 nearly all children had measles by the age of 15. 3 to 4 million people were affected each year while 400 to 500 people died yearly, and 48,000 were hospitalized. 4,000 suffered swelling of the brain.
Worldwide 100,000 people will die from measles yearly.
Symptoms appear 7-14 days after a person is infected. Symptoms include fever, runny nose, cough, and red watery eyes. Within 3 days of symptoms appearing, tiny white spots will appear in mouth. 3-5 days after symptoms appear a red rash will breakout. Starts at hairline and spreads downward. Flat rash will bumps on top of it.
Not treatable. Fever reducer is used
Vitamin A can protect or lessen the severity of measles.
Lifetime immunity
Spreads through coughing, sneezing, kissing, sharing drinks, handshakes or hugs, or touching contaminated objects.

Mumps
Very rare, in 2012 229 cases reported in US
Resolves within days to weeks

Symptoms appear in 12-25 days. These include fever, headache, muscle aches, tirednes, loss of appetite, swollen and tender salivary glands under the ears on one or both sides
Complications such as hearing loss are possible but very unlikely
Spreads from coughing, sneezing, kissing, sharing drinks or utensils
Rare but potentially can cause swelling in testicles, ovaries or breasts, pancreas, or brain.
No treatment
Lifetime immunity

Rubella
Very rare, less than 10 people reported having rubella per year in US
German measles
1964 to 1965, an estimated 12.5 million people got rubella, 11,000 pregnant women lost their babies, 2,100 newborns died, and 20,000 babies were born with birth defects.
Still common outside of US
Symptoms include fever, headache, pink eye, general discomfort, runny nose, cough, swollen and enlarged lymph nodes. 1-5 days after symptoms begin, a red rash will appear starting on face and spreading.
20-50% of people infected will not experience any symptoms
70% of women will develop arthritis. Men and children do not.
Most at risk are pregnant women, can cause miscarriage or infant dying shortly after birth. Birth defects
Spreads through coughing or sneezing
No treatment. Fever reducer or bed rest
Lifetime immunity

<u>MMR vaccine side effects</u>
Mild: fever (1 in 6), rash (1 in 20), swelling in glands in cheeks or neck (1 in 75). These occur 6-14 days after shot.
Moderate: seizure (1 in 3,000), temporary pain or stiffness in joints mostly in teen or adult women (1 in 4), temporary low platelet count which can lead to a bleeding disorder (1 in 30,000)
Severe: serious allergic reaction (1 in a million), deafness, long-term seizures, coma, or lowered consciousness, permanent brain damage.

Varicella
Rare
33 outbreaks in US in 2012
Fewer than 10,000 cases in 2011
In the 1990s 4 million people got chickenpox. Only between 100-150 people died
Highly contagious. Spreads through coughing, sneezing, hugging, kissing, handshakes, shared drinks, touching a contaminated object
Anyone that has never had the chickenpox is at risk

Chickenpox appears 10-21 days after exposure to virus. Lasts 5-10 days.
Symptoms that appear 1-2 days before rash include fever, loss of appetite, headache, tiredness, or general unwell feeling.
Rash goes through 3 phases: red bumps, blisters, then scabs
Rare for severe cases but if so rash can spread to eyeballs, urethra, anus, throat, vagina.
Rarely requires medical treatment. Anti-itching cream at the most.
Lifetime immunity. Vaccine does not prevent chickenpox
Shingles may occur as an adult. Virus reappears.

Side effects of vaccine
Mild: soreness or swelling where shot was given (1 in 5), fever (1 in 10), mild contagious rash for up to a month (1 in 25)
Moderate: seizures
Severe: pneumonia, severe brain reactions, low blood count.

Hepatitis A
Rare
1,239 cases in 2014, 76 were fatal
Does not result in chronic illness
80% of adults have symptoms but most children do not
Lifetime immunity
Affects liver's ability to function
Spread from food or water that has been contaminated with an infected person's feces (not washing hands), sex, eating raw shellfish that has been polluted by sewage
Symptoms don't appear until weeks after infection
Symptoms include fatigue, nausea or vomiting, abdominal pain or discomfort in area of liver, clay colored bowel movements, loss of appetite, fever, dark urine, joint pain, jaundice
May be a mild illness that lasts a few weeks or a severe illness that lasts month. Not everyone has symptoms which is why washing hands after using restroom is important in not spreading virus.
You're at risk for hep a if you travel to regions with high hep a rates, attend/work a child care center, a man having sex with other men, are HIV positive, have a clotting disorder, using injected drugs, live with a person that has hep a or have anal to oral contact with infected person
No treatment, liver heals itself within 6 months
People with weak liver will be hospitalized as liver will stop working and may result in death or liver transplant

Side effects of vaccine
Minor problems: soreness or redness where shot was given, low-grade fever, headache, tiredness. These problems begin soon after shot and last 1-2 days.

Other side effects: fainting, dizziness, ringing of ears, changes in vision, severe shoulder pain, severe allergic reaction, serious injury or death

Meningococcal disease
Rare
1,000 people are infected yearly in the US
Causes membranes over spinal cord and brain to become inflamed
People at risk include travelers to sub-saharan africa, people without a spleen, HIV positive, college campuses
Caused by bacteria that 1 in 10 people are carriers of in back of nose and throat
Spread from person to person from spit or saliva through kissing or coughing. Can be spread through close contact but unlikely. Not as contagious as flu. Not spread from casual contact.
If come in close contact with someone with meningococcal disease antibiotics should be given for safety.
Symptoms for meningitis include fever, headache, stiff neck, nausea or vomiting, sensitivity to light, and confusion. Symptoms in infants are vomiting, fever, feeding poorly, inactive, or their refluxes.
Symptoms for bloodstream infection include fever, fatigue, vomiting, cold hands and feet, cold chills, severe aches or pains in muscles, joints, belly, chest, rapid breathing, diarrhea, and in late stages a dark purple rash.
Needs to be treated right away. Treated with antibiotics
10-15 out of 100 people will die
11-19 out of 100 people will have long term disabilities like deafness or brain damage.
Develop an immunity to meningococcal disease. Rare to have more than once, if have more than once then have underlying issue such as an immune deficiency

<u>Side effects of vaccine</u>
Mild: fever, redness or soreness where shot was given. These problems last for 1-2 days
Other side effects: dizziness, fainting, ringing of ears, vision change, severe shoulder pain, severe allergic reaction, severe injury or death

<u>Improving immune system:</u>