Discontinuity and Disaster: Gaps and the Negotiation of Culpability in Medication Delivery

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Introduction

We say that celebrated accidents shape public perception of safety and risk in health care. Take the so-called celebrated story of the three Colorado nurses who, by administering bezathine penicillin intravenously, caused the death of a neonate.[1] The nurses were charged with criminal negligence, with one pleading guilty to a reduced charge and another fighting the charge and eventually being exonerated. "Celebrated" accidents (i.e., celebrated in the media and, accordingly, popular imagination, amplified momentarily by the media as it may get ferried along from courtroom to courtroom) seem to follow a predictable script and cast participants in recognizable roles. They present heroes (e.g., a care provider who tried to save the patient despite the odds and errors of others), survivors, and victims. And, of course, they put villains, or anti-heroes, center stage – the chief protagonists of a fatal plot.

In celebrated stories, villains, who begat an act of omission or commission, can conveniently, and even accurately, carry the explanatory (and moral) load of an accident. For example, a medication error by a nurse caused a patient's death in a recent case in Sweden.[2] The nurse, previously a normal employee with an above average, if not stellar, record, became a villain within a matter of weeks. Such a transformation hinges often on the severity of the outcome (the patient's death) and the ability to construct a story where consequence and act are necessarily linked. Moreover, it expresses a complex, socially patterned response that involves outsider judgments of the actor's perceived volitional control and foresight, as well as normative expectations related to his or her gender, economic status, and occupation. This *post-hoc* moral and social negotiation creates villains out of normal practitioners and celebrated accidents out of regular adverse events. So if celebrated accidents with central culprits shape public perception about risk in health care, then what makes them celebrated? Indeed, what makes an accident celebrated if not public perception? This question exposes a central preoccupation of late 20th-century social science: an accident does not exist "out there," to be explained with a good method of inquiry. Rather, public perception shapes what becomes an accurate story about the accident, and it creates not only the celebration around an accident (in health care or elsewhere) but also creates, or constructs, the accident itself.

In this paper, I attempt to trace one such case of constructed villainy, one such "celebrated accident." Specifically, I aim to show how discontinuities in medication delivery made the isolation of a culprit and the celebration of the accident possible, but simultaneously underdetermined the differential amounts of blame ascribed to various involved actors. The case forces us to abandon conceptualizations of blame that assume a dichotomy (either culpable or not) and shift instead to a more nuanced version that estimates the degree to which an actor desired, generated, or could have foreseen the harmful outcome, and the extent to which constraints external to the actor altered the event. I borrow from psychological, ethical, and anthropological literatures in order to explain the asymmetric judgments of culpability that typify

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this case as celebrated – not only in mass media marking the egregious wrongdoing of one nurse, but in the safety community as a perversion of justice, a deflection of responsibility, and a parody of ethics that will reverberate through the patient safety movement for years to come.

Discontinuities in Care Delivery

Discontinuities, or gaps, are a feature of health care delivery because of its hierarchical stratification (e.g., doctor-nurse), lateral medical specialization, and temporal and spatial separation (e.g., ward, department, institution). Discontinuities may show up, for example, as transmutations of medium (e.g., from written to oral), handovers between shifts, movement of patients, transferal of caretaking physician, or interruptions in workflow. Patients, prescriptions, orders, medications, and health care workers all cross departments and levels of care, shift responsibilities, and flow through hierarchies. (This contrasts with the production process in, for example, aviation, where a passenger on one flight – from beginning to end – is in the hands of a single crew and single responsible commander, who mediates the inputs from a multitude of other agents throughout the system. Of course, this system has other inherent risks.) The multifarious transitions and shifts in the delivery of health care can produce losses of momentum, information, and handovers of patients, data, or even responsibility. They all represent gaps in the continuity of care, which

> ...are most readily seen when they are aligned with organizational and institutional boundaries that mark changes in responsibility or authority, different roles of professionals, of formal divisions of labor. For example, the loss of coherence in a plan of care that occurs during changes of a shift is a kind of gap. Another example is the loss of information that sometimes accompanies transfers of patients from one facility to another, as when a patient is discharged from hospital to a rehabilitation facility.[3]

Those who work in health care often know where discontinuities in their processes occur, and they know that these can represent extra risk. Consequently, they invest in recognizing, anticipating, and absorbing the potentially negative effects of discontinuities (e.g., through handover briefings). Gaps, then, represent both demands and opportunities for the expression of highly developed practitioner expertise, such as strategies for smoothing handovers, double-checking prescriptions, reading back orders, internalizing charts, anticipating workload ebbs and flows, and opportunities for recognizing and satisfying the need for additional or different kinds of expertise. But sources of expertise also typically become grounds for the creation of what many, after the fact, call "errors." Indeed, gaps are involved in adverse events when the usual mechanisms that practitioners have devised to anticipate, detect, and bridge gaps, and the small normal variations in these mechanisms that occur over time and place, mismatch the demands or peculiarities of an actual situation.

Discontinuities and Adverse Medication Events

But discontinuities can serve another, more sinister purpose. After an adverse event, gaps in care allow for the excision of a particular act, the isolation of a trouble spot in the wake of disaster (e.g., fatal medication error), or the identification of a single or chief protagonist. For instance, as a prescription flows from department to department, doctor to nurse, and nurse to patient and then is transmuted from oral suggestion to written prescription without signature – to one with signature – to documented patient history, its discontinuous journey affords the segregation of particular fixes along the way. A culpable act happens at one station (e.g., the nurse mixing the fluids), and not at another, or less often so (e.g., a physician writing unclearly or not signing in time). But why? What makes one act – only a gap away from other contributory acts – more culpable than others?

Case History: Lidocaine Poisoning

The case involved a three-month-old infant taken in for recurring spasms at a Swedish regional hospital.[4] At delivery she weighed six pounds, 12 ounces (3050 grams), and already exhibited spasms in her left arm, possibly due to intrauterine hypoxia. Both EEG and CT were normal, and the infant was first discharged three days after birth when successfully medicated with Fenemal for the spasms. No diagnosis was established, but her mother also suffered from spasms during her childhood.[5]

After multiple visits to the hospital because of recurrent spasms, medication was switched from Fenemal to Xylocard (lidocaine hydrochloride) at 2 mg/ml. Three months after birth, the infant was admitted to the hospital again (pediatric ward), now with spasms lasting about five minutes each. Xylocard infusions in pediatrics were prepared using two 20 mg/ml bolus doses, but new spasms called for the child to be transferred to the Intensive Care Unit (ICU). A night-shift ICU nurse tried to read the pediatrics prescription but had trouble decoding it and asked a physician for help

in preparing the next Xylocard infusion. Their medication log for the infant read:

40 ml + Xylocard 200 mg = 10 ml = 4 mg/ml, total of 50 ml[6]

Spelt out, this was an infusion prepared from two 100 mg/5ml injections mixed into 40 ml glucose solution (total of 50 ml IV fluid), giving the infant a total of 200 mg Xylocard. However, this infusion did not get signed by a physician. At handover to the ICU day nurse, the Xylocard solution was mentioned, emphasizing that it should be "10 ml" according to the physician who was on call that night. However, no physicians were available at the time of handover; it was a quiet Sunday morning, and nurses typically do not disturb doctors, especially on weekends, unless absolutely necessary. Later that day, the infant's condition improved sufficiently enough to be moved back to pediatrics. The day ICU nurse decided to prepare a new infusion as the old one was running out, and it was uncertain when pediatrics was going to admit the child. Using the 10 ml figure, and reading Xylocard 200 mg off the medication log, she took two 5 ml vials 200 mg/ml Xylocard (each containing 1000 mg Xylocard), and mixed it with 40 ml glucose. The 20 mg/ml and 200 mg/ml packages were stored next to each other in the cabinet. Her medication log entry read:

Xylocard 200 mg/ml = 10 ml = 4 mg/ml[7]

The ICU nurse asked a colleague to double-check this entry, but no miscalculation was observed. But two 5 ml ampoules both containing 200 mg/ml Xylocard amounts to 2000 mg Xylocard, or 40 mg/ml, *not* 4. Regardless, later that day the infant was admitted by pediatric personnel, who also checked the infusion calculation. They were interested only to know why the infant was now on 4 mg/ml, as she used to be on 2 mg/ml five days earlier. After the new infusion was hooked up in pediatrics (without the miscalculation noticed there either), the infant quickly developed respiratory trouble and more spasms, which are possible symptoms of lidocaine overdose. The attending pediatrician suspected the infant had not received sufficient Xylocard and ordered repeated bolus doses to be administered intravenously. The infant went into circulatory shock and was declared dead despite attempts at resuscitation about 30 minutes after the IV hookup. Later autopsy revealed 43 mg of lidocaine per gram of blood, whereas the typical therapeutic concentration would have been less than 6 mg.[8]

The ICU nurse who prepared the Xylocard drop came to work three days later and inquired about the infant. Upon hearing that she had died, she offered that she may have prepared the wrong mixture. Not much later, she wrote this *mea culpa* to her superior, in keeping with reporting procedures at the hospital:

> The court considered how the death "could have been" the result of a single "mistake," but this contradicts the research base, which points out how sources of vulnerability are not erratic people in an otherwise safe system, but systematically connected to features of the system itself.

> When I was going to mix Xylocard at around 10:45 that morning, I looked at the prescription and got Xylocard 20 mg/ml. I read both the package and the ampoule and recall that it said 20 mg/ml. I looked at what was prescribed and what I should prepare. So I got 20 mg/ml which I mixed with glucose 5% 40 ml.
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> I asked another nurse to double-check but did not show her the empty ampoules. Then pediatrics came to get the infant,...and they took my prepared solution with them to hook it up in their ward. When the infant left us at 11:07, there was still about 3 ml in the previous drop, which had run through the night of the 18-19th of May.
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> The following night, I awoke and suddenly realized that an ampoule normally contains 1000 mg/5 ml. And I had thought that I drew a solution of 20 mg/ml. When I was working the following Wednesday, I got to hear that the infant had died. I then understood that it could have been my mistake in making the solution, as there are no ampoules of 20 mg/ml.[9]

Not long after this self-report, an anonymous source at the hospital went to a local newspaper and revealed the story. The newspaper published it, and the local prosecutor happened to read it. The nurse was charged, tried, and convicted of manslaughter. She appealed and was convicted again. She appealed to the Supreme Court, was heard, but the earlier verdict was upheld.[10]

Careful and partially successful investments in voluntary incident reporting were seen to be headed for a demise. Both the criminal legal aftermath, and

the voluntary report that took much or all of the blame, contrasted sharply with everything known about organizational accidents. The court considered how the death "could have been" the result of a single "mistake," but this contradicts the research base, which points out how sources of vulnerability are not erratic people in an otherwise safe system, but systematically connected to features of the system itself. People are critical of creating a resilient system that necessarily needs to pursue multiple goals with finite resources. Adverse events – as does safety – emerge from a multitude of factors and their interactions, as a normal byproduct of pursuing success in resource-constrained circumstances. "The simple message…is that, despite the best intentions of all involved, the objective of safely operating technological systems could be subverted by some very familiar and 'normal' processes of organizational life."[11] Many of these "normal" processes aim to produce order and create safety (e.g., sending an infant to the ICU instead of pediatrics given its care needs, having drug bolus doses available for quick results, organizing drugs in alphabetical order in a cabinet, double-checking calculations, not interrupting a physician's sleep when alternative sources of expertise seem available). But unintended, unforeseeable variations and complex interactions can mean that results other than order and safety emerge in ways that map non-randomly onto the normal system of production.

What are some of those factors that make the case above into an almost "normal" adverse event – systematically connected to features of the emerging care situation? The 20 mg/ml and the 200 mg/ml packages came from the same cabinet where drugs were organized alphabetically. Though the cartons were slightly dissimilar, there were no clear indications that one was a "big" dose and the other a "little" one (beyond the numbers 20 and 200). Then instability was introduced because the patient was an infant – a departure from the ICU canon. A dose normally used for injections was now to be used for a drop. (An IV drop in the ICU was always prepared using the 200 mg/ml dose, not by using the syringe, and pediatrics had only the syringe because they always deal with smaller patients.)[12] Then the figure 200 appeared as both a total drug weight (in mg) in one prepared drop, and as a ratio (mg/ml). But given the amount of fluid used by taking two packages of 5 ml each, the former was only a tenth of the latter. The handover from ICU to pediatrics revealed the doubled dose (from 2 mg/ml to 4 mg/ml), leading to questions that obfuscated the misinterpretation of the figure "200" in the calculation as it was shown. Pediatrics did not have the 200 mg/ml dose, so they may not have expected it as a source of risk. Then, towards the end of the story, the symptoms of a lidocaine shortage may have mimicked, and thereby masked, those of an overdose.

Given this set-up, it is not surprising that adverse events like this one have happened before, and that they will happen again. Neither the nurse nor the regional hospital in which she worked was unique in any straightforward empirical sense. Adverse medication events are "normal";[13] they are the rule – or part of it, at least. The intrigue here, then, is not to prove that the adverse event above is a systemic failure – that much is probably trivial. It is, instead, to find out how people try to prove that it is not, and perhaps why.

The Dialectic of Discontinuity

Gaps in the delivery of health care offer us the opportunity to see failures both as a simple, direct result of individual acts, or as emergent from the complex production process of care. In this case, as in many others, the former was chosen over the latter. The circuitous route of that medication order that ended up killing the baby – first oral, then written, then mixed and finally administered – meandered through an almost infinite number of acts of commission and omission, leaving a trail chopped into discontinuity as the prescription was handed over from person to person, transferred between departments, transposed from one medium onto another, and then enacted and administered. Which of these acts amount to a suitable amount of crime, and which of the hands emanating from the acts belong to a culprit is the result of contending accounts of historical "reality." While these competing accounts may seem founded on appeals for privileged access to historical fact (as both sides of a criminal court case will readily assert), they rather represent current experience and future concerns of those who construct them.

This cannot mean that some accounts are "right" and some are "wrong" in some factual rather than moral sense (e.g., those who maintain that one particular human error amounted to a crime whereas other acts did not). It means that whether there was a crime at all can never be established; it is forever contestable. What matters is the contemporary impact of the most persuasive account because *it* gets to pick the route along which tracks for improvement or retribution will be laid. In this case, one nurse was lifted from the rubble, charged, and convicted – three times over. Very little else was done. All others went free, including the organization – the hospital's administration and regulator. The political convenience of the nurse's *mea culpa* (gullible, naïve even, in hindsight) and subsequent criminal convictions cannot be overstated in this context.

The problem is that crime does not exist.[14] Crimes are constructed; they are a negotiated settlement onto one particular version of "history" that serves social functions from emphasizing moral boundaries and enhancing solidarity, to sustaining subjugation or asymmetric power distribution within hierarchies, to mitigating public apprehension about large, seemingly uncontrollable technologies (e.g., health care delivery).[15] Turning an act into an error, and then an error into a crime, hinges on a successive social manufacturing of culpable deviance. Part of this construction draws from presumptions about the essence of the act. Part of it does not. Let us look at one and then the other.

Essence of the Act: Control and Culpability

As Nils Christie put it, "Acts are not, they become."[16] The criminal meaning of an act is likely to be constructed as a function of (1) the amount of volitional behavior control the person had (i.e., was the act freely chosen or compelled?), (2) volitional outcome control (i.e., whether the actor knew what was going to happen), and (3) the actor's causal control (i.e., his or her unique impact on the outcome). In this triad, "factors that establish personal control intensify blame attributions, whereas constraints on personal control potentially mitigate blame."[17]

When it comes to volitional behavior control, did the ICU nurse act on purpose or by accident? Observers will interpret that she had more control if she had behaved purposely and knowingly. The nurse had told a lower court that she may have misread the package labeling. In the Swedish Supreme Court, she indicated that this was probably not the case: she mistakenly believed that 200 mg/ml was what she needed to have. As a result, the Court observed:

> During the court proceedings, the ICU nurse described multiple ways how it could be that she mixed the IV drop with the wrong concentration of Xylocard. What she offered cannot therefore express what she really remembers. Rather, her accounts can be seen as attempts to find an explanation afterward. They are almost hypothetical and provide no certain conclusion as to why she did what she did.[18]

In other words, the inability to know or remember how an "error" occurred (which is quite normal) was converted into an inability to disprove volitional behavior control. While upholding a fallacy of the nurse's privileged access to her own past performance, the Court could not rule either in or out whether the nurse acted knowingly or purposely. Additionally, volitional behavior control was amplified by the absence of capacity and situational constraints. The Supreme Court emphasized how this nurse had 25 years of experience and ample time to prepare the mixture. She lacked neither knowledge nor experience (though she had never prepared this particular drug for an infant). She had just come on shift, and there was no stress or manpower shortage during that morning. These conditions would also have helped the nurse foresee the consequences of her actions. "Whether the nurse's negligence stemmed from misreading, miscalculating or taking the wrong package, it is obvious that she could have read the medication log more carefully, calculated more carefully or done any other double-check that would have revealed her error and its potentially fateful consequences."[19] In other words, volitional outcome control could also be established: the nurse was experienced enough and had enough time to find out what could, or would, happen.

Assumptions about volitional outcome control have deep roots in Western tradition. Augustine, the deeply influential moral thinker for Judeo-Christian society, saw human suffering as occurring not only because of individual human fault, but because of human choice, the conscious, deliberate, rational choice to err. The idea of a rational choice to err is pervasive, almost common sense in Western thinking. In hindsight, it often seems as if people chose to err, despite available evidence indicating they were about to make the wrong choice and despite their knowledge and experience that would have allowed them to do otherwise. For example, in the story of original sin, especially in Saint Augustine's interpretation of it, Eve had a deliberative conversation with the snake on whether or not to sin, on whether or not to err. The allegory invokes the same conscious presence of cues, incentives, and knowledge to not err that are also emphasized by the Supreme Court in the nurse's case. Yet Eve, in her presumed free will, elected to err anyway. As did the nurse. The prototypical story of error and violation and its consequences in Judeo-Christian tradition tells of people who are equipped with the requisite intellect, who have received appropriate indoctrination (e.g., "don't eat that fruit"), who display capacity for reflective judgment, and who actually have the time to choose between a right and a wrong alternative. They then proceed to pick the wrong alternative. Rather than causing the fall into continued error, as Saint Augustine would have it, original sin portrays how we think about error, and how we have thought about it for ages. The idea of free will permeates our moral thinking and influences how we look at human performance to this day.

Finally, there is causal control. Within the string of gaps and transitions in care delivery, there would be ample opportunity to find other contributors to the outcome that would reduce the nurse's unique impact. Yet the nurse's initial *mea culpa* corrupted later appeals to additional, and necessary, actors. The pediatrician who gave the infant its overdose, for example, successfully asserted that his administrations would not have had that fatal effect if the drug solution had been correct – which he could only believe it was. Mitigating circumstances related to long-eroded practices in drug management in the hospital were dismissed as playing no serious role in exerting causal force on the outcome. Although the court admitted that "there were serious shortcomings in routines and procedures at the regional hospital, this did not remove the nurse's own responsibility for checking that her mixture was correct."[20]

While the court's analysis of presumed causal control was shallow and ignorant of the growing knowledge base on organizational accidents, the media invented its own version of causal control, lending additional credence to how celebrated accidents are constructed.[21] It started to speak of the nurse "who gave" the infant the overdose. Giving the infant something put the actor in closer space-time proximity to the consequences of her act, thereby strengthening causal control linkages. But this nurse did not give the solution; she only mixed it.

The Nurse Who "Gave"?

The ICU nurse was remembered as the one who "gave" the overdose. One explanation of such remembrance may appeal to consequence-cause equivalence: if you get convicted of manslaughter (a bad consequence) then you must have done something equally bad (giving an overdose). In a rational universe, just mixing the drug would not suffice. At the same time, blaming an actor for a different, though subsequent, act that was patently not committed by that actor (but apparently more deserving of the punishment received) raises problems for the adequacy of the control and culpability hypothesis. This hypothesis, after all, could explain why one nurse gets most or all of the blame, but not why her remembered villainy gets inflated to the point of eclipsing acts across gaps in care delivery.

As Nietzsche noted, anxiety plays an important role in people's desire to nail down "the" cause for an event.[22] All conclusions about cause, however formal, messy, incomplete, or shallow the analytic route may have been to get there, are constructions that relate to the future, not the past – whatever the nature of the stakeholder. They are not about making the past understandable or explicable, but about making the future manageable, controllable, or at least about furnishing illusions that make it seem so. The Swedish Supreme Court admitted that its agenda was in part to reassure such disquiet: "Concern for patients' safety and their confidence in the healthcare system, demand that the nurse's actions be seen as so clumsy that they imply culpable negligence. She therefore cannot avoid being responsible for manslaughter."[23] The maintenance of "confidence in the healthcare system" demands the construction of a celebrated story: one anti-hero is singled out to receive the blame, to bear the explanatory and moral weight of the infant's death.

> Today, people may need anti-heroes so that they have somebody in whom they can deny their lack of understanding of, and control over, their complex technologies that really produce successes and failures, and thus be able to squelch the anxiety this would otherwise generate.

The celebrated story is so "good," so plausible (or it simply makes people feel so comfortable about the future), that few outside the ICU nurse's own circle now even question its accuracy, let alone its fairness. The Medical Responsibility Board in Sweden, for example, in its own efforts to match consequence with cause, commented to the media how this nurse had been uniquely bad and acted particularly egregiously (though they never revoked her certificate despite the verdicts).[24] The Board felt that this type of event would only occur once every ten years. So bad, so uniquely bad. In assigning cause, or in identifying an imagined core of failure, accuracy or fairness does not seem to matter. People dread the possibility that failures emerge from the intertwined complexity of normal everyday systems interactions and seem happy to have their modern inquisitors (e.g., the Medical Responsibility Board, the Supreme Court) wrestle stories into view where failures emanate from a traceable, controllable single nucleus. Being afraid is worse than being wrong. Being soothed is better than being fair. Selecting a scapegoat to carry the interpretive load of an accident or incident is the easy price people pay for the illusion that they actually have control over a risky, complex, inaccessible, discontinuous technology, such as modern health care delivery.

Late modernity, the age we live in, has hugely reduced the overall risk of certain areas of life, yet it has produced structures and technologies (such as our health care delivery) that create new forms of risk. People neither expect, nor feel particularly well-equipped to deal with, such residual or novel risks. In fact, modernity has increased impersonalization, abstraction, and the dissolution of personal interaction for accomplishing many social functions, making it difficult to see the real people and the real workings behind the systems built and used. At the same time, late modernity is marked, according to many, by anomie – an erosion or absence of moral norms governing social interaction and accountability.[25] One predictable response is to reassert a feeling of control through the manufacturing of believable deviance inside local, identifiable pockets or groups, which can be dealt with where circumstances and popular sentiment allow it. Today, people may need anti-heroes so that they have somebody in whom they can deny their lack of understanding of, and control over, their complex technologies that really produce successes and failures, and thus be able to squelch the anxiety this would otherwise generate.

Scapegoats are those who expose the real problem, but do not create it. The real problem is that people do not enjoy the extent of control they would want or expect over the risky technologies they build and consume. It forces them to embrace failure as an emergent property, to acknowledge that "mistake, mishap and disaster are socially organized and systematically produced by social structures," that these mistakes are normal and to be expected because they are "embedded in the banality of organizational life."[26] It forces people to recognize the relentless inevitability of mistake in organizations, to see that harmful outcomes can occur in systems constructed to prevent them. Embracing this could be profoundly distressing; it creates anxiety because it implies a loss of control.

Previous periods of rapid technological development reveal similar responses to a popular perception of loss of control, of a confusion about moral boundaries. Witch hunts conducted in Europe from the 14th to 17th centuries, especially during their acceleration when the Church's power began to wane and scientific-technological insight began to grow, are deeply instructive of patterns of social adjustment to uncontrollable change and perceived moral decline.[27] Late medieval and early Renaissance witch hunts coincided with the emergence of a new social order and the crumbling of an older one. People increasingly moved to cities; the role and responsibility of women in society changed; the Church started losing its epistemological privilege; and knowledge became more available and widely spread through the printing press and use of languages other than Latin.

The state of powerlessness and anomie that people experienced was aggravated by climate changes and demographic shifts (including the Plague), that, together with the gradual unraveling of geographic and theological understandings of the universe, may have contributed to a feeling of impending doom. This dissolution of people's medieval *weltanschauung* (worldview) must have created fertile soil for the efflorescence of a witch craze. Witches were accused of, among other things, poisoning innocent people and killing unbaptized babies.[28] Inventing and accentuating deviance by identifying witches (or, in late modernity, criminally deviant nurses) served functions of setting moral boundaries, which augmented cohesion among the "non-deviant" and reinstated a chimera of control over destiny in an otherwise complex and confusing world. The image of a witch, mixing potions and involved in infanticide, could be equally as appealing today as it was then.

Conclusion

Discontinuities in the delivery of health care both epitomize the system's complexity and the role of people in creating safety through smoothing over transitions, handling disruptions, and double-checking handovers. The same discontinuities in care also allow for the excision of a lone anti-hero from a muddled, confused pattern of contributions to a particular outcome. Such conclusions about cause are not explanations of the past, but partial colonizations of an uncertain future. They foreshadow and ordain the diverging repertoires of action that different stakeholders consider necessary to attain (their illusion of) control. Whether the appropriate diagnosis necessarily attributes an accident to "human error" or to the system itself depends less (if at all) on the situation that brought forth the accident than on how the present and future implications of that situation can be handled most advantageously by stakeholders – from employers to, indeed, the public.

It would be convenient to assert, of course, that the celebrated story – including everything the Supreme Court has said about it – has got it "wrong." It, after all, gets bred in a soft domain of fallible non-expert human intuitions and beliefs, articulated and whipped up by irrational, noisy media fervor. Conversely, the "real," objectively identifiable causes of this medication accident can be thought to belong to a world of hard, material facts that can be discovered by experts wielding the right methodological instruments. Indeed, the case discussed here contained many appeals to both the hospital administration and the court system to do exactly that: let real experts get their hands dirty, let

them do their work, and come up with what "truly" went wrong and what to do about it. Notwithstanding a likely practical return from doing just that, when common remembrance of the story converts the nurse who mixed the solution into the nurse who gave it, and when asymmetric power distributions are deployed to resist access to such expert outsiders, "truth" is no longer the unequivocal product of sober analysis. The truth value of a particular story from the past is asserted in *present* concerns and goals, not assessed against some commonly accessible past – which, after all, is merely a diverging set of images swimming into view from competing stakes.

Such more teleologically patterned conceptions of cause contradict the modernist objectification of history (captured, for example, in "probable cause" statements in accident reports, as much as in media-celebrated accident stories) that considers the past to be a bygone congealed object.[29] Instead, the past is a dimension of our present experience, offering all kinds of opportunities to express and handle current issues. What separates past from present is arbitrary. Hence a cause for an accident is never found; it is constructed with language or rhetoric ensuring that certain subsequent actions are legitimate or even possible (e.g., pursuing a single culprit), and others not. No safety community can afford to look past such constructionist cues, even though a more straightforward, hopeful, enlightened project always lures. Good science should be enough to discover "what happened" and what to do about it, but it is not enough. Meaningful safety interventions in a system as diverse, socially embedded, and complex as health care delivery cannot just build on "good science" (e.g., good methods) to generate causes and countermeasures. They need to somehow be sensitive to how and which narratives of success and failure are created, as these set the stage for what countermeasures are likely to be encouraged, funded, and accepted.

Note

Criminal trial and laws covering suspect identity in Sweden prohibit disclosure of the names of the accused; they are always withheld and protected by law.

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24. See Ödergård, *supra* note 2.
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