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Patient-Centered Medicine and Prevention of Munchausen Syndrome by Proxy

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Abstract

Munchausen syndrome by proxy (MSbP) is known by many names and is considered the deadliest form of child abuse. Although the condition was named in 1976 and there is now a substantial body of scientific literature about this type of abuse, to date, patient-centered approaches to early identification, intervention, and prevention have been absent from this literature. The purpose of this chapter is to recommend patient-centered approaches to identifying MSbP in the clinical setting to facilitate prevention and early intervention. It also recommends patient-centered practices that can be implemented to reduce the MSbP-related morbidity and mortality contributed by the healthcare system. The evolving nomenclature and definition of MSbP abuse has been an obstacle to achieving scientific consensus on the topic. Yet, the body of scientific literature on the subject is large. This literature is reviewed to enumerate the healthcare system's contribution to MSbP abuse. The Haddon matrix, a public health framework, is applied to MSbP abuse in order to guide the development of recommendations of patient-centered approaches that should be implemented to reduce the healthcare system's contribution to the morbidity and mortality that MSbP victims face.

Keywords: Munchausen syndrome by proxy, public health practice, delivery of health care, child abuse, malpractice

1. Introduction

Munchausen syndrome by proxy (MSbP) is known by many names and is considered the deadliest form of child abuse. Although the condition was named in 1976 and there is now a substantial body of scientific literature about this type of abuse, to date, patient-centered approaches to early identification, intervention, and prevention have been absent from this

literature. In the discussion of this condition, there has been a particular lack of emphasis on the role of the healthcare system in this abuse.

This chapter summarizes the research on MSbP and recommends patient-centered approaches to identifying MSbP in the clinical setting to facilitate prevention and early intervention. It also recommends patient-centered practices that can be implemented to reduce the MSbP-related morbidity and mortality contributed by the healthcare system. The first section of this chapter explains the evolving nomenclature and definition of MSbP abuse. The second section reviews the scientific literature to enumerate the healthcare system's contribution to MSbP abuse. Finally, this chapter applies a public health framework to MSbP abuse in order to recommend patient-centered approaches that should be implemented to reduce the healthcare system's contribution to the morbidity and mortality that MSbP victims face.

2. Understanding the nature of MSbP

This section reviews the history of thought on the condition this chapter will refer to as MSbP, which is recognized as the deadliest form of child abuse [1], although it is acknowledged that other names have been used. First, this section covers initial identification of the condition and early attempts to name and define it. Next, this section discusses the evolution of diagnostic criteria for MSbP. Third, the challenges to studying MSbP victims are covered, and after that, challenges to developing a public health perspective on MSbP are outlined. Finally, a novel patient-centered perspective on MSbP abuse is proposed to facilitate early identification, early effective intervention, and the possibility of prevention of MSbP abuse in the healthcare system.

2.1. The evolution of names of MSbP

Currently, there is no agreed-upon definition of MSbP, though MSbP is believed to be the cause of most deaths initially attributed to sudden infant death syndrome (SIDS), which has now been debunked as an actual disease entity¹ [1, 4–7]. Though the condition was originally named MSbP in 1976 by British pediatrician Roy Meadow [8], the condition had previously been defined in the literature under other disease entities, such as “non-accidental poisoning” [9] or “maltreatment syndrome” [10].

Clinicians and researchers struggled to separate this condition from other conditions, because the main symptoms identified at the time were (1) a guardian of a child (generally the mother) fabricating or inducing illness in a child to obtain unneeded medical care for the child and (2) abnormal personality characteristics in the perpetrating guardian [8]. The fact that at least two people were involved in this syndrome, the perpetrator and the child victim, made it difficult to define. Child advocates used names that focused on the child abuse aspect of the condition

¹Although currently, for whatever reason, scientific writers and public health advocates do not appear to acknowledge that SIDS is not an entity and is instead a likely case of MSbP, as evidenced by Refs. [2] and [3].

[11, 12], while psychologists were more interested in establishing and naming a mental health diagnosis for the perpetrator [13–15].

This early division in approach to this syndrome creates confusion in the scientific literature to this day. Although the literature has coalesced around the term MSbP, other terms are still used, confounding efforts to assemble a historical scientific picture of the evolution of understanding this condition. Terms used in history as well as today for this syndrome include Polle syndrome [16, 17], terms that include the word “factitious” such as “factitious disorder by proxy” [18–21], “illness induction” [22, 23], and more recently, “medical child abuse” [24, 25]. Scientific writers struggled to find the right term to use [26–30] and also with “who” was being diagnosed with the disorder – the child victim, the perpetrator, the duo together, or the entire family [31, 32].

2.2. Diagnostic criteria for MSbP

Attempts to establish diagnostic criteria have been fraught with dissent. In 1995, Meadow proposed the following criteria, all of which would have to be met to assign a positive diagnosis: (1) Illness in a child which is fabricated by a parent, or someone who is in *loco parentis* (acting in the role of a parent of a child), (2) the child is presented for medical assessment and care, usually persistently, often resulting in multiple medical procedures, (3) the perpetrator denies the etiology of the child’s illness, and (4) acute symptoms and signs of illness cease when the child is separated from the perpetrator [33]. The third item has been a focus of psychologists interested in studying the perpetrator, as it has been noted that perpetrators caught on video surveillance engaging in MSbP behaviors may continue to deny their involvement [34]. The fourth item has been hotly debated, as victims who have been severely injured by MSbP abuse may not have their acute symptoms and signs of illness cease because real damage has been done as the result of the abuse [35].

In 2003, Rosenberg proposed the following diagnostic criteria for MSbP, of which all must be met in order to assign a positive diagnosis: (1) Child has been repeatedly presented for medical care, (2) test/event is positive for tampering with child, or with child's medical situation, (3) positivity of test/event is not credibly the result of test error or misinterpretation, nor of miscommunication or of specimen handling, (4) no explanation for the positive test/event other than illness falsification is medically possible, and (5) no findings credibly exclude illness falsification [36]. Unlike Meadow's criteria, these focus on confirming that the perpetrator is manipulating the medical system to provide a false diagnosis in the victim, but does not acknowledge any other aspects of MSbP.

Notably, neither sets of criteria are directed at clearly diagnosing an individual or a family. Instead, the focus lies on diagnosing a situation. Hence, attempts to develop diagnostic criteria that might appear in the International Classification of Diseases (ICD) system or the Diagnostic and Statistical Manual for Mental Disorders (DSM) have been challenging, because it is not clear “who” or “what” is carrying the resulting diagnosis. The current status is that the DSM-V includes diagnostic criteria for “factitious disorder imposed on another,” the following of which all must be met for a positive diagnosis: (1) making up physical or psychological signs or symptoms or causing injury or disease in another person with the intention to deceive, (2) presenting

another person to others as sick, injured, or having problems functioning, (3) continuing with the deception, even without receiving any visible benefit or reward, and (4) behavior is not better explained by another mental disorder [37]. Clearly, the aim is diagnosing the perpetrator of MSbP. However, the DSM does not define diagnostic criteria for victims of MSbP.

2.3. Challenges to studying MSbP victims

In the evolution of understanding this condition, the focus has been mainly on the perpetrators, and not the victims, even though the victims experience a high death rate, and many believe the perpetrators are untreatable [18, 38]. The study of child victims has been hampered by the general inability of systems designed to protect children from abuse, such as the medical system and child-protective systems, to successfully intervene to protect the victims [39–41].

In many identified cases of MSbP where unequivocal evidence of abuse exists, victims could not be successfully separated from perpetrators, and follow-up on the victims was not possible. For various reasons, including the fact that when cases were identified, the victims were found to already have dead siblings [42], it is believed that many identified victims went on to die or experience severe disability. Without follow-up, little is known about the actual mortality rate of victims, although case series studies of MSbP infant deaths originally misclassified as SIDS suggest that the mortality rate is high [1, 43–45]

Only one study exists of adult victims, an unscientific report of a case series of 10 surviving adults [46]. Although these adult victims “identified themselves as victims of childhood MSbP [and] volunteered to participate in research after learning of the author’s work in this area through television or newspaper coverage,” the author wrote about these patients with antipathy and incredulity: “Even before considering the question of how representative a sample this is, we are faced with the inevitable question of whether these subjects’ stories are credible” [46]. Thus, this deeply flawed article represents the entirety of what is known about adult survivors of childhood MSbP.

2.4. Challenges to developing a patient-centered perspective on MSbP

The evolution of knowledge about MSbP in the scientific literature has been fractured for several reasons. First, inconsistent use of naming has challenged those who want to review all the literature on this topic, causing them to miss some literature because of this diversity of terms [47]. Next, a focus on understanding the perpetrator and perhaps treating him or her has intrigued psychologists, but has not produced any evidence-based course of action leading to a cure for these people [48]. This focus distracts from developing a public health approach to early identification and intervention, or even prevention, of this deadly child abuse.

This distraction includes perseverating over whether video surveillance of the perpetrator (resulting in the recording of MSbP abuse) is ethical or legal [49–52], as many cases reported in the literature could not have been identified using video surveillance due to the nature of the abuse. As one of many examples, Brink and Thackeray report on a 11-month-old infant repeatedly presenting to the emergency department (ED) after a foster mother consistently reported symptoms of a seizure disorder that could not be confirmed in a clinical setting [53].

Because much MSbP abuse cannot be recorded in a medical facility, such extended philosophical debate can be seen as a distraction from formulating practical public health recommendations aimed at early identification and prevention of MSbP.

2.5. Current lack of a patient-centered perspective on MSbP

Perhaps the most prominent obstacle to developing a patient-centered perspective on early intervention or prevention of MSbP has to do with the nature of the literature itself. It has only been tentatively acknowledged in the medical literature that while the perpetrator manipulates the medical system, it is actually the medical system's actions that ultimately are responsible for the injury and death experienced by MSbP victims [54–56]. Hence, the medical system is not held accountable for its contribution to MSbP morbidity and mortality.

While individual clinicians have sought to try to approach MSbP from a more public health- and patient-centered perspective [24, 25, 57, 58], their attempts are thwarted by the lack of a patient-centered perspective in the actual case reports and case series reports that are published in the scientific literature that provide the evidence base that informs them. Most case reports, from the history of reporting on this condition to the present time, focus on horrific medical details of the abuse, rather than the medical system's contribution to it [59–62]. For example, a 2015 report found that a mother was inserting real stones in her male child's urethra to try to convince clinicians that he had kidney stones; this child was returned to his family and no follow-up was done to see if the child was eventually killed [63]. It is common to see in these case reports that children are returned to the home of the perpetrator, even though there is no curative treatment for MSbP behavior, and the likelihood of the child's death is high [39]. Without follow-up, the actual mortality rate from MSbP abuse cannot be ascertained, and most case reports not only do not present follow-up information, but clearly do not even attempt it [39, 59–63].

This chapter represents a unique contribution to the MSbP literature in that it recommends a patient-centered perspective in the development of public health policy aimed at early identification and intervention, and possibly even prevention, of MSbP abuse. It provides practical, patient-centered recommendations that can be implemented as federal, state, and local healthcare policy with the focus of protecting the MSbP victim patient from the morbidity and mortality introduced by the medical system as part of MSbP.

3. The contributions of the healthcare system to MSbP morbidity and mortality

In order to develop a patient-centered perspective on prevention of and intervention on MSbP, it is important to first delineate how the healthcare system contributes to MSbP morbidity and mortality. This section reviews the literature that reports on case studies and case series of MSbP identified in a clinical setting and identifies in these cases what actions the healthcare system took that may have contributed to morbidity and mortality in MSbP victims.

This section starts by describing the healthcare system's contribution to MSbP abuse from a system perspective, not from an individual perspective. Next, this section reviews the evidence that certain providers within the healthcare system may actually carry a current diagnosis of “factitious disorder imposed on another,” and discusses how the healthcare system may contribute to MSbP from an individual perspective.

3.1. How healthcare contributes to MSbP morbidity and mortality: system perspective

There are two principle ways in which the healthcare system contributes to morbidity and mortality in MSbP victims: (1) failure to take an action that is indicated by circumstances and (2) taking an action that would not be indicated had MSbP been identified. These contributions to MSbP morbidity and mortality can take place at various stages of treatment, including initial presentation, while attempting diagnosis, during treatment, and after MSbP is identified. This section describes failures of the healthcare system in early MSbP identification and intervention.

3.1.1. Not identifying MSbP at initial presentation

The primary contribution of the health-care system to MSbP at initial presentation is in failure to take an action indicated by circumstances. These include not properly investigating two main indications: indications of “doctor shopping” or multiple suspicious prior hospitalizations, and indications of MSbP symptoms in guardian gleaned from clinical interviews.

3.1.1.1. “Doctor shopping” and suspicious prior hospitalizations

Many MSbP cases present to clinical care with evidence of “doctor shopping” or multiple suspicious prior hospitalizations [62, 64–68]. Vadysinghe and Dayaratne describe a case in which “a three-year-old boy who has had repeated episodes of gross hematuria since the age of seven months” where no etiology could be found [68]. It was not until the child was age 3 that MSbP was even considered as a cause [68]. Green et al. describe diagnosing insulin poisoning in “an 8-week-old male infant with a history of multiple ED visits” without considering the multiple visits as possible indicators of child abuse [65].

Narang et al. report on a family of three children presenting at multiple hospitals over years with lesions on their faces of unknown etiology until the mother was identified as the MSbP perpetrator, burning their faces with a toilet cleaner [66]. In hindsight, the clinicians regret they did not consider MSbP earlier and list several sources of delay in diagnosis, including affirmative bias (“nobody suspects a parent would harm their child because the perpetrators appear as devoted parents”), the physician's pursuit of diagnosing a rare disease, unneeded medical interventions complicating the picture, and that children often are co-opted into the abuse dynamic and do not speak up [66]. Some of this delay in MSbP diagnosis could have been prevented if “doctor shopping” and multiple suspicious prior hospitalizations had been seen as potential indicators of MSbP behavior earlier in the course of diagnosis and treatment.

3.1.1.2. Failing to recognize MSbP symptoms in perpetrating guardian

Another healthcare system contribution to MSbP abuse at initial presentation is through failure to recognize MSbP symptoms in the perpetrating guardian from clinical interviews [42, 69]. In one case, clinicians failed to consider MSbP in a mother even after she lodged multiple fabricated accusations that neighbors and others were raping her son [69], though lodging false allegations of sexual abuse was identified as a potential indicator of MSbP behavior as early as 1996 [70].

At initial presentation, if the guardian becomes upset when diagnostic procedures are not initiated, this is also a potential indicator of MSbP behavior, which was missed in the case of the family of children whose faces were burned by a toilet cleaner [66]. Another potential indicator of MSbP behavior is multiple dead children in the family at initial presentation [42, 65, 71]. In a child victim of MSbP where the abuse was identified, the missed diagnosis of poisoning with sodium hydroxide, a household cleaner, led to the prior death of the child's sibling [72]. Another red flag apparent at initial presentation is the guardian speaking on behalf of the child in an inappropriate way. Dorothy Black described her interview with a woman suffering from Munchausen syndrome when "it was found that her three children were affected by proxy," and this was identified from a careful and thorough clinical interview [73].

There are many potential indicators of MSbP behavior at initial presentation revealed in case studies. Clinicians knew about these indicators, but did not realize their relationship to MSbP and therefore did not consider this etiology until much later in the course of diagnosis and treatment of the fabricated or induced illness. Lack of investigation into prior suspicious hospitalizations or multiple changes in care providers, and inability to recognize MSbP symptoms at initial presentation result in the healthcare system prolonging or completely missing that this type of child abuse is taking place, thus contributing substantially to the morbidity and mortality in MSbP victims.

3.1.2. Not identifying MSbP during the diagnostic stage

If MSbP abuse is not identified at initial presentation by the healthcare system, the patient can move to the next step, which is undergoing diagnostics by the healthcare system for the fabricated or induced illness. At this step, actual harm can be done by the healthcare system by subjecting the victims to unneeded invasive diagnostic procedures.

Although the healthcare system actively induces morbidity and mortality at the diagnostic step if victims are subjected to unnecessary diagnostic investigations and treatments, a more common healthcare system contribution to MSbP abuse at the diagnostic stage is failure to take indicated actions. One such action is ascertaining if the perpetrator (and even child victim) is lying; a second is by taking steps to observe specimen collection so it can be determined if specimens are being contaminated by the perpetrator. A third indicated action is to consider MSbP as a diagnosis and rule it out before proceeding, and a fourth indicated action is to take immediate action to protect the victim if MSbP is suspected. These contributions of the healthcare system to MSbP abuse will be further described here.

3.1.2.1. *Initiation of invasive diagnostic procedures prompted by perpetrator's reports only*

At the diagnostic step, the healthcare system can cause injury and illness by the initiation of invasive diagnostic procedures prompted only by perpetrator's report of symptoms with no clinical evidence of symptoms [62, 64, 68]. In a report about two teenage sisters who “presented with 2 years of gross hematuria and new onset heavy proteinuria,” extensive diagnostic investigations are reported [62]. After finally considering MSbP, the clinicians found that the diagnoses of hematuria and proteinuria was due to the guardian's contamination of urine specimen and that “the children in our report are cases of child abuse in a medical setting (CAMS) due to exogenous added blood from unknown sources” [62].

The authors fail to recognize that their lack of identification of CAMS led to 2 years of trauma these sisters suffered at the hands of the healthcare system by subjecting them to extensive diagnostics on the basis of laboratory tests only. Had MSbP been considered early in the course of these diagnostics and the perpetrator identified, these sisters would have been protected from 2 years of this medical trauma.

3.1.2.2. *Failing to ascertain if the perpetrator is lying*

As the diagnostic stage, as at the initial presentation stage, the healthcare system more commonly contributes to MSbP abuse by not taking indicated actions. Ascertaining if the perpetrator is lying is possible at the diagnostic stage, since the healthcare system has more access to the perpetrator than at initial presentation. If the perpetrator is able to make it past the initial presentation into the diagnostic step, clinicians are afforded a chance to interview and observe the suspected guardian at length.

Unfortunately, action is often not taken due to lack of belief that perpetrators may be lying, or that a child may be co-opted into the fabrication [64, 74]. In a case where a mother was chronically poisoning her child with ipecac, producing a confusing clinical picture, clinicians simply believed her when “she denied any knowledge of environmental factors that could have caused these symptoms and denied any possibility of a toxic ingestion” [75]. Their failure to suspect the perpetrator led to a “hospital course ... marked by complex clinical findings requiring several interventions” without any consideration of an MSbP diagnosis [75]. As with the article on fabricated gross hematuria in two sisters [62], the authors failed to recognize their contribution to the child's trauma at the hands of the medical system due to the inaction of members of the system.

Shapiro and Nguyen point out that clinicians must consider that not only the perpetrator but also the child victim may be lying, as he or she may have been co-opted into the abuse dynamic [74]. These authors describe a teenage boy who “was medically knowledgeable and could recount with great detail his supposed multiple medical conditions and symptoms” while continuing to endorse “symptoms of his reported medical illnesses of which there were no objective signs” [74].

This phenomenon is understandable, considering that the perpetrator is usually the mother and has cultivated a mother-child relationship without boundaries and where the child has been coached and offered positive reinforcement of their relationship only from cooperating

with the abuse. This phenomenon was demonstrated in the young adult child of a mother engaging in MSbP abuse [76]. When clinicians “found a syringe containing cloudy fluid with an uncapped needle underneath [the patient] in her bed,” it was soon determined that this needle must have come from the mother, because the hospital did not use that type of needle [76]. When this was discussed in front of the patient and the mother, the mother insisted the syringe was the patient's, and the patient never spoke at all [76]. The patient was discharged and 2 weeks later died of sepsis secondary to being injected with a fluid contaminated with what was believed to be “ear wax” [76]. In this case, the healthcare system contributed directly to the victim's death by not considering that the adult child and her mother were lying.

3.1.2.3. Failure to directly observe specimen collection

Several cases point to contamination of specimens at the diagnostic stage as reasons that clinicians proceed to the treatment stage, falsely believing the evidence indicated a legitimate diagnosis. In the case of the 3-year-old boy treated for repeated episodes of gross hematuria since he was 7 months old, clinicians finally began to suspect the mother as a perpetrator after they found that “urine which was collected under supervision showed no gross hematuria, while the urine which was collected by the mother was red in color” [68]. Likewise, in the teenage sisters who were treated for 2 years for hematuria and proteinuria, “collect[ing] clean-catch urine under direct staff supervision was refused” by the perpetrator, thus delaying the diagnosis of MSbP [62]. Analysis resulted in the findings that the urine contained “body fluids or tissue from more than one individual,” finally prompting clinicians to conclude that the perpetrator had been tampering with the specimens [62].

Repeated contradictory laboratory findings, which are also contradicted by clinical signs and symptoms, should encourage clinicians to rule out MSbP abuse. This can be done by observing the specimen collection. Refusal of the guardian to allow observed specimen collection is itself an indication of MSbP. By not being aware of this information, clinicians may not take action to rule out MSbP and thus induce the healthcare system to contribute to the morbidity and mortality of MSbP victims.

3.1.2.4. Failing to consider MSbP as a differential diagnosis when indicated

A third way the healthcare system can fail to act during the diagnostic stage is by simply failing to consider a differential diagnosis of MSbP as a possible cause for confusing, poorly established, or contradictory evidence of a diagnosis [67]. As Criddle describes in her overview of MSbP, the old healthcare maxim, “When you hear hoofbeats, think horses, not zebras” suggests that the first step in clarifying a confusing diagnostic picture in children should not be the consideration of a rare disease, but rather the consideration that some of the diagnostic information has been manipulated [77].

This lack of consideration of MSbP is seen in the healthcare system's hot pursuit of rare medical diagnoses at the diagnostic stage, which technically should be put off until an MSbP diagnosis is ruled out. In fact, a clinician named Steinschneider in 1972 failed to consider murder as a possible cause of serial deaths in multiple children in a family due to suffocation by an MSbP mother, while Steinschneider pursued explanation of their deaths

by some other etiology [78]. Steinschneider eventually published a paper advocating that the children died of a mysterious “sudden infant death syndrome,” thus establishing SIDS as a possible diagnosis [78], which later led to many MSbP perpetrators escaping prosecution after murdering their children [1, 43, 79], as well as a 1996 retraction of Steinschneider's original article [7].

As data-driven example, the prevalence rate of MSbP has been estimated in a few countries. McClure and colleagues estimated that “the combined annual incidence of these conditions in children aged under 16 years is at least 0.5 per 100,000 and for children aged under 1, at least 2.81 per 100,000” in the United Kingdom (UK) [71]. Denny et al. reported “the incidence rate for MSBP in children aged less than 16 years was 2.0 per 100,000 children” in New Zealand [80].

Compare this to the consideration of a diagnosis of Rabson-Mendenhall syndrome, which was described in one case study of MSbP abuse [67]. The NORD Guide to Rare Disorders indicates that Rabson-Mendenhall syndrome is a result of an inherited autosomal-recessive trait and says the prevalence of this syndrome is “believed to be approximately 1 in 1 million” [81]. Another case study of MSbP abuse described considering a diagnosis of Gaucher disease [82]. The NORD Guide to Rare Disorders does not estimate the incidence of this disease, only to point out that the highest prevalence is in Ashkenazic Jews (one in 800 births) and that there were only 7500 Gaucher disease patients in the US as of the book's writing [81]. Another report describes considering cicatricial pemphigoid as the diagnosis in what turned out to be MSbP abuse where the perpetrator was giving a child oral sodium hydroxide, a household cleaning product [72]. The NORD guide does report a higher prevalence of this condition at one in 12,000 to one in 20,000, but notes that “the disease most often occurs in patients 60 years of age or older,” not children [81].

Although rates of MSbP in only the UK and New Zealand have been reported, it is generally believed that rates are higher, mainly due to the suspected undercounting of cases when the identification of known cases reveals that there are existing dead siblings in the family [71]. The youngest children are at a highest risk [71], so ruling out MSbP early should be an action taken by the healthcare system prior to investigations into rarer diseases.

The healthcare system can also miss overt presentations of MSbP that go unnoticed by clinicians simply because of their lack of knowledge of the condition. For example, poisonings are common presentations of MSbP. A review of 87 case studies reporting MSbP poisonings reveals a time trend associated with the mechanism used in poisoning (see **Figure 1**).

As can be seen from the figure, prior to 1984, the mechanism of poisoning in MSbP was more likely to be tranquilizers and antidepressants, while between 1985 and 1999, emetics, chiefly ipecac, was a mechanism used commonly in MSbP poisonings. Ipecac was originally recommended by poison control centers as an approach to controlling accidental poisonings in children; other approaches were more strongly recommended as of 2004 and the availability of ipecac declined such that this trend in MSbP poisoning became less prevalent [147]. Starting in 2000, insulin became a more common mechanism behind MSbP poisoning.

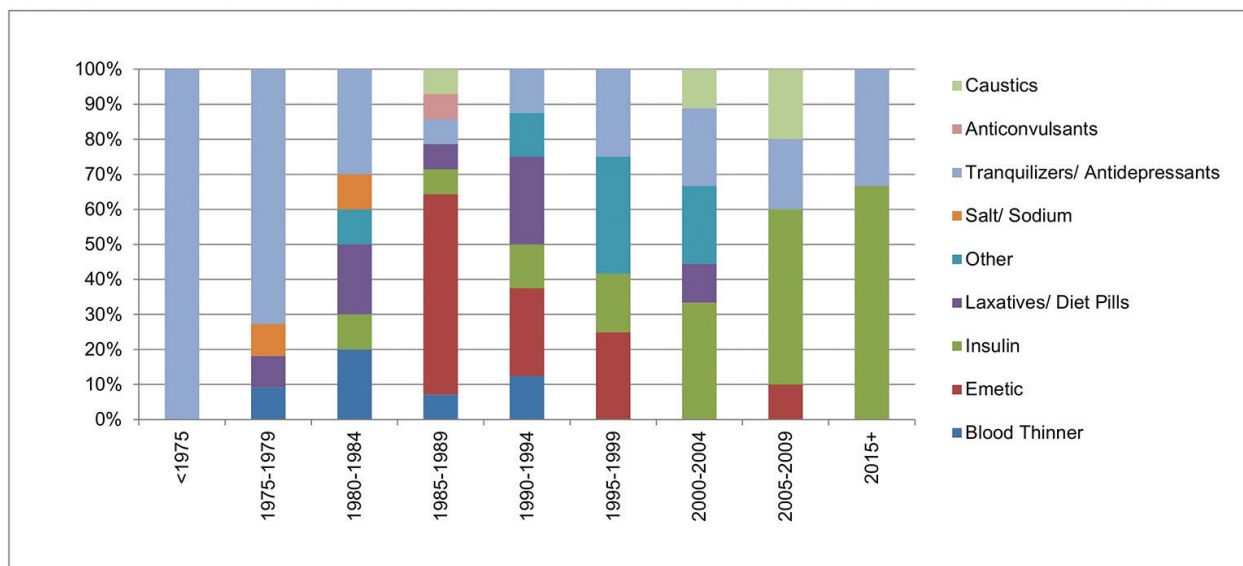


Figure 1. Distribution of mechanisms of MSbP poisonings in peer-reviewed case studies, 1965–2015. Case study Refs.: [9, 12, 20, 21, 31, 41, 42, 46, 47, 60, 65, 67, 72, 75, 83–146]. Please note that some of these articles present multiple case reports, and the figure reflects counts of case reports, not articles. “Other” includes lye, pepper, rat poison, frusemide (diuretic), arsenic, caffeine, antihistamines, clonidine (blood pressure medication), opioids, lead, mercury, and tetrahydrozoline (eye drops).

This lack of knowledge about common MSbP presentations, such as poisonings, is an important way that healthcare systems contribute to MSbP abuse at the diagnostic stage [42, 60, 65, 135]. Failure of clinicians to recognize salt [135] and insulin poisoning [42, 60, 65], as well as perpetrator-induced septicemia or polymicrobial bacteremia [82, 148], can lead victims to experience more MSbP-abuse-related morbidity and mortality as they suffer from the abuse by the perpetrator, while advancing to later stages of treatment for a fictitious or induced condition, thus suffering abuse from the healthcare system itself.

3.1.2.5. Failure to act upon suspicion of MSbP abuse

A fourth way the healthcare system contributes to MSbP abuse is its failure to act immediately upon suspicion of MSbP abuse [60, 149]. In their case study of a child who was repeatedly insulin-poisoned, Loo and Yap appear to not realize that the ingestion of insulin was not accidental [60]. In the Kathy Bush case, detailed later in this chapter, most clinicians felt that the mother involved was an MSbP perpetrator, and there was much evidence of MSbP abuse, including confirmed tampering with specimens [150]. Even so, the healthcare system colluded with the mother to perpetrate 8 years of severe MSbP abuse of Mrs. Bush's daughter [150].

With amazing insight, Yalındağ-Öztürk and colleagues explain in their article that “failure to properly diagnose MSbP can lead to further abuse by the caregiver and increase the risk of complications due to long hospital stays and invasive tests. In this paper, we describe our experiences with a baby who ended up being diagnosed with MSbP, including our initial failure to find a pathology, delay of MSbP diagnosis, our growing suspicion of MSbP despite

technical setbacks, our actions after we confirmed MSbP as the cause of his hospitalizations” [149]. This demonstrates that even if a clinician is trained in common MSbP presentations, yet he or she fails to act upon suspicion of an MSbP case immediately at the diagnostic stage, there can be prolonged MSbP abuse of the victim, with additional contribution of the healthcare system to this abuse by prolonging diagnosis and treatment of a fictitious or induced condition in the victim.

3.1.3. Not identifying MSbP abuse during the treatment stage

A particularly damaging way the healthcare system contributes to MSbP abuse at the treatment stage is by initiating treatment or procedures despite confusing, poorly established, or contradictory evidence of a diagnosis. However, the healthcare system also can contribute to MSbP abuse at the treatment stage by simply failing to consider MSbP when the treatments do not work, and by failing to recognize hostility in the victim's guardian when stopping medical treatment, two indications that MSbP abuse should be ruled out immediately.

3.1.3.1. Initiating treatment for a poorly established diagnosis

The healthcare system can contribute heavily to the MSbP abuse suffered by victims by the provision of treatment or initiation of procedures in the face of confusing, poorly established, or contradictory evidence of a diagnosis [143, 151]. Perhaps the most famous case of the healthcare system contributing heavily to the abuse of an MSbP victim was that of Kathy Bush. Mrs. Bush, who was convicted by a jury in Florida of child abuse, was found to have over the course of 8 years “repeatedly, directly, or through physicians attempting to diagnose and treat non-existent conditions, caused her [daughter] grave bodily harm (e.g., some 40 operations)” [150].

While Mrs. Bush was convicted, no one in the healthcare system involved in any of these 40 operations was held accountable for the healthcare system's failure to protect the child. Although MSbP abuse was suspected since the child was 3 years of age, it was not stopped until 8 years later [150], directly implicating the healthcare system with failure to protect the child from these unneeded treatments.

In his article on the case, Schreier points out that 21 of the 22 nurses treating the child felt that her mother was an MSbP perpetrator, the mother was found to have been contaminating specimens, and the mother became so hostile as to actually file a lawsuit against the hospital when they sent material to a laboratory for investigation into potential MSbP abuse without her permission or a doctor's order [150]. The child had been subjected to multiple feeding tubes, and as part of the court trial, the gastroenterologist at the center treating the child admitted that “there had never been any need for these surgically implanted feeding tubes” [150].

Even under these conditions of grave medical malpractice, resulting in serious harm to the child, no one in the healthcare system was held accountable. In his article, Schreier does not address this point and seems to blame the perpetrator entirely for the abuse that was ultimately delivered repeatedly to the victim by the healthcare system, despite many actors in the system knowing that these treatments were constituting abuse.

This fact is startling to reflect upon when considering the multiple licensure procedures, regulations, and accreditations healthcare facilities must undergo in the US, coupled with the high levels of sophistication in the medical system participants in the abuse, compared to the relative unsophistication of an MSbP perpetrator. At one point, the perpetrator even appealed for financial help, citing a lack of resources to continue to pay for treatments [150]. Ironically, many children with real chronic diseases go without necessary treatment in the US due to lack of funds; however, in the case of Kathy Bush, the healthcare system continued to contribute enthusiastically to the child's abuse, even when resources were running out [150].

Providing treatment for fabricated or induced illnesses might be the single most damaging action the healthcare system can take in contributing to MSbP abuse. For this reason, MSbP abuse that is not caught before the treatment stage can lead to a high level of participation by the healthcare system in the abuse MSbP victims experience at the treatment stage.

3.1.3.2. Failure to consider MSbP when treatments do not work

If MSbP abuse is not detected at initial presentation or the diagnostic stage and therefore proceeds to the treatment stage, MSbP needs to be considered when treatments do not work [42, 65, 66, 151]. In a case by Wagner and Bowers, a child with ongoing tachycardia was treated with no resolution, but during this treatment, MSbP was not considered as a potential cause [75]. During the treatment of several children in a family who were being insulin-poisoned by their mother, no clinicians suspected that the treatment was not working due to sabotage by the mother, thus resulting in multiple child deaths [42].

Diagnoses of falsified or induced illnesses are typically confusing and tentative, and this situation coupled with the repeated delivery of failed treatments should strongly suggest a need to rule out MSbP. It is particularly important for the healthcare system to step up and take accountability at the treatment stage, when most of the damage is done by the healthcare system to MSbP victims.

3.1.3.3. Failure to recognize hostility in guardian when stopping medical treatment

Because MSbP victims at the treatment stage are being treated for falsified or induced illness, it is at this stage that it may become apparent that the treatments are not indicated and should be removed. At that point, if the guardian becomes hostile, it is a clear indication that MSbP should be investigated. In a case of a mother inducing thigh abscesses in her daughter, "when discharge was discussed, the mother became hostile and started to blame medical personnel for her daughter's condition" [151]. In a case where a father and uncle were confronted after being found to be inducing emesis through poisoning of a child using betadine, the two "displayed anger and disbelief and insisted that their son should be immediately discharged and refused to contact the social services" [64]. In two other cases, parents refused to approve an autopsy after their baby died [42, 72].

These are clear indicators during the treatment stage that MSbP is a likely cause of the illness for which the child is being treated. When the healthcare system does not recognize these clear signs of MSbP perpetration, it becomes an accomplice MSbP perpetrator itself.

3.1.4. Contribution of the healthcare system to MSbP abuse after identification

MSbP abuse can be identified at the initial presentation stage, the diagnostic stage, and the treatment stage. Regardless of when the abuse is identified, the healthcare system has the responsibility of protecting the identified victim or victims and ensuring that follow-up occurs to mitigate their physical and psychological morbidity.

While the most likely contribution by the healthcare system to inducing mortality and morbidity in MSbP victims is unnecessary treatment, the most serious is lack of follow-up and treatment after MSbP is identified. This inaction can be characterized as not ensuring the victim's ongoing protection and not providing treatment for the physical and psychological comorbidity associated with the abuse suffered by the victim at the hands of the healthcare system. In fact, the healthcare system may take action to reunite the victim with the perpetrator, thus increasing the victim's risk. Actors within the healthcare system may also take steps to cover up its role in the abuse. Abuse at the hands of the healthcare system is the responsibility of the healthcare system.

3.1.4.1. Lack of ensuring victim protection

The Kathy Bush case illustrates a particularly stark example of lack of the healthcare system's accountability in accepting responsibility for protecting the identified victim once MSbP evidence was established, including lack of protection and follow-up with the victim, but there are many other examples of this failure of the healthcare system in the literature [63, 65, 68, 69, 150–154]. While many reports talk about separating the child from the perpetrator, such as having the child live with his or her father when the mother is found to be the perpetrator, safety is not insured because the perpetrator may still have access to victim [63, 64, 151, 154, 155]. In an article that contends that the “system worked”, saying, “both [abused] children were removed out-of-state to their father’s family” [155] away from the maternal abuser, the article fails to admit that this action does not actually ensure the ongoing safety of the victims. Having the abuser processed through the judicial system for child endangerment on the basis of the evidence gathered by the healthcare system will likely result in the removal of the abuser from society at large and only then will the victims actually be safe.

Because MSbP abuse is essentially attempted murder, there should be little difficulty in having the perpetrator detained by law enforcement once hard evidence of abuse is available. This evidence is only available through the healthcare system, which is the weapon being used in the attempted murder. Therefore, this evidence should be supplied to law enforcement so that charges of attempted murder can be brought against the perpetrator. A modern case where MSbP behavior by the mother, Lacey Spears, resulted in the death of her son, Garnett, was described this way: “To this day it’s not clear how Lacey Spears, 27, convinced an Alabama surgeon to insert a gastric feeding tube into her son’s stomach before he was a year old, after doctors at another hospital refused, saying it wasn’t needed. What is now clear is this: Spears used the plastic tube as a murder weapon [156].” The “astonishing 23 trips to the hospital by Garnett’s first birthday” should have tipped off the healthcare system [156]. Had healthcare played a role in supplying evidence to law enforcement, rather than avoiding the perpetrator or being coerced into participating in the crime, Garnett's life may have been saved. Because many MSbP perpetrators have multiple victims, an easy case can be made for the danger of

the perpetrator to society, and detention or constant observation of the perpetrator is required to maintain the safety of the identified victim or victims, should they still be alive.

Many authors of case studies complain of the difficulty of working with child-protective services and other agencies to ensure the victim's safety. Kathryn Artingstall provides useful guidance in her book, "Practical Aspects of Munchausen by Proxy and Munchausen Syndrome Investigation" [157]. Much of the challenge lies in gathering the evidence of abuse; once this is available, charging the abuser with attempted murder is much less difficult [157].

3.1.4.2. *Lack of ensuring rehabilitative care*

Victims of MSbP abuse, like other victims of torture, require extensive rehabilitative treatment after being removed from the abuse situation. A discussion of the healthcare system's responsibility in providing this treatment once MSbP abuse is identified is almost completely absent from the scientific literature [63, 65, 68, 69, 152–154]. One article reports that "the patient was discharged after being scheduled for control visits at related departments," which is unclear and suggests that follow-up rehabilitative treatment was not ensured [153]. In another case, where an MSbP perpetrator was orally administering household cleaner causing lesions on the victim, the article only discusses that the lesions that appearing as a result of the poisoning resolved, but makes no mention of treatment for victimization [72].

The healthcare system's lack in providing appropriate rehabilitative care to identified MSbP victims is somewhat astonishing. Once chronic ipecac poisoning was identified in a case study of MSbP abuse, the authors concluded, "This child [victim] was from a neighboring state, making the jurisdiction for both criminal and social service involvement complicated. After much discussion between both states, the patient was transferred to a tertiary care center in his home state for resolution of criminal and social work issues and determination of appropriate discharge placement" [75]. In the article that contended the "system worked," the healthcare system did not ensure that the children removed from the home were treated for child abuse [155].

This lack of rehabilitative services is particularly counterintuitive, since the healthcare system is designed to provide these services. On the other hand, the healthcare system is not designed to provide health care for fabricated or induced illness. Yet, the healthcare system participates at high levels in delivering the abuse, then seems to "wash its hands" of the victims as soon as the abuse is identified. Instead of delivering needed care to the victims of MSbP abuse to aid in healing the abuse, it only participates in delivering unneeded care in the form of abuse.

3.2. How health care contributes to MSbP morbidity and mortality: individual perspective

The previous section discussed how the healthcare system contributes to morbidity and mortality in MSbP victims. Unfortunately, individual healthcare providers themselves can be direct MSbP abusers. A few examples where providers were confirmed to be MSbP perpetrators exist in the literature, and these will be reviewed. Next, cases in the lay press that appear to be examples of MSbP provider perpetrators who have not been specifically investigated for MSbP abuse will be examined. Finally, how the troubled teen industry (TTI) serves as an attractive setting for MSbP perpetrators will be discussed.

3.2.1. Confirmed MSbP perpetrators who were healthcare providers

In one article, an MSbP perpetrator is described as a nurse who administered benzodiazepines, morphine, and other drugs to infants [86]. When the infants became intoxicated, she sought help for the babies and comforted the family in the face of the situation's uncertainty [86]. Eventually, the nurse was convicted and served time in jail [86].

In another case study of a provider who was an MSbP perpetrator, a nursing student, "Judy", was found to be poisoning an infant with laxatives and preventing discharge of her child victims. "Ironically, although Judy was charged with child abuse, she continued in the second year of the nursing program. Faculty were unaware of the charge and Judy knew that they would not be informed under privacy legislation" [144], so in this case, the healthcare system did not protect its patients from a known perpetrator on their staff.

3.2.2. Unconfirmed MSbP perpetrators who were healthcare providers

Other cases of providers abusing patients have been identified, but have not been determined to be MSbP due to lack of investigation into the potential MSbP aspects of the abuse. In the book, "The Good Nurse: A True Story of Medicine, Madness, and Murder," author Charles Graeber describes a true story about how nurse Charles Cullen may have killed up to 400 intensive care unit (ICU) patients by injecting them with high levels of digoxin, a heart medication [158]. No motive was identified for these murders, and MSbP as a motive was not investigated [158]. Cullen's killing went unchecked because when the deaths were suspected to be murders by one hospital, its administrators would quietly prompt Cullen to resign, saying they would provide a letter of recommendation for his employment at a subsequent hospital if he resigned, in an effort to avoid a lawsuit against the hospital [158]. Eventually, Cullen confessed to some of the murders, and was convicted [158].

Another recent case of a healthcare provider potentially being an MSbP perpetrator is in the case of Justina Pelletier, a teenager from Connecticut who was being treated in Massachusetts for mitochondrial disorder, a rare and poorly understood condition [159]. When she was being transferred from one Boston hospital to Boston Children's for care based on a referral, she was virtually kidnapped by Boston Children's healthcare providers and locked in the psychiatric unit, where they withdrew her medications, thus causing her health to deteriorate [159]. Further, child-protective services were called to investigate the parents, who showed no signs or symptoms of being MSbP abusers [159]. However, involving child-protective services for false accusations of abuse is itself a symptom of MSbP perpetration [160]. These actions were indications that the individual orchestrating this abuse was indeed a provider at Children's Hospital.

The provider behind the actions at Boston Children's that kept Pelletier wrongly imprisoned for 18 months, according to her family, was identified as Dr. Alice Newton in a lawsuit filed by the Pelletier family in 2016 [161]. Dr. Newton had already been profiled in the Boston Globe, which noted that, "In the past few years, [Newton's] medical judgment has been openly questioned in three high-profile cases, two of which involved shaken-baby abuse charges that were later dropped" [162].

Eerie parallels can be drawn between the case of Dr. Newton and the career arc of Dr. Meadow, the British pediatrician who originally named MSbP in 1976, as described in the first section of this chapter. Dr. Meadow later went on to be accused of falsely convicting innocent parents of being MSbP abusers. In the particularly high-profile case of Sally Clark, Meadow had her jailed for MSbP when her infant died; she was later released when it was determined that the child actually succumbed to meningitis [163]. Clark died shortly after being released from jail, having never recovered from the dual trauma of losing her baby and being falsely convicted of MSbP abuse at the hands of Meadow [163].

As explained by clinician James LeFanu in a letter to the *Lancet*, “Meadow’s contention that two or more unexplained deaths in the same family is murder until proved otherwise (commonly known as ‘Meadow’s Rule’) was based on his own experience, not rigorous statistics, and this is part of what led to the successful conviction of many innocent parents and guardians who he falsely accused of MSbP abuse” [164]. LeFanu explained how it happened this way: “Thus, the façade of expertise on the potentially sinister cause of recurrent infant death that Meadow presented to the court proves on close examination to be built on insecure foundations, although regrettably juries, for a time, found it sufficiently persuasive to cause them to compound the unimaginable suffering of bereaved mothers with a life sentence” [164].

Meadow, though knighted for his supposed contribution to the protection of MSbP-abused children, was scolded in a letter from the President of the Royal Statistical Society for making up statistics that greatly overstated the likelihood that MSbP was responsible for child deaths in several cases [165]. In addition to the Clark case, four other cases that Meadow provided expert witness in convicting were overturned [163]. Sally Clark’s father eventually brought Meadow to the General Medical Council where he was found guilty of “serious professional misconduct” [166].

3.2.3. The troubled teen industry

In his book, “Institutionalized Persuasion,” Marcus Chatfield reviews how unregulated healthcare settings in the troubled teen industry (TTI), such as S.A.F.E. and S.T.R.A.I.G.H.T., may actually serve as magnets for MSbP provider abusers, the way daycare settings are an attraction for pedophiles [167]. These facilities essentially convince parents to give up their teenage children into an institutionalized setting under the guise of substance-abuse treatment, only to subject them to MSbP-like abuse by providing unstudied “treatments” that are akin to brainwashing and prisoner-of-war torture [167]. Though these healthcare settings have been cited for causing serious injury and death in the children who participate, there is no federal regulation against their existence, so even when a facility is found to be guilty of criminal behavior and is closed, other ones quickly open [167]. The mere existence of the TTI is evidence that MSbP provider perpetrators exist and can easily play into the hands of MSbP guardian perpetrators who are seeking providers to deliver unneeded care for fabricated or induced illnesses.

The mere existence of TTI pushes the question: What qualifies as a “healthcare setting”? An ED seems to be a healthcare setting, but an ED that refuses to treat pain is essentially a torture chamber, as it is not upholding its ethical duty to relieve pain and suffering [168]. The realization that physicians in World War II acted as torturers under the guise of “medical research” led to our modern day ethical boards to protect human subjects in research. This

suggests that simply having people we call “healthcare practitioners” acting in something we casually call a “healthcare setting” does not necessarily qualify it as a healthcare setting. In the case of TTI, “healthcare” is not being delivered. No evidence-based treatment for a particular condition is being administered by qualified practitioners.

This situation suggests that more regulation is needed on what is legally defined as a healthcare setting, and this would be necessary on the federal level to prevent TTI and other pseudo-healthcare settings from “state-shopping.” This regulation is not only to prevent pseudo-healthcare setting such as the TTI from being maintained but also to prevent drift of traditional healthcare settings, such as an ED, into the area of disqualification due to lack of ethical conduct, by, for example, not adequately treating pain.

4. A patient-centered approach to preventing MSbP in the healthcare system

This section applies the Haddon matrix framework to develop recommendations on how to prevent or mitigate the healthcare system's contribution to MSbP abuse from both a functional perspective on the healthcare system as well as individuals employed in the healthcare system. The Haddon matrix was invented by William Haddon, Jr., and was originally intended as a framework “applying basic principles of public health to the problem of traffic safety” [169]. Per Haddon's original 1980 work, “A logical system for preventing injury and death in motor vehicle crashes is based on the sequence of events (pre-crash, crash, and post-crash) and types of factors involved (human, vehicle and equipment, physical environment and roadway, and socioeconomic environment)” [170]. He felt that creating a table, or a matrix, with the sequence of events along the rows and the types of factors in the columns, and then filling in the cells at the intersections, would represent a reasonable and systematic approach to weigh the various prevention and intervention options, and to evaluate the individual effectiveness of each proposed option [170].

Since its inception, it has been used as a framework for considering approaches to injury prevention in public health and has been used specifically for considering prevention of childhood injuries [171, 172]. In her 1998 paper, Carol Runyan provides examples of applying the Haddon matrix to prevent childhood injury [169]; the application of the Haddon matrix to the prevention and early intervention of MSbP abuse in the healthcare system will be delineated here.

The Haddon matrix encourages consideration of actions that can be taken pre-event, or before the healthcare system participates in MSbP abuse, during the event of the healthcare system participating in MSbP abuse, and post-event, after MSbP abuse is identified in the healthcare system. It considers the host, which is the healthcare system, the agent, which are unnecessary medical procedures, the physical environment, which is the healthcare setting, and the social environment, which are healthcare-related norms, policies, and rules.

As described in **Table 1**, much can be achieved through policymaking at both the federal and local levels. Federal regulation of the TTI can prevent MSbP abuse by providers in that setting, while state regulation can hold healthcare facilities accountable for having established protocols for intervening on identified MSbP cases as well as holding healthcare providers accountable for

Timing	Host – Healthcare System	Agent/Vehicle – Unnecessary Medical Procedures	Physical Environment – Clinical or Hospital Setting	Social Environment – Healthcare Norms, Policies and Rules
<i>Pre-event</i> – before healthcare system involvement in MSbP abuse	Regularly training pediatric providers to identify signs and symptoms of MSbP perpetration Before proceeding with diagnostic procedures, investigating when patient has had prior suspicious hospitalizations, or has presented at multiple facilities with the same complaint Training clinicians to recognize hostility in guardians in reaction to not proceeding with diagnostics as a sign of potential MSbP abuse	Prevention of invasive diagnostics based only on reports and not clinical observation Taking steps to confirm that guardians reporting signs and symptoms are not lying Ruling out MSbP abuse when indicated at initial presentation before proceeding with diagnostics, especially for a rare disease	Directly observing specimen collection Requiring immediate intervention by health-care providers on the suspicion of MSbP abuse	Screening of healthcare professionals for MSbP behavior prior to employment Providing protocol to follow when healthcare professionals identify non-provider MSbP abuse perpetrator Providing protocol to follow when healthcare professionals identify provider MSbP abuse perpetrator Enacting federal regulation of the Troubled Teen Industry (TTI)
<i>Event</i> – during healthcare system involvement in MSbP abuse	Ruling out MSbP early in the course of diagnosis or treatment as soon as signs or symptoms of MSbP are perceived	Not initiating invasive treatments before a legitimate diagnosis has been confirmed and MSbP has been ruled out When treatments are found not to work, immediately removing them and working to rule out MSbP abuse	Requiring immediate intervention by healthcare providers on the suspicion of MSbP abuse Recognizing the hostility of guardians to discontinuation of treatment as a sign of potential MSbP abuse	Providing support to intervening providers working through MSbP abuse identification protocols Immediately removing and convicting providers found to be engaging in MSbP abuse of their patients
<i>Post-event</i> – after identifying MSbP abuse in the healthcare system	Holding the healthcare system accountable for ensuring ongoing safety of identified victims Holding healthcare system accountable for providing comprehensive rehabilitative treatment to victims	Prevention of “doctor shopping” or the use of another component of the healthcare system by MSbP abuser for perpetration Prevention of provider MSbP abusers from working in a healthcare setting	After MSbP cases are identified, determining and implementing features to improve the healthcare setting so as to prevent further cases Using past experience to improve the early detection of MSbP cases	Holding healthcare professionals accountable for not intervening on known MSbP abuse Holding healthcare professionals accountable for knowingly participating in MSbP abuse

This table shows the results of Haddon's matrix applied to the issue of MSbP in the healthcare system.

Table 1. Haddon matrix applied to the problem of the healthcare system's contribution to MSbP.

proceeding through these protocols when indicated, thus ensuring victim safety after abuse is identified. State regulations can also hold healthcare facilities accountable for providing necessary follow-up treatment for victims. State regulation that holds healthcare facilities accountable

for deliberately participating in MSbP abuse, either by not intervening when it is identified or by hiring providers who are MSbP perpetrators, will encourage healthcare settings to develop policies to screen out providers who are MSbP perpetrators, and to promote the immediate identification and early intervention on suspected MSbP cases. Healthcare settings can also create policy to indicate when directly observed specimen collection is needed.

Also shown in **Table 1** is that much can be achieved in the detection and early intervention of MSbP abuse through provider education. Clinicians, especially those who deal regularly with children such as pediatricians, can be fully educated on all the signs and symptoms of MSbP abuse, both when perpetrated by a guardian and when perpetrated by another healthcare provider. Regularly refreshing clinician knowledge of MSbP with updated information can go a long way toward helping clinicians identify immediately when MSbP abuse needs to be ruled out before diagnostic and treatment activities proceed.

5. Conclusion

In conclusion, although MSbP abuse results in severe morbidity and mortality in its victims, much can be done at the federal, state, and local levels to facilitate prevention and early intervention by focusing on the healthcare system's contribution to the abuse. This chapter first described the evolution of thought and understanding about MSbP abuse, and why the current literature lacks recommendations on patient-centered approaches to addressing this condition. The second section of this chapter reviewed how the healthcare system contributes to MSbP abuse from both a system and individual perspective, and the third section of this chapter uses the Haddon matrix to present a patient-centered, public health framework to guide prevention and early intervention of MSbP abuse in the healthcare setting.

The authors hope that the presentation of information in this format will facilitate a greater understanding of the healthcare system's contribution to MSbP abuse, as well as promote holding the healthcare system accountable for its role in the abuse. We hope that the development of a public health, patient-centered framework for mitigating or possibly eliminating the MSbP abuse contributed by the healthcare system will lead to the healthcare system taking greater responsibility for its role in the abuse, and to leaders taking to take a greater responsibility for holding the healthcare system accountable.

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References

- [1] Craft AW, Hall DMB. Munchausen syndrome by proxy and sudden infant death. *Br Med J* 2004;328:1309–12. doi:10.1136/bmj.328.7451.1309.
- [2] Liebrechts-Akkerman G, Lao O, Liu F, van Sleuwen BE, Engelberts AC, L'Hoir MP, et al. Postnatal parental smoking: an important risk factor for SIDS. *Eur J Pediatr* 2011;170:1281–91. doi:10.1007/s00431-011-1433-6.
- [3] Centers for Disease Control and Prevention. Sudden Infant Death Syndrome (SIDS) and Sudden, Unexpected Infant Death (SUID) – Reproductive Health. *Cent Dis Control Prev* 2016. <https://www.cdc.gov/sids/>(accessed August 6, 2016).
- [4] Becroft DM, Lockett BK. SIDS or murder? *Pediatrics* 1998;101:953–5.
- [5] Emery JL, Chandra S, Gilbert-Barness EF. Findings in child deaths registered as sudden infant death syndrome (SIDS) in Madison, Wisconsin. *Pediatr Pathol* 1988;8:171–8.
- [6] Geelhoed GC, Pemberton PJ. SIDS, seizures or 'esophageal reflux? Another manifestation of Munchausen syndrome by proxy. *Med J Aust* 1985;143:357–8.
- [7] Steinschneider A. Prolonged apnea and the sudden infant death syndrome: clinical and laboratory observations. *Pediatrics* 1994;93:944.
- [8] Meadow R. Munchausen syndrome by proxy: the hinterland of child abuse. *The Lancet* 1977;343–5.
- [9] Osborne JP. Non-accidental poisoning and child abuse. *Br Med J* 1976;1:1211.
- [10] Birrell RG, Birrell JH. The maltreatment syndrome in children: a hospital survey. *Med J Aust* 1968;2:1023–9.
- [11] Hodge III D, Schwartz W, Sargent J, Bodurtha J, Starr S. The bacteriologically battered baby: another case of Munchausen by proxy. *Ann Emerg Med* 1982;11:205–7. doi:10.1016/S0196-0644(82)80499-X.
- [12] Shnaps Y, Frand M, Rotem Y, Tirosh M. The chemically abused child. *Pediatrics* 1981;68:119–21.
- [13] Bass C, Jones D. Psychopathology of perpetrators of fabricated or induced illness in children: case series. *Br J Psychiatry J Ment Sci* 2011;199:113–8. doi:10.1192/bjp.bp.109.074088.
- [14] Bools C, Neale B, Meadow R. Munchausen syndrome by proxy: a study of psychopathology. *Child Abuse Negl* 1994;18:773–88.
- [15] Libow JA, Schreier HA. Three forms of factitious illness in children: when is it Munchausen syndrome by proxy? *Am J Orthopsychiatry* 1986;56:602–11.
- [16] Ackerman NB Jr, Strobel CT. Polle syndrome: chronic diarrhea in Munchausen's child. *Gastroenterology* 1981;81:1140–2.

- [17] Casavant MJ. Polle's syndrome (Munchausen by proxy). *Pediatr Emerg Care* 1995;11:264.
- [18] Adshead G, Bluglass K. A vicious circle: transgenerational attachment representations in a case of factitious illness by proxy. *Attach Hum Dev* 2001;3:77–95. doi:10.1080/14616730010024780.
- [19] Ahmed ZE. Factitious disorder imposed on another (Munchausen syndrome by proxy), a potentially lethal form of child abuse. *J Child Adolesc Behav* 2015;3. doi:10.4172/2375-4494.1000e106:e106.
- [20] Arnold SM, Arnholz D, Garyfallou GT, Heard K. Two siblings poisoned with diphenhydramine: a case of factitious disorder by proxy. *Ann Emerg Med* 1998;32:256–9. doi:10.1016/S0196-0644(98)70146-5.
- [21] Bappal B, George M, Nair R, Khusaiby SA, De Silva V. Factitious hypoglycemia: a tale from the Arab world. *Pediatrics* 2001;107:180–1.
- [22] Gray J, Bentovim A. Illness induction syndrome: paper I – A series of 41 children from 37 families identified at The Great Ormond Street Hospital for Children NHS Trust. *Child Abuse Negl* 1996;20:655–73.
- [23] Günter M. Induction, identification or folie à deux? Psychodynamics and genesis of Munchausen syndromes by proxy and false allegations of sexual abuse in adolescents. *Med Law* 1998;17:359–79.
- [24] Greiner MV, Palusci VJ, Keeshin BR, Kearns SC, Sinal SH. A preliminary screening instrument for early detection of medical child abuse. *Hosp Pediatr* 2013;3:39–44. doi:10.1542/hpeds.2012-0044.
- [25] Mash C, Frazier T, Nowacki A, Worley S, Goldfarb J. Development of a risk-stratification tool for medical child abuse in failure to thrive. *Pediatrics* 2011;128:e1467–73. doi:10.1542/peds.2011-1080.
- [26] Fish E, Bromfield L, Higgins D. A new name for Munchausen syndrome by proxy: defining fabricated or induced illness by carers. Melbourne: Australian Institute of Family Studies; 2005.
- [27] Lazoritz S. Munchausen by proxy or Meadow's syndrome? *Lancet* 1987;330:631. doi:10.1016/S0140-6736(87)93025-X.
- [28] Lerman P. Münchausensyndrome by proxy or Polle syndrome. *Harefuah* 1986;110:248–50.
- [29] Meadow R, Lennert T. Munchausen by proxy or Polle syndrome: which term is correct? *Pediatrics* 1984;74:554–6.
- [30] Strassburg HM, Peuckert W. Not “Polle syndrome”, please. *Lancet* 1984;1:166.
- [31] Burman D, Stevens D. Munchausen family. *Lancet* 1977;2:456.
- [32] Jolfaei A, Ghanbari, Isfahani M, Nasr, Bidaki R. Folie à deux and delusional disorder by proxy in a family. *J Res Med Sci* 2011;16:453–5.

- [33] Meadow R. What is, and what is not, "Munchausen syndrome by proxy"? *Arch Dis Child* 1995;72:534–8.
- [34] Bennett AMD, Bennett SMV, Prinsley PR, Wickstead M. Spitting in the ear: a falsified disease using video evidence. *J Laryngol Otol* 2005;119:926–7. doi:10.1258/002221505774783502.
- [35] Bryk M, Siegel PT. My mother caused my illness: the story of a survivor of Munchausen by proxy syndrome. *Pediatrics* 1997;100:1–7.
- [36] Rosenberg DA. Munchausen syndrome by proxy: medical diagnostic criteria. *Child Abuse Negl* 2003;27:421–30. doi:10.1016/S0145-2134(03)00029-2.
- [37] Mayo Clinic Staff. Factitious Disorder: Tests and Diagnosis. Mayo Clin 2014. https://s0.2mdn.net/5368809/1466022075013/300x600/Invega_Trinza_300x600.html (accessed August 6, 2016).
- [38] Jones DPH. The untreatable family. *Child Abuse Negl* 1987;11:409–20. doi:10.1016/0145-2134(87)90014-7.
- [39] Dowling D. The child's experience of Munchausen syndrome by proxy. *J Child Psychother* 1998;24:307–26. doi:10.1080/00754179808414819.
- [40] Schreier HA, Libow JA. Munchausen by proxy syndrome: a modern pediatric challenge. *J Pediatr* 1994;125:S110–5. doi:10.1016/S0022-3476(05)82934-8.
- [41] Schreier H, Ricci LR. Follow-up of a case of Munchausen by proxy syndrome. *J Am Acad Child Adolesc Psychiatry* 2002;41:1395–6. doi:10.1097/00004583-200212000-00009.
- [42] Kucuker H, Demir T, Oral R. Pediatric condition falsification (Munchausen syndrome by proxy) as a continuum of maternal factitious disorder (Munchausen syndrome). *Pediatr Diabetes* 2010;11:572–8. doi:10.1111/j.1399-5448.2009.00631.x.
- [43] Bajanowski T, Vennemann M, Bohnert M, Rauch E, Brinkmann B, Mitchell EA, et al. Unnatural causes of sudden unexpected deaths initially thought to be sudden infant death syndrome. *Int J Legal Med* 2005;119:213–6. doi:10.1007/s00414-005-0538-8.
- [44] Carpenter RG, Waite A, Coombs RC, Daman-Willems C, McKenzie A, Huber J, et al. Repeat sudden unexpected and unexplained infant deaths: natural or unnatural? *Lancet* 2005;365:29–35. doi:10.1016/S0140-6736(04)17662-9.
- [45] Truman TL, Ayoub CC. Considering suffocatory abuse and Munchausen by proxy in the evaluation of children experiencing apparent life-threatening events and sudden infant death syndrome. *Child Maltreat* 2002;7:138–48. doi:10.1177/1077559502007002006.
- [46] Libow JA. Munchausen by proxy victims in adulthood: a first look. *Child Abuse Negl* 1995;19:1131–42.
- [47] Postlethwaite RJ. Caustic ingestion as a manifestation of fabricated and induced illness (Munchausen syndrome by proxy). *Child Abuse Negl* 2010;34:471. doi:10.1016/j.chiabu.2009.11.009.

- [48] Sanders MJ. Munchausen by proxy: assessment and treatment, AACAP; 2012.
- [49] Bauer KA. Covert video surveillance of parents suspected of child abuse: the British experience and alternative approaches. *Theor Med Bioeth* 2004;25:311–27.
- [50] Byard RW, Burnell RH. Covert video surveillance in Munchausen syndrome by proxy. Ethical compromise or essential technique? *Med J Aust* 1994;160:352–6.
- [51] Evans D. The investigation of life-threatening child abuse and Munchausen syndrome by proxy. *J Med Ethics* 1995;21:9–13.
- [52] Flannery MT. First, do no harm: the use of covert video surveillance to detect Munchausen syndrome by proxy – an unethical means of “preventing” child abuse. *Univ Mich J Law Reform Univ Mich Law Sch* 1998;32:105–94.
- [53] Brink FW, Thackeray JD. Factitious illness – Red flags for the pediatric emergency medicine physician. *Clin Pediatr Emerg Med* 2012;13:213–20. doi:10.1016/j.cpem.2012.06.002.
- [54] Jureidini JN, Shafer AT, Donald TG. “Munchausen by proxy syndrome”: not only pathological parenting but also problematic doctoring? *Med J Aust* 2003;178:130–2.
- [55] Sugar JA, Belfer M, Israel E, Herzog DB. A 3-year-old boy's chronic diarrhea and unexplained death. *J Am Acad Child Adolesc Psychiatry* 1991;30:1015–21. doi:10.1097/00004583-199111000-00023.
- [56] Zitelli B, Seltman M, Shannon R. Munchausen's syndrome by proxy and its professional participants. *Am J Dis Child* 1987;141:1095–8. doi:10.1001/archpedi.1987.04460100073029.
- [57] Carek DJ. The Munchausen by proxy controversy. *J Am Acad Child Adolesc Psychiatry* 1995;34:261–261. doi:10.1097/00004583-199503000-00001.
- [58] Perman CM. The suspicious physician – legal protections and ramifications for the medical community in identifying and treating Munchausen syndrome by proxy. *Health Care Law Mon* 2008;2008:2–7.
- [59] Kilic SC, Butun C, Beyaztas FY, Ozen B, Sahin RT, Caglar FF. A case of Munchausen syndrome by proxy presenting with epistaxis. *Turk Arch Pediatr* 2012;47:226–7.
- [60] Loo PY, Yap F. Unwitnessed sulphonylurea poisoning in a healthy toddler. *Eur J Pediatr* 2010;169:1409–12. doi:10.1007/s00431-010-1219-2.
- [61] Owen L, Ellis M, Shield J. Deliberate sulphonylurea poisoning mimicking hyperinsulinaemia of infancy. *Arch Dis Child* 2000;82:392–3.
- [62] Tsai H-L, Yang L-Y, Chin T-W, Chen P-H, Yen H-J, Liu C-S, et al. Child abuse in medical setting presenting as gross hematuria: diagnosis by DNA short tandem repeats. *Pediatrics* 2012;130:e224–9. doi:10.1542/peds.2011-3271.
- [63] Ali SN, Ali AN, Ali MN. Munchausen syndrome by proxy: the overlooked diagnosis. *J Ayub Med Coll Abbottabad* 2015;27:489–91.

- [64] Gehlawat P, Gehlawat VK, Singh P, Gupta R. Munchausen syndrome by proxy: an alarming face of child abuse. *Indian J Psychol Med* 2015;37:90–2. doi:10.4103/0253-7176.150850.
- [65] Green RP, Hollander AS, Thevis M, Thomas A, Dietzen DJ. Detection of surreptitious administration of analog insulin to an 8-week-old infant. *Pediatrics* 2010;125:e1236–40. doi:10.1542/peds.2009-2273.
- [66] Narang T, Kanwar AJ, Kumaran MS, Singh SM. Munchausen by proxy in a family. *Indian J Dermatol Venereol Leprol* 2012;78:748–50. doi:10.4103/0378-6323.102377.
- [67] Rabbone I, Galderisi A, Tinti D, Ignaccolo MG, Barbetti F, Cerutti F. Case report: when an induced illness looks like a rare disease. *Pediatrics* 2015;136:e1361–5. doi:10.1542/peds.2014-4165.
- [68] Vadysinghe AN, Dayaratne KMPL. A case of Munchausen syndrome by proxy: is it a misdiagnosis? *Sri Lanka J Forensic Med Sci Law* 2015;5:3–7.
- [69] Foto Özdemir D, Gökler B, Evinç SG, Balseven Odabası A. A case of Munchausen syndrome by proxy in the context of folie a famille. *Türk Psikiyatri Derg Turk J Psychiatry* 2013;24:275–9.
- [70] Barker LH, Howell RJ. Munchausen syndrome by proxy in false allegations of child sexual abuse: legal implications. *Bull Am Acad Psychiatry Law* 1994;22:499–510.
- [71] McClure RJ, Davis PM, Meadow SR, Sibert JR. Epidemiology of Munchausen syndrome by proxy, non-accidental poisoning, and non-accidental suffocation. *Arch Dis Child* 1996;75:57–61.
- [72] Tamay Z, Akcay A, Kilic G, Peykerli G, Devecioglu E, Ones U, et al. Corrosive poisoning mimicking cicatricial pemphigoid: Munchausen by proxy. *Child Care Health Dev* 2007;33:496–9. doi:10.1111/j.1365-2214.2007.00731.x.
- [73] Black D. The extended Munchausen syndrome: a family case. *Br J Psychiatry J Ment Sci* 1981;138:466–9.
- [74] Shapiro M, Nguyen M. Psychological sequelae of Munchausen's syndrome by proxy. *Child Abuse Negl* 2011;35:87–8. doi:10.1016/j.chiabu.2010.10.005.
- [75] Wagner C, Bowers W. Cardiomyopathy in a child induced by intentional ipecac poisoning. *Air Med J* 2006;25:236–7. doi:10.1016/j.amj.2006.06.006.
- [76] Deimel IV GW, Burton MC, Raza SS, Lehman JS, Lapid MI, Bostwick JM. Munchausen syndrome by proxy: an adult dyad. *Psychosomatics* 2012;53:294–9. doi:10.1016/j.psych.2011.04.006.
- [77] Criddle L. Monsters in the closet: Munchausen syndrome by proxy. *Crit Care Nurse* 2010;30:46–55. doi:10.4037/ccn2010737.
- [78] Steinschneider A. Prolonged apnea and the sudden infant death syndrome: clinical and laboratory observations. *Pediatrics* 1972;50:646–54.

- [79] Jenny C, Isaac R. The relation between child death and child maltreatment. *Arch Dis Child* 2006;91:265–9. doi:10.1136/adc.2004.066696.
- [80] Denny SJ, Grant CC, Pinnock R. Epidemiology of Munchausen syndrome by proxy in New Zealand. *J Paediatr Child Health* 2001;37:240–3.
- [81] National Organization for Rare Disorders. *NORD Guide to Rare Disorders*. Lippincott Williams & Wilkins; Philadelphia, PA 2003.
- [82] Al-Owain M, Al-Zaidan H, Al-Hashem A, Kattan H, Al-Dowaish A. Munchausen syndrome by proxy mimicking as Gaucher disease. *Eur J Pediatr* 2010;169:1029–32. doi:10.1007/s00431-009-1127-5.
- [83] Aranibar H, Cerda M. Hypoglycemic seizure in Munchausen-by-proxy syndrome. *Pediatr Emerg Care* 2005;21:378–9.
- [84] Babcock J, Hartman K, Pedersen A, Murphy M, Alving B. Rodenticide-induced coagulopathy in a young child. A case of Munchausen syndrome by proxy. *Am J Pediatr Hematol Oncol* 1993;15:126–30.
- [85] Bader AA, Kerzner B. Ipecac toxicity in “Munchausen syndrome by proxy.” *Ther Drug Monit* 1999;21:259–60.
- [86] Barros AJS, Rosa RG, Telles LE de B, Taborda JGV. Attempted serial neonaticides: case report and a brief review of the literature. *J Forensic Sci* 2016;61:280–283. doi:10.1111/1556-4029.12873.
- [87] Bartsch C, Ribe M, Schutz H, Weigand N, Weiler G. Munchausen syndrome by proxy (MSBP): an extreme form of child abuse with a special forensic challenge. *Forensic Sci Int* 2003;137:147–151.
- [88] Baskin DE, Stein F, Coats DK, Paysse EA. Recurrent conjunctivitis as a presentation of Munchausen syndrome by proxy. *Ophthalmology* 2003;110:1582–4. doi:10.1016/S0161-6420(03)00489-5.
- [89] Ben-Chetrit E, Melmed RN. Recurrent hypoglycaemia in multiple myeloma: a case of Munchausen syndrome by proxy in an elderly patient. *J Intern Med* 1998;244:175–8.
- [90] Berkner P, Kastner T, Skolnick L. Chronic ipecac poisoning in infancy: a case report. *Pediatrics* 1988;82:384–6.
- [91] Carlson J, Fernlund P, Ivarsson S-A, Jakobsson I, Neiderud J, Nilsson K, et al. Munchausen syndrome by proxy: an unexpected cause of severe chronic diarrhoea in a child. *Acta Pædiatrica* 1994;83:119–21. doi:10.1111/j.1651-2227.1994.tb12967.x.
- [92] Chodorowsk Z, Anand JS, Porzezińska B, Markiewicz A. Consciousness disturbances: a case report of Munchausen by proxy syndrome in an elderly patient. *Przegląd Lek* 2003;60:307–8.
- [93] Clark RF, Sage TA, Tunget C, Manoguerra AS. Delayed onset lorazepam poisoning successfully reversed by flumazenil in a child. Case report and review of the literature. *Pediatr Emerg Care* 1995;11:32–4.

- [94] Clin B, Ferrant O, Dupont C, Papin F. Recurrent caustic esophagitis: a clinical form of Münchausen syndrome by proxy. *Child Abuse Negl* 2009;33:293–5. doi:10.1016/j.chiabu.2008.09.007.
- [95] Colletti RB, Wasserman RC. Recurrent infantile vomiting due to intentional ipecac poisoning. *J Pediatr Gastroenterol Nutr* 1989;8:394–6.
- [96] Cooper CP, Kamath KR. A toddler with persistent vomiting and diarrhoea. *Eur J Pediatr* 1998;157:775–6.
- [97] D’Avanzo M, Santinelli R, Tolone C, Bettinelli A, Bianchetti MG. Concealed administration of frusemide simulating Bartter syndrome in a 4.5-year-old boy. *Pediatr Nephrol Berl Ger* 1995;9:749–50.
- [98] Day L, Kelly C, Reed G, Andersen JM, Keljo JM. Fatal cardiomyopathy: suspected child abuse by chronic ipecac administration. *Vet Hum Toxicol* 1989;31:255–7.
- [99] Dejoie T, Ramos E, Baron S, Bach-Ngohou K, Masson D. Contribution of the laboratory in hypoglycemia diagnosis induced by insulin administration in a 2-year-old girl. *Ann Biol Clin (Paris)* 2008;66:82–6. doi:10.1684/abc.2007.0182.
- [100] Devore CD, Ulshen MH, Cross RE. Phenolphthalein laxatives and factitious diarrhea. *Clin Pediatr (Phila)* 1982;21:573–4.
- [101] Dine MS, McGovern ME. Intentional poisoning of children—an overlooked category of child abuse: report of seven cases and review of the literature. *Pediatrics* 1982;70:32–5.
- [102] Edidin DV, Farrell EE, Gould VE. Factitious hyperinsulinemic hypoglycemia in infancy: diagnostic pitfalls. *Clin Pediatr (Phila)* 2000;39:117–9.
- [103] Feldman KW, Christopher DM, Opheim KB. Munchausen syndrome/bulimia by proxy: ipecac as a toxin in child abuse. *Child Abuse Negl* 1989;13:257–61.
- [104] Fenton AC, Wailoo MP, Tanner MS. Severe failure to thrive and diarrhoea caused by laxative abuse. *Arch Dis Child* 1988;63:978.
- [105] Friedman EM. Caustic ingestions and foreign body aspirations: an overlooked form of child abuse. *Ann Otol Rhinol Laryngol* 1987;96:709–12.
- [106] Giurgea I, Ulinski T, Touati G, Sempoux C, Mochel F, Brunelle F, et al. Factitious hyperinsulinism leading to pancreatectomy: severe forms of Munchausen syndrome by proxy. *Pediatrics* 2005;116:e145–8. doi:10.1542/peds.2004-2331.
- [107] Glatstein M, Garcia-Bournissen F, Scolnik D, Koren G, Finkelstein Y. Hypoglycemia in a healthy toddler. *Ther Drug Monit* 2009;31:173–7. doi:10.1097/FTD.0b013e318197b7d7.
- [108] Goebel J, Gremse DA, Artman M. Cardiomyopathy from ipecac administration in Munchausen syndrome by proxy. *Pediatrics* 1993;92:601–3.
- [109] Hvizdala EV, Gellady AM. Intentional poisoning of two siblings by prescription drugs. An unusual form of child abuse. *Clin Pediatr (Phila)* 1978;17:480–2.

- [110] Johnson JE, Carpenter BL, Benton J, Cross R, Eaton LA Jr, Rhoads JM. Hemorrhagic colitis and pseudomelanosis coli in ipecac ingestion by proxy. *J Pediatr Gastroenterol Nutr* 1991;12:501–6.
- [111] Jones JG, Butler HL, Hamilton B, Perdue JD, Stern HP, Woody RC. Munchausen syndrome by proxy. *Child Abuse Negl* 1986;10:33–40.
- [112] Kaminer Y, Robbins DR. Insulin misuse: a review of an overlooked psychiatric problem. *Psychosomatics* 1989;30:19–24. doi:10.1016/S0033-3182(89)72313-6.
- [113] Krebs MO, Bouden A, Lôo H, Olié JP. Münchausen syndrome by proxy between two adults. *Presse Médicale Paris Fr* 1983 1996;25:583–6.
- [114] Lansky LL. An unusual case of childhood chloral hydrate poisoning. *Am J Dis Child* 1974;127:275–6.
- [115] Lasala GS, Vearrier D, Boroughf WJ, Osterhoudt KC. Munchausen syndrome by proxy due to tetrahydrozoline poisoning. *Clin Toxicol* 2014;52:746.
- [116] Lorber J. Unexplained episodes of coma in a two-year-old. *Lancet Lond Engl* 1978;2:472–3.
- [117] Lorber J, Reckless JP, Watson JB. Nonaccidental poisoning: the elusive diagnosis. *Arch Dis Child* 1980;55:643–7.
- [118] Lyall EG, Stirling HF, Crofton PM, Kelnar CJ. Albuminuric growth failure. A case of Munchausen syndrome by proxy. *Acta Paediatr* 1992;81:373–6.
- [119] Mahesh VK, Stern HP, Kearns GL, Stroh SE. Application of pharmacokinetics in the diagnosis of chemical abuse in Münchausen syndrome by proxy. *Clin Pediatr (Phila)* 1988;27:243–6. doi:10.1177/000992288802700507.
- [120] Manikoth P, Subramanyan R, Menon S, Al Khusaiby SM. A child with cardiac arrhythmia and convulsions. *Lancet* 1999;354:2046.
- [121] Marks V, Teale JD. Hypoglycemia: factitious and felonious. *Endocrinol Metab Clin North Am* 1999;28:579–601.
- [122] Marks V. Murder by insulin: suspected, purported and proven—a review. *Drug Test Anal* 2009;1:162–176. doi:10.1002/dta.38.
- [123] McClung HJ, Murray R, Braden NJ, Fyda J, Myers RP, Gutches L. Intentional ipecac poisoning in children. *Am J Dis Child* 1988;142:637–9.
- [124] McSweeney JJ, Hoffman RP. Munchausen's syndrome by proxy mistaken for IDDM. *Diabetes Care* 1991;14:928–9.
- [125] Mehl AL, Coble L, Johnson S. Munchausen syndrome by proxy: a family affair. *Child Abuse Negl* 1990;14:577–85.
- [126] Mullins ME, Cristofani CB, Warden CR, Cleary JF. Amitriptyline-associated seizures in a toddler with Munchausen-by-proxy. *Pediatr Emerg Care* 1999;15:202–5.

- [127] Pickering LK, Kohl S. Munchausen syndrome by proxy. *Am J Dis Child* 1981;135:288–9. doi:10.1001/archpedi.1981.02130270080034.
- [128] Proesmans W, Sina JK, Debucquoy P, Renoirte AM, Eeckels R. Recurrent acute renal failure due to nonaccidental poisoning with glafenin in a child. *Clin Nephrol* 1981;16:207–10.
- [129] Rivenes SM, Bakerman PR, Miller MB. Intentional caffeine poisoning in an infant. *Pediatrics* 1997;99:736–7. doi:10.1542/peds.99.5.736.
- [130] Rogers D, Tripp J, Bentovim A, Robinson A, Berry D, Goulding R. Papers and originals. Non-accidental poisoning: an extended syndrome of child abuse. *Br Med J* 1976;1:793–6.
- [131] Rogers R. Diagnostic, explanatory, and detection models of Munchausen by proxy: extrapolations from malingering and deception. *Child Abuse Negl* 2004;28:225–38.
- [132] Santangelo WC, Richey JE, Rivera L, Fordtran JS. Surreptitious ipecac administration simulating intestinal pseudo-obstruction. *Ann Intern Med* 1989;110:1031–2. doi:10.7326/0003-4819-110-12-1031.
- [133] Schneider DJ, Perez A, Knilamus TE, Daniels SR, Bove KE, Bonnell H. Clinical and pathologic aspects of cardiomyopathy from ipecac administration in Munchausen's syndrome by proxy. *Pediatrics* 1996;97:902–6.
- [134] Souid AK, Korins K, Keith D, Dubansky S, Sadowitz PD. Unexplained menorrhagia and hematuria: a case report of Munchausen's syndrome by proxy. *Pediatr Hematol Oncol* 1993;10:245–8.
- [135] Su E, Shoykhet M, Bell MJ. Severe hypernatremia in a hospitalized child: Munchausen by proxy. *Pediatr Neurol* 2010;43:270–3. doi:10.1016/j.pediatrneurol.2010.05.002.
- [136] Sutphen JL, Saulsbury FT. Intentional ipecac poisoning: Munchausen syndrome by proxy. *Pediatrics* 1988;82:453–6.
- [137] Tessa C, Mascalchi M, Matteucci L, Gavazzi C, Domenici R. Permanent brain damage following acute clonidine poisoning in Munchausen by proxy. *Neuropediatrics* 2001;32:90–2. doi:10.1055/s-2001-13881.
- [138] Türkmen Z, Ziyalar N, Tari I, Mercan S, Kayiran SM, Sener D, et al. Toxicological evaluation of two children diagnosed as Munchausen syndrome by proxy. *Turk J Pediatr* 2012;54:283–6.
- [139] Vennemann B, Perdekamp MG, Weinmann W, Faller-Marquardt M, Pollak S, Brandis M. A case of Munchausen syndrome by proxy with subsequent suicide of the mother. *Forensic Sci Int* 2006;158:195–9. doi:10.1016/j.forsciint.2005.07.014.
- [140] Verity CM, Winckworth C, Burman D, Stevens D, White RJ. Polle syndrome: children of Munchausen. *Br Med J* 1979;2:422–3.
- [141] Watson JB, Davies JM, Hunter JL. Nonaccidental poisoning in childhood. *Arch Dis Child* 1979;54:143–4.

- [142] White ST, Voter K, Perry J. Surreptitious warfarin ingestion. *Child Abuse Negl* 1985;9:349–52. doi:10.1016/0145-2134(85)90031-6.
- [143] Yesilkaya E, Akin O, Sari E, Macit E, Akar C, Gun H. A rare reason of hyperinsulinism: Munchausen syndrome by proxy. *ESPE Abstr* 2015;84:686.
- [144] Yonge O, Haase M. Munchausen syndrome and Munchausen syndrome by proxy in a student nurse. *Nurse Educ* 2004;29:166–9.
- [145] Zahavi I, Shaffer EA, Gall DG. Child abuse with laxatives. *Can Med Assoc J* 1982;127:512–3.
- [146] Zylstra RG, Miller KE, Stephens WE. Munchausen syndrome by proxy: a clinical vignette. *Prim Care Companion J Clin Psychiatry* 2000;2:42–4.
- [147] Manoguerra AS, Cobaugh DJ. Guideline on the use of ipecac syrup in the out-of-hospital management of ingested poisons. *Clin Toxicol Phila Pa* 2005;43:1–10.
- [148] Blyth CC, Russell S, Zwi KJ, Taitz J, Fairley M, Post JJ. Munchausen syndrome by proxy and recurrent polymicrobial bacteremia. *Pediatr Infect Dis J* 2007;26:191. doi:10.1097/01.inf.0000253951.84015.70.
- [149] Yalındağ-Öztürk N, Erkek N, Sirinoğlu MB. Think again: first do no harm. *Pediatr Emerg Care* 2015;31:720–1. doi:10.1097/PEC.0000000000000363.
- [150] Schreier H. On the importance of motivation in Munchausen by proxy: the case of Kathy Bush. *Child Abuse Negl* 2002;26:537–49.
- [151] Foto Özdemir D, Yalçın SS, Zeki A, Yurdakök K, Özusta S, Köse A, et al. Munchausen syndrome by proxy presented as recurrent respiratory arrest and thigh abscess: a case study and overview. *Turk J Pediatr* 2013;55:337–43.
- [152] De Sousa A. Trichotillomania by proxy. *Int J Trichology* 2015;7:24–5. doi:10.4103/0974-7753.153452.
- [153] Demircioglu F, Bekdas M, Goksugur SB, Gunes C, Yildirim O. A rare reason in an infant who presented with recurrent bleeding: Munchausen by proxy syndrome. *J Med Cases* 2014;5:385–7. doi:10.14740/jmc.v5i7.1289.
- [154] Jain S, Kumar R, Mehta P, Bhuria J. Munchausen syndrome by proxy masquerading as pyoderma gangrenosum. *Indian J Paediatr Dermatol* 2014;15:123. doi:10.4103/2319-7250.143667.
- [155] Ragaisis K. When the system works: rescuing a child from Munchausen's syndrome by proxy. *J Child Adolesc Psychiatr Nurs Off Publ Assoc Child Adolesc Psychiatr Nurses Inc* 2004;17:173–6.
- [156] Liebson R. Munchausen's role in the strange case of Lacey Spears. *Lohud.com* 2015.
- [157] Artingstall K. *Practical Aspects of Munchausen by Proxy and Munchausen Syndrome Investigation*. CRC Press; Boca Raton, FL. 1998.

- [158] Graeber C. *The Good Nurse: A True Story of Medicine, Madness, and Murder*. Grand Central Publishing; New York, NY. 2013.
- [159] Larimore R, Goldstein D. The Sad, Scary Saga of Justina Pelletier. *Slate*; 2014. http://www.slate.com/blogs/xx_factor/2014/03/27/justina_pelletier_ruling_boston_children_s_hospital_and_judge_perform_parent.html
- [160] Conway Rand D. Book review – “Hurting for love: Munchausen by proxy syndrome.” *IPT J* 1993;5.
- [161] Mahoney P. Justina Pelletier Sues Boston Children's Hospital and Alice Newton for Civil Rights Violations and Medical Malpractice 2016. <http://christiannewswire.com/news/9980877476.html> (accessed August 7, 2016).
- [162] Wen P. Alice Newton, Pediatrician is at the Center of Storms on Child Abuse. *Boston Globe*; Massachusetts, USA. 2015. <https://www.bostonglobe.com/metro/2015/11/03/alice-newton-pediatrician-both-admired-and-reviled/f9n28Ni0EvoouJgesk5Z5I/story.html>
- [163] Jardine C. Has Sally Clark's case changed attitudes to infant death? 2008.
- [164] Clark S, Le Fanu J. Roy Meadow. *Lancet* 2005;366:449–50.
- [165] The Royal Statistical Society. Letter from the President to the Lord Chancellor regarding the use of statistical evidence in court cases 2002.
- [166] Sir Roy Meadow struck off by GMC. *BBC* 2005. <http://news.bbc.co.uk/2/hi/health/4685511.stm>
- [167] Chatfield M. *Institutionalized Persuasion*. CreateSpace Independent Publishing Platform; North Charleston, SC. 2014.
- [168] Aswegan AL. Our Ethical Duty Is to Relieve Pain and Suffering. *ACEP News*; 2007.
- [169] Runyan C. Using the Haddon matrix: introducing the third dimension. *Inj Prev* 1998;4:302–7.
- [170] Haddon W. Options for the prevention of motor vehicle crash injury. *Isr J Med Sci* 1980;16:45–65.
- [171] Dowd MD, Keenan HT, Bratton SL. Epidemiology and prevention of childhood injuries. *Crit Care Med* 2002;30:S385–92.
- [172] Mace SE, Gerardi MJ, Dietrich AM, Knazik SR, Mulligan-Smith D, Sweeney RL, et al. Injury prevention and control in children. *Ann Emerg Med* 2001;38:405–14. doi:10.1067/mem.2001.115882.

