

How to Effectively Guide Parents on the Discussion of Autism-Vaccine Controversy

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### **Abstract**

Autism among children has been of great interest to the public, especially parents, recently, because of the misinformation and misconception that it has been highly associated with the administration of measles, mumps, and rubella (MMR) vaccinations (Baker, 2008). The extensive reports made by the media as well as prominent political leaders have succeeded to destroy the parents' confidence in childhood vaccinations for many years. The refusal of parents to have their children vaccinated could potentially lead to the increased incidence of MMR among young children in the future (AAP, 2009).

This paper discusses some approaches of how physicians or health care professionals can address and communicate the autism-vaccine issues effectively to the parents so that parents can gain trust and dependence on the health care professionals such as pediatricians, nurses, physicians, and other members of the health care team. As health care professionals, we should have the desire to understand the parents' apprehensions and feelings, must be willing to listen to their thoughts and views, must be able to give them our full attention, and should be excellent educators when they have any questions and concerns regarding the safety of MMR vaccines. Understanding the parents' concerns, paying close attention to their fears and worries, and communicating with them using various and effective ways are vital because these can make a positive difference in the way parents make decisions about the administration of MMR vaccinations to their children.

## **Objectives**

The objectives of this project are to develop recommendations as well as effective communication to guide physician-parent discussion regarding parents' concerns on autism and the safety of vaccination among young children.

## **Introduction**

Autism, also known as autistic spectrum disorder (ASD) or pervasive developmental disorder (PDD) is of great concern to the healthcare professionals such as practicing pediatricians, researchers, nurses, clinicians, and other health care professionals (Muhle et al., 2004). It is a syndrome with multiple genetic and non-genetic causes; it is not a disease (Muhle et al., 2004). This is a critical definition since it is an end phenotype of a number of intricate, discrete, and overlapping etiologies at several levels of causation that include genes as well as brain development (Charman, 2003).

Autism is characterized by social, imaginary interactions, and communication impairments as well as restricted, repetitive, and stereotyped patterns of behavior after a period of normal growth and development (Mercer, 2006; Woo et al., 2007). The heterogeneity of ASD presentations begin from the broad variation in the intellectual and language development of the affected children and also from the potential ambiguous comorbidities such as learning disabilities or attention deficit disorder (O'Hare, 2008).

Over the last 10 years the prevalence of autism has increased although it is uncertain if this escalation is due to a true increase, increasing awareness, or increasing differences in the methods used to assess prevalence of autism (Miller and Reynolds, 2009). Before the 1970's, the incidence of autism was 1 in 10,000 and in 2008 the number has steadily increased to 1 in 150 (Cave, 2008).

There may be some challenges in diagnosing the disorder at many points on the spectrum because of the similarities in stereotypical repetitive movements that can transpire in conditions of severe learning disability (O'Hare, 2008). One example is the intellectual distribution where children may portray with an ASD-like phenotype that fails to attain diagnostic extent and severity. Thus, for security of diagnosis and for characterization of an individual child's strengths and difficulties in areas such as language and cognition, it is recommended that health care professionals use a multidisciplinary diagnostic approach to diagnose a child with this disorder (O'Hare, 2008).

Pediatricians who work in specialist diagnostic multidisciplinary teams must build skills and competence to identify ASD in all its clinical "guises" (O'Hare, 2008). Pediatricians also have a meticulous duty to consider the possibility of ASD in their work context with high-risk populations of children as there are many "perceived" advantages to early diagnosis and intervention even though it is arduous to ascertain that earlier intervention is more effective (O'Hare, 2008). Early studies proposed that the risk factor of autism was higher among children with higher socioeconomic status. However, recent studies have apparently shown that autism affects all races, socioeconomic status, and ethnicities equally (Scahill and Bearss, 2009).

Childhood vaccinations on the other hand, represent one of the most successful public health interventions in history. Ironically, many parents are questioning the safety and inevitability of vaccination among their children as the prevalence of vaccine-preventable diseases in the United States has achieved unprecedented lows (Smith et al., 2009). Although the incidence of preventable diseases has decreased, the American Academy of Pediatrics (AAP) has mentioned that “measles, mumps, and/or rubella are still out there, and in 2008 there were 140 cases of measles in the United States, more than any year since 1996” (AAP, 2009).

The resistance of parents to routine childhood vaccinations continues to grow. Many parents continue to fear that vaccinations during childhood can cause a series of adverse effects that range from dysfunctional immune system to ADD to autism (Baker, 2008). The refusal of parents to have their children vaccinated can create an impediment in providing medical care to those children who have low immunity and are more prone to get infected with any common childhood illnesses (Levi, 2007).

According to Miller and Reynolds, exposures to environmental factors such as vaccinations have increased and attained wide-ranging attention over the past several decades given the increase in prevalence of autism (Miller and Reynolds, 2009). An increasing number of vaccinations have become available to guard children against infectious diseases over the past years and a number of them are administered at a time period during early childhood that overlaps with the inception of developmental concerns related to autism (Miller and Reynolds, 2009).

According to Baker, “fading memory of vaccine-preventable diseases, adverse media coverage, misinformation on the Internet, and litigation” are various tendencies

that certainly play a role to this apprehension among parents and the public (Baker, 2008).

In Great Britain, the anxiety has focused on the MMR vaccine as the probable cause of autism, whereas in the United States, the anxiety has concentrated more on the role of a heavy metal, mercury, which is used as a preservative in vaccines, as the probable cause of autism (Baker, 2008). Other contributing factors are the mixed messages that parents obtain within the scientific and medical community (Levi, 2007). A more crucial factor, however, is the response that clinicians provide to the parents when being questioned about autism-vaccine controversy as well as the safety of vaccination (Levi, 2007).

Research funding has increased greatly due to the enormous public awareness and information about autism (Muhle et al., 2004). The mistrust of parents and public toward clinicians that administer the vaccines to their children as well as the governmental health agencies and pharmaceutical industries that produce the vaccines continues to fertilize conspiracy theories. According to Chung, “the current state of uncertainty among the public concerning autism and vaccines has reached a stage comparable to a metastatic cancer within the body of pediatric patients” (Chung, 2009).

Understanding the true incidence, recognizing the history, interpreting recent research findings, and knowing prevalence of autistic disorder are vital (Miller and Reynolds). All of these can help us as future healthcare professionals to communicate, educate, and provide accurate as well as precise information to the public, especially parents, about this disorder. Parents need to be well informed that there is no scientific evidence that links autism to MMR vaccines. It is our responsibilities to guide and

educate the public concerning health problems as well as complications which can potentially affect their children if they decide to have their children remain unvaccinated (Chung, 2009; Miller and Reynolds, 2009). In the year 2000, the MMR vaccines were effectively used to eliminate the incidence of MMR among the pediatric population in the United States (AAP, 2009).

In addition, this paper will also explore a brief overview of the history of autism, history of vaccination, the origin of autism-vaccine controversy, the scientific evidences of autism-vaccine controversy, the significance of childhood vaccinations, and why the autism-vaccine controversy lives on.

### **History of Autism**

Autism was first described in 1943 by psychiatrist Leo Kanner (Cave 2008). Autism is characterized by three behavioral impairment domains in children: 1) social interaction; 2) language, communication, and imaginative play; and 3) range of interests and activities (Muhle et al., 2004).

Baker stated that in Kanner's classic 1948 case report, he [Kanner] described autistic children as exhibiting “‘an extreme autistic aloneness’ closing out all social contact and also an ‘obsessive desire for the maintenance of sameness’ in their daily routines and play. The archetypal autistic child eventually attained language but utilized it in an emotionless way, sometimes combined with conspicuous rote reminiscence” (Baker, 2008). Baker also added that, Kanner, in conjunction with his contemporary,

Hans Asperger, who described an analogous disorder in 1944, was notably struck that “all the children were born to extremely intellectual and astute parents” (Baker, 2008).

Baker described that in 1965, psychologist Bernard Rimland, the parent of an autistic child, “rebuffed the psychogenic model of autism in his revolutionary *Infantile Autism*, proposing that the condition was entrenched in biology” (Baker, 2008).

Although the nature of the origin remains unidentified, a variety of studies have increasingly focused on the significance of genetics as one of the probable causes of autism (Baker, 2008).

According to Baker, in the 1970’s, researchers revised Kanner’s original restrictive diagnosis to incorporate children with greater impairment of intelligence and language and expanded it in the opposite direction to encompass higher-functioning children with labels such as “pervasive developmental disorders (PDD)” and “autistic spectrum disorders (ASD)” (Baker, 2008).

### **History of Vaccine**

The smallpox vaccination was believed to be the earliest medical vaccine. It was developed in the eighteenth century by Dr. Edward Jenner. Jenner’s work impressively preceded the work of Louis Pasteur who introduced the concept of viruses to the scientific world back in the 1800’s (Miller and Reynolds, 2009).

In 1796, Dr. Jenner vaccinated James Phipps using material from cowpox lesion, theorizing that vaccination with cowpox would lead to immunity against the dreaded smallpox. A later attempt to give Phipps the smallpox vaccine demonstrated his

immunity, which led to the commencement of the vaccine epoch (Miller and Reynolds, 2009).

In 1955, through massive clinical trials, Dr. Salk introduced the first killed polio vaccine in the United States. However, there were concerns with the vaccine as there were several hundred cases of paralytic polio that were induced by the vaccine. In the early 1960's, Dr. Sabin introduced a different polio vaccine that proved to be as effective as the first polio vaccine and much safer than the prior polio vaccine (Miller and Reynolds, 2009).

Historically, it was common for scientists to take personal risks for the benefit of science. Jenner, Salk, and Sabin jeopardized their reputations for these early breakthroughs to establish the era for future development of vaccines (Miller and Reynolds, 2009). Miller and Reynolds mentioned that, “the early vaccines were developed using a crude method compared to the laboratory-based vaccine development processes of today” (Miller and Reynolds, 2009).

### **The Significance of Childhood Vaccinations**

Childhood immunizations are proven tools used routinely worldwide to control and eradicate diseases that could cause infections among young children. Between 1967 and 1977, the World Health Organization (WHO) carried out a campaign to eradicate the deadly smallpox virus through childhood immunization. The incidence of poliomyelitis, another debilitating paralytic illness, was also reduced greatly through childhood vaccinations. In 1988, WHO and its partners of the Global Polio Eradication Initiative

managed to decrease the occurrence of these diseases by 99% and some five million people around the world have escaped paralysis. It has been predicted that maternal and neonatal tetanus will soon be eliminated in 14 out of 57 high-risk countries (WHO, 2005).

Since the introduction of MMR vaccines, the death rates from measles infection have dropped by 40% worldwide (WHO, 2005). According to the American Academy of Pediatrics, the MMR vaccines are the best way to protect and prevent children from acquiring communicable diseases, such as measles, mumps, and/or rubella, and also the best way to avoid outbreaks, complications, and also deaths from these illnesses (AAP, 2009).

Childhood vaccinations are administered as early as possible to ensure that infants are safeguarded against 14 common diseases that occur in early childhood (Miller and Reynolds, 2009). Some of these common diseases include measles, mumps, rubella, whooping cough, poliomyelitis, tuberculosis, chicken pox, tetanus, and diphtheria. There are possibilities of harms and risks when giving vaccines to children, but in general those risks are very small and minimal. The timing of vaccines is essential to ensure that protection precedes the exposure to diseases, which can be disabling or fatal to the young children (Anonymous, 2007).

It is vital to remember that from birth infants are exposed to numerous environmental organisms that can cause infections. Postponing vaccines can be precarious because it extends the time that infants are susceptible to communicable or infectious diseases that can have severe complications, especially for the youngest children (Miller and Reynolds, 2009).

### **The Origin of Autism-Vaccine Controversy**

The hypothesis that thimerosal-containing vaccines could explain the notable increase in the prevalence of autism started over the past 20 years among parents and professionals who are caring for autistic children (Baker, 2008). According to Baker, “the passion behind their arguments commences from a long history of advocacy on the children’s behalf, frequently in the face of psychiatric theories observed as ‘parent blaming’ and insufficiently funded educational and developmental resources in many communities” (Baker, 2008).

This controversy was further reawakened in 1997, when a Democratic congressman, Frank Pallone, from New Jersey attached a simple, 133-word amendment to a Food and Drug Administration (FDA) reauthorization bill that requires the FDA to compile a list of foods and drugs that deliberately contain introduced mercury compounds and to provide a qualitative and quantitative analysis of the mercury compounds in the list (Mehl-Madrona, 2008). The bill, also known as the FDA Modernization Act of 1997, was signed into law on November 21, 1997 (Offit, 2007).

In response, the Center for Biologics Evaluation and Research (CBER) at the FDA initiated a formal risk assessment of thimerosal in vaccines that began in April 1998. By this time, the vaccine schedule had expanded and three of the vaccines: *Haemophilus influenzae* type B conjugate, diphtheria-tetanus-acellular pertussis, and hepatitis B, which were regularly administered to young children potentially contained thimerosal (Baker 2008).

According to Offit, in May 1999, “the FDA discovered that by the age of 6 months, infants could receive as much as 75  $\mu\text{g}$  of mercury from three doses of diphtheria-tetanus-pertussis vaccine; 75  $\mu\text{g}$  of mercury from three doses of *Haemophilus influenzae* type b vaccine; and 37.5  $\mu\text{g}$  of mercury from three doses of the hepatitis B vaccine, a total of 187.5  $\mu\text{g}$  of mercury” (Offit, 2007). Thimerosal, an ethylmercury-containing preservative, has been used to inhibit bacterial contamination since the 1930s (Offit, 2007).

The FDA scientists then scrutinized safety guidelines to verify whether the quantity of mercury in vaccines was safe. The scientists examined these guidelines from three different sources: the Environmental Protection Agency, the Agency for Toxic Substances and Disease Registry, and the FDA Agency (Offit, 2007). They found safety guidelines for methylmercury, also known as environmental mercury, but not for ethylmercury, which is also known thimerosal. Offit has mentioned that since these two molecules vary by only one carbon atom, the distinction is insignificant (Offit, 2007). Methylmercury is excreted much more slowly, whereas ethylmercury is excreted much more quickly from the body. Since ethylmercury is excreted much faster it is less likely to accumulate (Offit, 2007).

In the middle of June 1999, the FDA scientists held a convention with representatives from the Centers for Disease Control and Prevention (CDC) and the AAP, the organizations that are primarily accountable for making vaccine recommendations for children in the United States, to discuss their findings and results. During the convention, several attendees left the convention concerned that infants might be receiving too much mercury from vaccines (Offit, 2007).

After much argument, the CDC and AAP chose to implement the precautionary principle which was to discard the use of mercury. On July 9, 1999, they requested the pharmaceutical companies to eliminate thimerosal from vaccines as hastily as possible (Offit, 2007). Clinicians were temporarily asked to delay the birth dose of hepatitis B vaccine in children who were not at risk for hepatitis (Offit, 2007).

In addition, Offit mentioned that the AAP released a statement that was distributed through the media which read: “Parents should not worry about the safety of vaccines. The current levels of thimerosal will not hurt children, but reducing those levels will make safe vaccines even safer. While our current immunization strategies are safe, we have an opportunity to increase the margin of safety” (Offit, 2007).

This statement had significant impact among some of the AAP members as well as the opponents. They were astonished to learn how eliminating something that had not been uncovered to be harmful could make vaccines harmless. The confidence of the public, especially parents, in the development of vaccines was shaken by an abrupt change in policy. Many physicians were also perplexed with the recommendation that was given by the AAP (Offit, 2007).

Even though the World Health Organization agreed with the decision of the American Academy of Pediatrics and the Public Health Service to remove thimerosal from vaccines, WHO, nonetheless, recommended that thimerosal-containing vaccines should continue to be used provisionally as the proven morbidity and mortality from vaccine-preventable diseases exceedingly prevail over any theoretical threat from ethylmercury (Andrews et al., 2004).

In 1998, a paper in *The Lancet* depicted developmental regression that included autism and gastrointestinal problems in a small group of children (Casiday, 2007). This was described in the popular media as a viable association between the MMR vaccine and the autism controversy. Although subsequent studies were not able to validate such risk from the MMR vaccine, it did initiate a passionate debate about the safety of the vaccines among the public (Casiday, 2007).

### **Methods**

A wide-ranging and comprehensive search of PubMed, Cumulative Index to Nursing and Allied Health Literature (CINAHL), Web of Science, Cochrane Library, and Gale Virtual Reference Library was performed. The words “vaccines,” “MMR vaccines,” “autism,” “autism and vaccines,” “clinical research,” “thimerosal,” “vaccine controversy,” “causes of autism,” “gene,” and “genetic” either as a single word or in various combinations were entered into the database and these queries gave back more than 100 citations.

For the purpose of this project, comprehensive review of articles that were published between 2003 and 2009, and focusing mainly on the scientific journals that were peer-reviewed were used to ascertain that the issues or articles reflect concrete findings and solid evidences in this discipline.

### **The Scientific Evidences of Autism-Vaccine Controversy**

In considering the scientific method of investigating the causative agents of a disease, a scientific hypothesis has to be put forward first which then leads to a model of the possible cause of the disease. The model is tested scientifically to see if the data known about the disease fit within the model and its prediction (Geier et al., 2008).

The incidence rate of diagnosed autism has increased significantly since the late 1980's. Autism involves an essential genetic component; although, there is uncertainty in the number of genes involved (Jick and Kaye, 2003). Recently the Medical Research Council of the United Kingdom present some imperative answers to additional questions that relate to the epidemiology and probable causes of autism among children. The council listed exposure before or after birth to vaccines, infections, drugs, heavy metals, and physiologic abnormalities affecting the immune system and gastrointestinal tract as possible risk factors for this disorder (Jick and Kaye, 2003).

According to Miller and Reynolds, Madsen et al. published findings from a cohort of more than half a million children in Denmark in 2002. Miller and Reynolds mentioned that Madsen et al. did not find any increased risk of autism among MMR-vaccinated pediatric population (Miller and Reynolds, 2009).

In 2004, researchers performed two studies which took place in the United Kingdom in order to explore if thimerosal could cause any psychological or neuro-developmental disorders among children. Researchers found no scientific evidences that showed an early exposure to thimerosal in vaccines was detrimental to children (Offit, 2007).

In 2005, researchers in an area of Japan reported on the incidence of autism where MMR vaccine was withdrawn in 1993. The researchers found that the incidence of autism continued to rise even after the withdrawal of vaccines (Miller and Reynolds, 2009).

Miller and Reynolds mentioned that, in 2006, Fombonne, Zakarian, Bennett, Meng, and McLean-Heywood also examined the relationship between the rates of autism and MMR vaccine in Canada (Miller and Reynolds, 2009). According to Miller and Reynolds, Fombonne et al. noted that among children born from 1987 to 1998, “autism increased in a linear manner; whereas, the rates of MMR immunization increased just slightly suggesting that vaccine is not the causative agent for the development of autism” (Miller and Reynolds, 2009).

Miller and Reynolds also noted that, in 2007, Thompson et al. further analyzed the hypotheses that increasing exposure to thimerosal in vaccines is linked with disorders of the neurological system. They noted that Thompson et al. did not find scientific findings that support any relationship between early exposure to vaccines and deficits in neuropsychological functioning in children between ages 7 to 10 (Miller and Reynolds, 2009).

Recently, thousands of claims have been submitted to the National Vaccine Injury Compensation Program as a consequence of public apprehension about autism and vaccines (Miller and Reynolds, 2009). After reviewing 5,000 pages of transcripts, 939 medical articles, 50 expert reports, and hearing testimony from 28 experts, the U.S. Court of Federal Claims found that, “the MMR and thimerosal-containing vaccines,

independently or together, were not the causative agents in the development of autism or ASD” (Miller and Reynolds, 2009).

Despite overwhelming scientific evidence against a causal link between autism and MMR vaccine, the vaccination message to the public is failing to get through, not because it is not being said frequently or clearly enough but because the information provided is not being assimilated into the public’s pre-existing experience and understanding (McMurray et al., 2004).

### **Why Does the Autism-Vaccine Controversy Live on?**

Beyond individual experience there are a series of aspects that serve to complicate, confirm, and intermittently link autism to vaccine (McMurray et al., 2004). One important example is the mass media. The media has a tremendous impact on our society as well as in public today. It can also be very powerful in shaping the public’s thoughts and impressions in many different ways.

Another most influential mass media that has existed in the 21<sup>st</sup> century is the Internet. The Internet has becoming an absolute mean for rallying the anti-vaccine movement and it has continually intensified the argument regarding the roles of MMR vaccines in the development of autism among children. The Internet has also made it easier and faster for the anti-science individuals to leave any statements and remarks without leaving the readers with any scientific responses from the medical professionals.

Dependence on everyday knowledge from the media coupled with inadequate contact with primary care providers served to ascertain that the decision on whether to

immunize children did not mirror an informed choice for the majority of parents. A large number of parents acquired no information prior to appointment for a second dose of vaccination on the benefits, risks, and rationale of vaccinations or the diseases. Most parents could not recollect advice given at the first dose three years previously (McMurray et al., 2004).

In 2008, the presidential candidate John McCain stirred up a debate about the potential role of vaccines in the etiological factor of autism during a campaign stop in Texas which included dramatic scenes in a prime-time TV show and a governmental settlement under the vaccine protection program (ABC News, 2008). He declared that, “there’s a strong evidence” that thimerosal, a mercury-based preservative that was once used in many childhood vaccines, is accountable for the rise of autism in the U.S. – a position in austere contrast with the notion of the medical establishment (ABC News, 2008).

McCain in his speech said, per ABC News’ Bret Hovell, that “It’s indisputable that (autism) is on the rise amongst children, the question is what’s causing it. And we go back and forth and there’s strong evidence that indicates that it’s got to do with a preservative in vaccines” (ABC News, 2008). McCain further said there is “divided scientific opinion” on the matter with “many on the other side that are credible scientists that are saying that’s not the cause of it” (ABC News, 2008).

Another aspect that leads to this controversial issue includes refusal of parents to discuss their concerns and anxiety with the health care professionals during consultation because of the rushed nature of the healthcare givers, especially the attending physicians. Effectiveness of consultation is further lessened where physicians are felt to be reluctant

to engage in discussion of concerns, are dismissive, patronizing, or coercive (Levi, 2007; McMurray et al., 2004).

According to Levi, a recent study conducted in the United Kingdom found that approximately 24% to 39% of pediatricians reported that they would dismiss children from their practice if the parents refuse to have their children to be given the recommended vaccinations (Levi, 2007). When parents' apprehensions, concerns, and anxiety are not appropriately addressed and attended to, the end result is that children frequently do not get the medical care they need and deserve (Levi, 2007).

In addition, family members and friends provide an opportunity to share feelings, views, and experiences among themselves and to parents with children, which complicates the issues even further (McMurray et al., 2004). According to Lisa Jo Rudy in her autism blog entitled *Discover Magazine on the Autism-Vaccine Controversy*, "A hardening of anti-vaccine attitudes, mixed with the despair experienced by families living under the strain of autism, has heightened the debate – sometimes leading to blowback against scientific researchers" (Rudy, 2009).

Where there were booklets, flyers, and pamphlets available, they were comprehended as uninformative and boring when contrasted with the case histories and photographs used by mass media and Internet (McMurray et al., 2004). Official information was considered to show little relation to "real" lives, communicating little about the effect of either vaccinations or the diseases. The health care providers failed to make the issue of MMR vaccination real in the minds of parents and failed to communicate effectively regarding the significance of the issue as compared to other campaigns (McMurray et al., 2004).

## Discussions

For health services to play a larger role in facilitating informed decision, there is a necessity to reorganize the provisions to ascertain more timely and engaging information transfer. The public, especially parents, needs to be perceived as affiliates in a learning enterprise rather than passive receptors or empty cognitive vessels waiting to be filled (McMurray et al., 2004). Parents need to be seen as partners in the health industry because they are the ones that make crucial health care decisions for their young children.

Research has shown that how health care professionals decide to react to parents' anxiety about MMR vaccinations extensively affects the course of action that parents choose, the companionship the health care providers have with them, and consequently the quality of health care their children receive (Levi, 2007). I have suggested a series of effective recommendations that the health care professionals could use when discussing the autism-vaccine issues with the public, especially parents, who have young children.

Majority of parents attain very little information regarding the benefits and rationale of a second dose of vaccination. Some parents could not recall the advice given by the health care givers during the previous consultation. It is therefore our duties to advise the parents that some immunizations have to be given more than once, which is spread over several months, because they only have short-term effects. Parents should be reminded that each dose is essential for complete protection and vaccination is not effective if one dose is missed at any stage.

The health care providers should prepare attractive vaccination and autism pamphlets and brochures for the public. These pamphlets and brochures must help them

to understand when the vaccinations should be given, what vaccines are supposed to be given, and why the vaccines have to be administered to young children. The words to be used should be simple, easy to understand, and interesting to all kinds of readers.

The health professionals must be able to effectively and skillfully communicate with parents regarding these autism-vaccine issues regardless of the educational background and ethnicity of the parents. Effective communication is a very important tool because it is a way to convey knowledge, information, and facts to the each and every individual. It is also a way to inform and educate the public regarding how the autism-vaccine controversy began and how the media has exaggerated medical information to the public. Effective communication will also give an excellent opportunity to control the events that are broadcasted through the media as mentioned by Dr. Timothy J. Dyer, 2010, EMU Spring Commencement Service speaker, in his speech to the graduates, “He who controls effective communication, controls the event.”

The health care givers ought to have the capability to manage the expectations of each parent regarding the importance of administering the MMR vaccines to their children. By helping the parents to understand the importance of the MMR vaccines, the health care professionals could go a long way toward helping parents understand that safety of MMR vaccines and that there is no scientific evidence that shows its link to autism.

Much of the public relies on the media such as television, magazines, newspaper, and radio to keep them up-to-date with both non-medical and medical issues. The Internet is also becoming more and more important. The medical professionals should use all these means to disseminate medical knowledge to the public. They need to

upgrade the existing knowledge of the public regarding the significance of MMR vaccines so that the public may be aware of any possible health risks that could potentially affect the children if they refuse to have their children vaccinated.

The medical professionals should also attempt to educate the media to clearly give the latest and most recent scientific research findings regarding autism-vaccine controversy and present information in laymen's terms so that the information can be understood by each and every individual regardless of the intellectual capacity or educational achievement.

The health care professionals, especially physicians, should spend more time listening and answering parents' questions regarding the link between autism and vaccines. Parents will be more than willing to discuss these issues with the attending physicians if the physicians do not interrupt their conversation and show that they are interested in listening to them. Any breakdown in communication between physicians and parents could lead to misunderstanding and misapprehension, and this gap could make the parents put more trust in the media.

The health care professionals need to reach those parents who have restricted English-speaking ability. They ought to develop the capability and skills to communicate well with those who converse with very limited or no English at all. They should allow enough time for parents to ask questions about the possible risks that the children might get if the parents do not wish to have their children to be vaccinated. This will ensure that the parents understand any information given to them. Encourage them to consult the medical professionals again if they have other doubts or worries regarding the administration of vaccines to their young children.

For those parents who do not speak English at all, a professional translator who could impart the original message precisely and entirely should be used; this may mean using a native speaker who is multilingual. Prior to imparting any medical information or issues to the parents as well as the public, the health care professionals should work hand-in-hand with the native translator(s) in order to evaluate the preciseness of the interpretation.

The medical professionals should involve the family members and friends when discussing any autism-vaccine problems. This is very important so that the family members will also have a clear understanding about this disorder. The family members and friends ought to know that the MMR vaccines protect young children from a wide spectrum of infectious diseases, all of which have the potential to be fatal. They also need to understand that choosing to have children to remain unvaccinated based on pseudo-science and information that is read on the Internet is a dangerous step to take.

The health care professionals should let the parents decide for themselves if they wish to have their children vaccinated or not after providing them with all the scientific facts that there is no correlation between the incidence of autism and vaccinations. Whether parents decide to have their children to be vaccinated or unvaccinated, the health care providers should never dismiss the children from their clinical practice. Parents should be given the rights and privileges to decide the treatment for their own children.

Another important issue that needs to be addressed is to educate and counsel the leaders such as congressmen or political leaders who sometime make unproven medical statements on television and radio. These are powerful and influential people and they ought to be taught to give the most accurate medical information to the public so that the

public gets precise information and knowledge regarding any controversial medical issues that may arise.

### **Conclusions**

Health care professionals, especially the pediatricians, certainly should consider autism as a possible disorder on a child who presents with some delay in developmental growth such as lack of words or refusal to talk, difficulty in maintaining eye-contact with anyone, and the tendency to stare at the wall or any other objects. These, however, do not mean that these unusual behaviors are caused by the administration of the MMR vaccines to the child. We, as health care providers, must be able to educate the public so that they would be able to broaden their perspectives regarding the autism-vaccine issues.

Understanding the public concerns, being good and attentive listeners, and using effective and various communication methods are very crucial because all these can make a positive difference in the way the parents make decisions about the administration of vaccinations to their children.

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