

The Implications of the Measles Mumps and Rubella Vaccine and
the Causes of Autism

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by

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Introduction

Summary of the Case Study

Seth is a 5-year-old unvaccinated Caucasian male who presents to the emergency department (ED) for a high fever of 104 degrees and a rash. Upon assessment by the ED physician he is found to have a cough, runny nose, conjunctivitis, a blotchy red-brown rash that covers his entire body and bluish-white spots inside his mouth. Based on his symptoms Seth is diagnosed with measles and admitted to the pediatric intensive care unit (PICU) and placed in isolation. After lab work and x-rays are completed it was revealed that Seth's condition is further complicated by dehydration and bilateral pneumonia. Fluids and antibiotics are started. Soon Seth developed encephalitis and began having seizures. Despite aggressive medical management Seth could not be saved and died less than 24 hours after admission to the PICU.

Seth has an 8-year-old brother Evan who has autism and a 3-year-old brother Mark who like Seth is unvaccinated. Seth's mother Kathy is divorced and devotes all her time to caring for her three children and traveling often seeking the latest treatments for her oldest son's autism. Kathy is convinced that the measles, mumps and rubella (MMR) vaccine is the cause of Evans autism and therefore chose not to vaccinate her youngest two sons.

Kathy felt that the risk of autism was a greater risk to her younger children than the risk of them contracting measles, mumps or rubella and was surprised when Seth was diagnosed with measles. She was shocked to find out how serious this disease is and could not comprehend that her child had died from what she perceived as a simple childhood illness. Kathy states, "Isn't it just like chicken pox? No one dies of measles anymore!" Kathy now must decide what to do about her 3-year-old son: vaccinate and risk him having autism or leave him unvaccinated and risk him dying of measles?

General Ethical Dilemma

Should parents vaccinate their children and risk a potential harm like autism or should they not vaccinate and risk potential harm from deadly diseases? This mother's fear of autism is a contributing factor because her oldest son started exhibiting the signs and symptoms of autism after he received the MMR vaccine. What is the greatest risk to her remaining unvaccinated child?

The ethical dilemma in this case is risking death from a vaccine preventable disease to avoid the potential risk of eliciting the symptoms of autism. This highly controversial idea began over a decade ago when a British gastroenterologist conducted a study based on 12 children, nine with autism, and concluded that the MMR had caused autism in these children. The study claimed that measles genetic material was found in the intestinal cells of some of the children and theorized that the upset intestines released toxins into the blood stream which traveled to the brain inducing autism (Mooney, 2009). This sparked an anti-vaccine movement which erupted into a heated debate that still claims headlines on the evening news today. Stories of the "autism epidemic" caused by the MMR vaccine can be found everywhere from the television news, to celebrity spokesmen and to the Internet. The claims that the MMR vaccine causes autism have lead to thousands of legal claims and in some instances harassment and threats against scientist working to discredit this claim (Mooney, 2009).

Stakeholders in the Issue

The primary stake holders in this situation are the patient and his family. A parent should take into consideration the opinions of the healthcare providers along with legitimate scientific evidence. Failure to weigh all the evidence for and against the vaccine will contribute to misinformation and decisions based on partial evidence resulting in harm to the remaining

unvaccinated child. A parent cannot give their child a vaccine they believe to be harmful, therefore quality scientific evidence must be provided demonstrating the vaccine's safety before a parent can believe in and take part in this aspect of preventative medicine. Other stakeholders may be the community in which this child lives, anti-vaccine groups, pro-vaccine groups, legislators and the legal system.

Our culture influences all of our decisions to some degree, including whether or not to vaccinate our children. A parent's primary goal is to protect their child and the culture in which they live influences what the parent perceives as protection. In this situation, our culture is bombarded with opinions from both pro-vaccine groups and anti-vaccine groups making the current culture (and parents) unclear about which action constitutes protection: To vaccinate or not to vaccinate?

Ethics Section

Clarification and Expansion of Ethical Dilemma

Vaccination against deadly and crippling diseases began in 1796 when Edward Jenner developed a vaccine for smallpox and has since become the cornerstone of current preventative medicine. The goal of vaccinations is to give the immune system an opportunity to build effective antibodies to vaccine antigens providing the host with internal defenses against a multitude of infectious diseases. Many of these diseases had high rates of mortality and morbidity in the past (Miller & Reynolds, 2009). Today infants and preschool children are routinely vaccinated against 14 diseases.

The MMR vaccine, which contains a live attenuated measles strain, was introduced in the United States in 1971. The Advisory Committee on Immunization Practices (ACIP) recommends that the MMR be given to children ages 12 to 15 months with a second dose between 4 to 6 years

(Miller & Reynolds, 2009). The incidence of measles has decreased from about 500,000 cases and 500 deaths per year to just a few dozen cases per year in the United States.

In 1998 Andrew Wakefield and twelve coauthors conducted a small study including only 12 children. All of the children had a developmental disorder, 9 of these children had been diagnosed with autism, 6 of which had the onset of autistic symptoms linked with the receipt of the MMR by a parent or a physician (Miller & Reynolds, 2009). Wakefield and his colleagues published a paper which described abnormal gastrointestinal features claiming that measles ribonucleic acid (RNA) was found in the intestinal cells of some of the children. Wakefield theorized that the irritated intestines released toxins into the bloodstream which then traveled to the brain inducing autism (Mooney, 2009). Wakefield held a press conference announcing that he had discovered a “shocking cause of autism” sparking an instant and enduring media frenzy.

Autism is a brain development disorder characterized by failed social development, the inability to communicate and obsessive-compulsive repetitive behaviors (Mooney, 2009). The cause of Autism is not completely understood however abnormalities in brain structure and function have been identified but the initiating and underlying abnormalities have not been defined (Honey, 2008). Genetic factors play a crucial role but researchers have not been able to identify the specific genes involved in this disorder. Twin studies demonstrate that if one twin is affected then the other twin has a 60% chance of also having the disorder (Mooney, 2009). Research indicates that environmental factors contribute to the onset of the disorder however identifying precise environmental triggers has proven extremely controversial (Honey, 2008). Autism diagnoses have risen over the last 20 years from one in 10,000 to one in every 150 children (Mooney, 2009). The toll on families is emotionally and financially devastating with costs reaching as high as 100,000 dollars a year for medical services and behavioral therapy,

most of which is not covered by insurance providers. Autism is complicated and should not be thought of as a single disorder but as a spectrum of disorders with varying forms of expression and potentially multiple types of causation that is incompletely understood.

In 1986, the National Childhood Vaccine Injury Act was passed which then led to the creation of the National Vaccine Injury Compensation Program providing families and individuals who have suffered injuries as a result of vaccines with monetary compensation (Miller & Reynolds, 2009). This Act requires healthcare providers to report any adverse events related to vaccination within 30 days through the Vaccine Adverse Event Reporting System (VAERS). VAERS was established in 1990 and managed by the Centers for Disease Control and Prevention (CDC) and the Food and Drug Administration (FDA). VAERS is a passive surveillance system used to identify and track reporting trends that require further investigation. Vaccine manufacturers are required to complete rigorous prelicensing testing through clinical trials and strict reporting of adverse events to ensure the safety of vaccines (Miller & Reynolds, 2009). In the United States many checks and balances have been created to ensure vaccine safety and increase public confidence so that our children can be safely protected from vaccine preventable diseases. However, at the inception of this Act, it was unforeseen that the program would be inundated with 5,000 claims in 8 years arguing a relationship between autism and vaccines (Moreland, 2008).

Arguments For and Against Vaccination

The controversy that began in 1998 with the Wakefield study continues to rage on today supported by parents who feel their children have been injured by the MMR (Mooney, 2009). The movement also has strong support in pop culture supported by celebrities such as Jenny McCarthy, Charlie Sheen, Jim Carrey and environmental lawyer Robert F. Kennedy Jr.

Investigative journalist David Kirby's book, *Evidence of Harm* in 2005, added fuel to the fire increasing the anti-vaccine movement. Faced with the constant bombardment of the opinion that the MMR causes autism, parents of these children are desperate to identify the cause of their child's illness and naturally began to buy into this idea. As more parents believed in this idea vaccination rates decreased and legal claims began to increase. In response, anti-vaccine activist groups developed globally. High profile lawyer Robert F. Kennedy Jr. published an article claiming that government health agencies, "Big Pharma" and the Institute of Medicine colluded to hide the risks associated with vaccines adding fuel to the fire (Mooney, 2009).

The problem with the argument posed by the anti-vaccine movement is that the science in which they have founded their beliefs has been found to be based on unproven theories which lack rigorous testing and supported by expert witnesses lacking adequate credentials (Stewart, 2009). The study central to the anti-vaccine movement by Andrew Wakefield in 1998 has since been discredited by new research, epidemiological studies and the inability of researchers to reproduce Wakefield's findings (Mooney, 2009). Wakefield has been investigated for professional misconduct and during the course of this investigation it was discovered that his study had been partially funded by lawyers investigating whether or not the parents claiming their children were damaged by the MMR had a case (Pulse, 2006). The coauthors in Wakefield study have since retracted the autism implications from their work (Mooney, 2009).

The argument for vaccination is strong and based in sound scientific research. Multiple epidemiological studies, conducted independently by scientific and professional committees around the world, examined the causality between MMR and autism finding no evidence that a link between MMR and autism exists (Mooney, 2009). Taylor, et al. (1999) conducted one of the largest epidemiological studies examining the causal association of MMR and autism. This study

included all children with autism born since 1979, identified through special needs/disability registries in eight North Thames health districts in the United Kingdom (UK). Taylor et al. (1999) found no difference in age at diagnosis between cases vaccinated before or after 18 months and those that were never vaccinated. There were no clusters of developmental regression noted in the months after vaccination, and no association between the onset of autistic symptoms within 1 to 2 years of vaccination. Therefore, this study found no causal association between the MMR vaccine and autism.

Smeeth et al. (2004) conducted a large case-control study assessing the link between MMR and Pervasive developmental disorders (PDD). The study included 1,294 cases and 4,469 controls, the cases were gathered from the UK General Practice Research Database. The results of this study found no relationship between the MMR vaccination and an increased risk of being diagnosed with PDD.

Honda, Shimizu, and Rutter (2005) conducted a study investigating the causal relationship between the MMR vaccine and autism spectrum disorders (ASD). The study was conducted in Khoku Ward, Yokohama, Japan a population of about 300,000 people. The study included children born from 1988 to 1996 and examined the cumulative incidence of ASD up to seven years of age. Japan passed the Immunization law and stopped administering the MMR vaccine which allowed the study to follow and compare the subjects who received the MMR and the ones who did not. The results showed that there was no association between MMR and ASD and in fact the rate of ASD diagnosis increased after the withdrawal of the MMR vaccine.

The researchers from Guy and Saint Thomas Hospital in London conducted a study consisting of 250 children aged 10 to 12 years born between 1990 and 1991 (Practice Nurse, 2008). The sample was comprised of 98 autistic children, 52 with special education needs, and

90 normally developing children. Blood samples were examined to determine the presents of persistent measles infection or abnormal immune response. There were no differences in blood samples between the three groups. The results of the study failed to show a link between the MMR and autism.

The scientific evidence exonerating MMR as a cause of autism is overwhelming, however it is prudent to acknowledge that vaccines do pose a risk and in rare cases they can cause serious, well-known adverse side-effects (Mooney, 2009). Even with the acknowledgement of risk with vaccines the one point on which medical scientists agree unequivocally is that it is unsafe to avoid them.

The increase in ASD diagnosis is thought to be attributed to an increased awareness of the symptoms by the public and physicians with no basis in sound scientific evidence (Gernsbacher, Dawson, & Goldsmith, 2005). The broadening of the diagnostic criteria by the American Psychiatric Association's diagnostic manual (DSM IV), has loosened the required symptoms from six of six to any eight of sixteen and increasing from only two diagnosis relevant to autism to five diagnosis including Asperger's syndrome, has also contributed to the rise in diagnoses (Lilienfeld & Arkowitz, 2007). Another contributor to the rise in autism diagnosis is the Individuals with Disabilities Education Act (IDEA) which requires school districts to provide exact counts of students with disabilities resulting in sharp surges of reported children with autism. Diagnostic substitution also plays a heavy role in the increase of autistic diagnosis as many children that would have previously been diagnosed as mentally retarded are now being placed under the autism umbrella.

From a deontological perspective the ethical concepts of autonomy/informed consent, nonmaleficence, beneficence, veracity and justice should be considered when educating and

guiding parental decisions about vaccinating their child. In pediatrics the concept of autonomy cannot be applied in the same way it is in adult medicine because children are not autonomous, parents or guardians must make decisions in the child's best interest (Lo, 2009). Informed consent must fall to the parents, a child is not capable of weighing the risks and benefits of medical treatments thus the parents must be given full disclosure of the risks and benefits of the treatment or in this case the vaccines being considered in order to make the best choice for their child. Physicians seek parental permission rather than consent emphasizing that the child is a separate person and what a person decides for themselves may be different than what they choose for their child. Parental permission should be combined with the child's assent when developmentally appropriate and while adults can refuse treatment parents do not have absolute power to refuse care for their child (Lo, 2009). Cases where parents refuse care when the benefits are great and the side effects are minimal and the child will suffer permanent damage or death without the treatment the parents can be overruled by the court system.

Beneficence is to promote the benefits and welfare of your patient while preventing or removing harm. Beneficence is considered the primary ethical guideline governing pediatrics (Lo, 2009). Parents are generally the best decision makers for their child as they have long-term relationships, are obligated to their children and are usually guided by love. Parents who choose to vaccinate or not to vaccinate feel that they are acting in the best interest of their child based on what they determine to be safe for the child. Physicians need to act in the best interest of their patients by providing parents with high quality information, addressing myths, and honestly answering parent's questions related to the risk of vaccinating verses the risk on not vaccinating.

Nonmaleficence is to do no harm (Lo, 2009). By providing vaccines, some parents feel they may be doing harm to their child. It is the job of the healthcare provider to present the

parents with the risks and benefits of vaccination and the recourses necessary to make an informed decision, including the potential harm inflicted by not vaccinating their child.

Veracity is to tell the truth, however this concept has traditionally been ignored in the codes of medical ethics. Veracity is closely related to respect for others, obligations of fidelity and establishing trust (Beauchamp & Childress, 2009). Healthcare providers are ethically bound to tell their patients the truth which is essential in building a relationship with our patients. Full disclosure is essential in presenting the facts about vaccinations and can be a source of mistrust if the provider is not forthcoming with the information. Risks and benefits of vaccination should always be disclosed to parents allowing their decisions to be based on facts not opinion, partial truths or lies.

Justice is interpreted as fair, equitable, and appropriate treatment in relation to what is due or owed to a person (Beauchamp & Childress, 2009). The anti-vaccine groups and parents who claim injury from the MMR are seeking justice in the court system and recently the first three of 5500 cases were heard by a the US Federal Courts (Child Law Practice, 2009). The Courts ruled that the MMR was not the cause of these children's illness and denied the families compensation. While this is disappointing for the families of these children, it is a victory for science and all the future children whose parents will be more confident in vaccinating their children thus protecting them from injury or death from vaccine preventable diseases. This is also justice for society as a whole because pockets of vaccine preemptors pose a threat to the whole community (Mooney, 2009). As more evidence is compiled more parents may become comfortable with vaccinating their children increasing the safety of their children and the communities they live in.

Legal Issues

In February 2009 the results of the first three test cases heard by the National Vaccine Injury Compensation Programs (VICP) Omnibus Autism Proceedings were released (Stewart, 2009). In each of the three cases, *Cedillo v. Secretary of Health and Human Services*, *Hazlehurst v. Secretary of Health and Human Services*, and *Snyder v. Secretary of Health and Human Services*, the claims alleged that the MMR vaccine caused the child's autism spectrum disorder (ASD). The cases were heard in the Court of Federal Claims by Special Masters who serve as judges. The filing fee may be waived and attorney fees may be awarded regardless of the outcome assuring that families who could not otherwise afford to file suit can have their cases heard (Stewart, 2009).

Petitioners qualify for compensation by demonstrating that an injury meets the criteria provided via the program's Vaccine Injury Table or by providing evidence showing that it is "more probable than not" that the vaccine is responsible for the injury (Stewart, 2009). The evidence that a special master may consider is not regulated by rules of discovery or evidentiary rules that apply in federal district court. This allows petitioners to introduce a broad array of documentation to substantiate their claims including such items as expert medical opinion, circumstantial evidence and scientific theories (Stewart, 2009). With the three cases combined the judges considered 50 expert reports, heard 28 expert testimonies compiling record that consisted of 939 medical articles, 700 pages of post-hearing briefs and a 5000 page transcript (Child Law Practice, 2009).

All three judges independently rejected the MMR vaccine as the causative agent in these children's ASD. The judges found the evidence provided by the petitioners was weak, contradictory, and unpersuasive (Fitzpatrick, 2009). One judge felt these families were victims of

bad science conducted for the sole purpose of supporting litigation, not to advance medical and scientific understanding. Further, the professional witnesses provided by the vaccine-autism groups were exposed as having limited expertise and experience and the evidence they provided was considered to be unreliable and unconvincing (Fitzpatrick, 2009). In all three cases, the petitioners have filed appeals however, a return to the pre-VICP legal environment characterized by the onslaught of civil claims throughout the country is not expected (Stewart, 2009).

Personal Decision

This author supports vaccination believing that the greatest risks are those associated with non-vaccination, leaving children vulnerable to injury or death from vaccine preventable diseases. Multiple high quality independent studies previously discussed have repeatedly demonstrated no link between the MMR vaccine and autism. In this fictitious scenario Seth has died from measles complications and his brother Mark is unvaccinated and had been exposed to measles from Seth. His mother must decide to immunize Mark and treat him with immune globulin to prevent his possibly suffering the same fate as Seth. Faced with this decision this author would provide Kathy with evidence-based information on the risks and benefits of vaccination as well as the risks of not vaccinating Mark. I would guide her through the information and address any questions she may have. If I am successful, she will vaccinate Mark, if not then it would be necessary to obtain a court ruling to override Kathy's decision in order to protect Mark. The risk of exposure to Seth's measles outweighs the risk of the vaccine in this situation.

Another way of reasoning this case would be to give Mark the immune globulin and a single measles vaccine, not the combination MMR. This would at least protect him from the current exposure and potential illness he faces as a result of his brothers illness. This would

allow Kathy the extra time she needs to explore new more reliable sources of research on vaccinations without risking her son's life and without doing something she feels is wrong.

Summary

Measles continues to be a leading cause of death among children worldwide despite the availability of a safe effective vaccine (World Health Organization, 2009). Globally, in 2007, measles accounted for 197,000 deaths, nearly 540 deaths per day and 22 deaths per hour of young children usually under the age of 5 years. In the United States (US) measles cases reached 131 for the first 7 months of 2008 (PharmacoEconomics & Outcomes News, 2008). The two US populations that have been identified as high risk for measles epidemics are home-schooled children and members of religious faiths who that do not allow vaccination. The trigger for such an outbreak would most likely be a foreign unvaccinated visitor to this type of community.

Population pockets with low vaccination rates have existed in the US for quite some time and governmental medical authorities fear that high-profile vaccination injury claims will widen this phenomenon with potentially disastrous results (Mooney, 2009). In New York State alone the vaccination exemption rates doubled from 1999 to 2006. The vaccine for this terrible disease has been in use for 40 years and has been proven safe, effective and inexpensive costing less than one US dollar to vaccinate a child and save a life (World Health Organization, 2009).

Paradoxically, the great success of vaccines may be the very reason that the anti-vaccine sentiment has been able to thrive (Mooney, 2009). Because the diseases that vaccines protect against are no longer seen as a threat, few people personally remember the devastation they can cause making it possible to indulge in the luxury of vaccine skepticism and avoidance.

The deontological perspectives of autonomy, beneficence, nonmaleficence, veracity and justice were explored with beneficence being identified as the primary ethical guideline in caring

for children (Lo, 2009). Nurses have the unique opportunity and obligation to advocate for our patient's ensuring that the decisions made on behalf of our patients by parents and other healthcare professionals are truly in our patient's best interest. It is the responsibility of nurses to educate, guide in the search for information and present all sides of the argument while advocating on behalf of the patients for whom we care. The best interest of our patient's must come before the interests of all others.

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Appendix A

Patient Presentation in the Emergency Department

Ennis Children's Hospital

South Clay601

Ennis, Texas 75119

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Seth Young

DOB: 11/17/2004

DOV: 11/30/2009

Emergency Department Visit

The History and Physical

Subjective:

Chief Complaint: Fever of 104 and a rash

History of Present Illness: He has had a high fever for four days, along with a clear runny nose and a cough that has been getting progressively worse, and his eyes are red and watery. Two days ago he developed a rash that began on his face and neck and now has spread to the rest of his body.

Social: Seth lives with his mother Kathy who is 38 years old and divorced; his eight year old brother Evan who is autistic, his 3 year old brother Mark. Their father is not involved.

Objective:

General: A 5 year old male with a red-brown rash to face, trunk and extremities, lethargic but responds to questions appropriately, rapid shallow respirations, warm extremities.

HEENT: Head WNL; Eyes injected bilaterally with clear discharge; Ears with very red, bulging TM's; Nose: clear rhino rhea; Throat red with bluish-white spots.

Cardiac: heart rate of 170, BP of 70/25, capillary refill < 3 seconds, bounding central pulses.

Respiratory: Diminished breath sounds and crackles bilaterally, shallow breathing with a respiratory rate of 60 and intercostal and substernal retractions.

GI: abdomen soft, non-tender, no masses, and a history of diarrhea for 3 days.

Neuro: PERRLA, lethargic, arouses to tactile and verbal stimulation, answers questions appropriately for age.

Extremities: Full active and passive ROM

Tanner: 1

Labs: WBC 20, RBC 5.01, Hgb 12.2, Hct 30.0, MCV 70.0,

X-rays: Bilateral pneumonia

Impression:

1. Septic shock
2. Measles with secondary BOM and pneumonia

Plan:

1. Correct septic shock/stabilize, start antibiotics.
2. Admit to PICU and place in isolation.
3. Aggressive medical management of measles complications.
4. Support family and answer questions.
5. Request Chaplain Services when indicated.

Appendix B

Case Consultation - Worksheet A

Case Consultation**Worksheet A****Step1: Personal Responses:**

I feel that vaccination is a safe and necessary component of preventative medicine. Children should be spared suffering from and possibly dying from vaccine preventable diseases. As nurses we should guide the family through the maze of information, teaching them to know the difference between quality science and bad information, ensuring the decisions they make are based on reliable information.

Step 2: Facts of the Case:

1. Evan has autism that his mother believes to be caused by the MMR vaccine.
2. Seth and Mark are unvaccinated.
3. Seth contracts measles and dies.
4. Should Mark be vaccinated and risk autism or not be vaccinated and risk measles (he had been exposed by his brother)?

Step 3a: Clinical/Psychosocial Issues Influencing Decision:

1. Is the mother's fear of vaccination based on reliable evidence?
2. Which is the greatest risk: harm from vaccination or harm from no vaccination?
3. Kathy's distress: What is the best course of action to protect Mark? The imminent threat of measles exposure for Mark. The death of one child and one child with autism.

Step 3b: Initial Plan:

1. Admit and care for Seth until his death.
2. Grief counseling for Kathy, Evan, and Mark.
3. Educate Kathy using reliable sources of information so that she can make an informed decision.

Step 4: Policies & Ethical Code Directive:

1. Nonmaleficence
2. Beneficence
3. Autonomy

Step 5: Ethical Principles Analysis:

1. Nonmaleficence: provide at treatment plan with the best outcomes for the patient.
2. Beneficence: Meet with the Kathy and provide her with the information she needs to determine the balance between benefit and harm.
3. Autonomy: Kathy must weigh the options and make the choice she feels is best for Mark.

Step 6: Possible Legal Issues:

1. The right of a parent to refuse care for their child.
2. Review the risks of non-vaccination for Mark.
3. Failure to treat issues related to measles exposure.

Appendix C
Case Consultation – Worksheet B

Case Consultation

Worksheet B

Plan & Implementation Strategy:

1. Admit for intensive medical care.
2. Septic work-up, start intravenous fluids for rehydration with a 20ml/kg boluses as needed for hypotension related to septic shock, start antibiotics for pneumonia.
3. Educate and support family. Request a chaplain consult.
4. Patient develops encephalitis and seizures, intubate, start antiepileptic medications.
5. Nursing intervention:
Support: being with the patient and family, answering questions.
Advocating: making sure the best interests of the patient and family are properly served.

Write down how your plan:
Advances Clinical/Psychosocial Interests:

1. Emergent and ICU care of Seth.
2. Psychological support for Kathy, Evan, and Mark.
3. Answer questions, provide support.

Adheres to agency policies and professional ethics codes:

1. Follow hospital policies in relation to care and isolation of Seth and Mark.
2. Provide ethically based care in relation to beneficence, nonmaleficence, autonomy, veracity and justice.

Minimizes harm and maximizes other ethical principles to the extent possible for the client and relevant others:

1. Provide aggressive medical management to attempt to save Seth.
2. Psychological and emotional support for family.
3. Treat Mark to prevent his suffering as Seth had.

The above actions would minimize harm and maximize ethical principles to do what is best for Mark.

Allows you to operate within the law:

1. Acting in Marks best interest after Seth's death is paramount. If Kathy chooses not to treat Mark the healthcare providers should involve the courts to override her decision in order to save Mark.