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Procedures Exist for a Reason

Robert Benowitz, EE

Case Synopsis: A non-ambulatory elderly woman was a patient in a Long Term Care facility. She was being moved from her bed to a chair by a Certified Nursing Assistant (CNA) using a hydraulic lift. The CNA was acting alone. During the transfer, one of the sling leg straps disconnected and the patient fell hitting her head and suffering injuries according to medical records.

Expert Analysis: Analysis of the CNA's deposition testimony revealed that she did not verify that the leg strap clips were properly connected and she denied that it was her duty to check the connectors since she heard them click into place. Additionally, the CNA failed to follow her employer's policies

and procedures that required two persons to move patients when using a hydraulic lift. Joint Commission Long Term Care Standards require management to train staff in the proper use of equipment such as the hydraulic lift and to be sure staff follows employer policies, procedures and training.

Result: The CNA inappropriately operated the lift and failed to properly place and secure the sling clips. The Long Term Care Facility failed to train the CNA, as well as failed to follow-up to assure policies and procedures were being properly followed. Additionally, the facility failed to follow Joint Commission Long Term Care Standards. Case settled. 


Shifting Gears

Curtis M. Beloy, PE

In some investigations of motorcycle crashes, the gear position of the motorcycle following the collision event is documented as part of the investigation. If the gear position of a motorcycle immediately after a crash is known, a question that is often times asked is "what does the gear position say about the speed of the motorcycle at the time of the crash?"

An initial consideration into this question is whether or not the gear position could have been changed as a result of the crash itself. For example, if a motorcycle was found in 3rd gear at the accident scene, could it have been in either 2nd or 4th gear in the moments just prior to the collision? In some cases, the col-

lision forces might be able to provide an opportunity for the motorcycle to shift gears.

For any gear position, there is an associated overall reduction ratio from the engine RPM to the rear wheel RPM, or motorcycle ground speed. If the engine speed and gear position are known at the time of the collision, a ground speed can be calculated. Unfortunately, in many cases, there is not sufficient evidence to determine the engine speed at the time of the collision. In a general sense, the potential motorcycle speeds for any gear position can vary drastically, potentially from engine idle speeds (or less depending on clutch engagement) to redline speeds. 

Fall Caused by Spontaneous Hip Fracture

Robert J. Nobilini, Ph.D.

Case Synopsis: An elderly woman was diagnosed with a left femoral neck fracture after falling onto a concrete sidewalk while walking with her daughter. After the incident, it was discovered that movement between two adjacent sidewalk slabs had created a 2 inch wide separation and a change in elevation of between ½ and 1 inch. While neither the plaintiff nor her daughter knew why the fall occurred, they assumed that it was due to the change in elevation. The plaintiff's expert opined that the change in elevation violated the Americans with Disabilities Act (ADA) and was the cause of the plaintiff's fall.

Expert Analysis: Based on the plaintiff's testimony, she was walking on the left side of the sidewalk where the change in elevation was about ½ inch. A review of the property maintenance records and photographs revealed that the subject sidewalk joint had been filled prior to the plaintiff's fall. The filler created a bevel condition across the joint, which had a slope of 1:4 in the area where the plaintiff was walking. ASTM and ADA standards allow for changes in elevation up to ½ inch to be beveled with a slope less than 1:2. Therefore, the condition of the sidewalk, in the area where the plaintiff was walking, complied with industry standards and ADA requirements.

Furthermore, a review of the plaintiff's fall mechanics revealed that she fell straight down and to her left. These mechanics were not consistent with a trip, but were consistent with a sudden loss of support on her left side. This analysis was further supported by an orthopedic expert who opined that the plaintiff's fall was consistent with a spontaneous fracture of her left femoral neck, due to her preexisting osteoporosis.

Result: Case settled. 


Physician Drowns in Vacation Rental

Tom Griffiths, Ed.D

A large, lovely home built in a rural setting was advertised as a vacation rental home. It had all the amenities large families would hope for including a uniquely designed swimming pool overlooking forests and valleys. This pool was irregularly shaped with a water fall in the deep end and steps in the shallow end. The home was rented for a family reunion.

The adult males in the group, although extremely well educated, did not know how to swim. As the three walked down the entry steps into the shallow end of the swimming pool, almost immediately they began slipping down the steep slope into water over their heads in the deceptively dangerous deep end. While two of the three miraculously made their way to safety, one remained on the bottom in eight feet of water.

There were no safety layers of protection in place to protect guests. There were no depth markers, no safety life-line, no rescue equipment, no emergency phone, and no warnings that this was a deep pool. Further, there was no warning strip on the bottom of the pool at the breakpoint where the shallow end became significantly deeper via a steep transitional bottom slope. Complicating matters was the lack of a Sheppard's Crook to pull the victim to safety as well as an address that was not registered with 9-1-1 or GPS.

Plaintiff's expert believed that not only did this dangerously designed pool deceive the non-swimmers, but because this was a rental property with unfamiliar guests staying for short periods of time, more safety equipment, signage, and warnings were needed than your typical residential pool. 

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Dangling Tip Leads to Newborn's Blindness

Sterling Anthony


Case Synopsis: A delivery physician placed erythromycin ointment into a newborn's eyes, a common safeguard against eye infection from bacteria in the birth canal. The ointment came packaged in a metal tube, having a keen dispenser end, the tip of which required breaking off in order to squeeze out the ointment. Days later, it was discovered that the newborn had become blind in one eye. The tip of the dispenser had not been broken off completely and ended up in the newborn's eye, thereafter repeatedly scratching the retina and damaging the eye resulting in blindness. A personal injury/product liability suit was filed against the physician, hospital, and product manufacturer.

Expert Analysis: An expert was retained to determine whether the primary package (tube) was defective, and by extension, whether it resulted in a packaged product that was unreasonably dangerous. The expert also was retained to opine on failure-to-warn issues, namely: whether there was a duty-to-warn, using the packaging (tube, carton, inserts) as media; and, if so, whether that duty was adequately met. Upon investigating the incident, the expert noted that the packaging of the ointment was defective; the tip of the dispenser could easily be

snapped but remain attached, dangling. When an unaware physician administers the ointment, the tip can fall into the eye. The pressure from squeezing the ointment can dislodge a dangling tip and the viscosity of the ointment can entrap the tip, assuring that both end up in the eye.

A package design & development process is supposed to factor into account all reasonably foreseeable conditions under which the product will be used. Performed competently, the process will reveal defects that should be "designed out". The ideal would have been a package that did not embody the above-discussed defect; however, since such a package had not been chosen, the packaging, at least, should have provided written warnings. Those warnings should have alerted to the specific hazard of the dispenser tip getting into the eye and the potential consequences, and should have given

instructions on how to inspect for dangling tips.

Result: Throughout the case, the expert advised on such matters as state-of-the-art, economic and technological feasibility, and standards of care. A trial date was set; however, the case settled. 

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"Wait! One of the Screens Isn't On."

Robert O. Peruzzi, Ph.D. PE

Case Synopsis: Plaintiff purchased several hundred video display modules, specifically because they were advertised as having a wide viewing angle. They were intended to be used in video monitors for public places where they could be read from above, below or either side. When they arrived, the video display modules did not have the expected viewing angle and were not acceptable for their intended use. The sellers refused to replace them or take them back.

Expert Analysis: The data-sheet for the video display modules clearly specifies a minimum viewing angle. An electronic interface was assembled to connect the display module to the video output of a computer, allowing measurement and comparison between "good" and "bad" modules. The submitted report included a description of test equipment, technique, measured results and conclusions. The results were so clear and compelling it was

a surprise that the case went to court. When it did go to court, the challenge was to bring these specifications, measurements and calculations to life.


The judge allowed a live demonstration for the trial. A second interface was assembled so two displays could simultaneously show the same image. Both images should have been clearly visible to the judge because both were positioned well within the specified viewing angle from her vantage point. When the switch was flipped, the judge exclaimed: "Wait! One of the screens isn't on." The judge accepted an invitation to step closer and see for herself how both displays could be viewed "straight on" but the narrow-angle display's image disappeared when viewed from outside a narrow range.

Result: Judgment in favor of the plaintiff. 

There is Something in My Preserves

Robert J. Bockserman, CPP

Plaintiffs brought suit against the defendant alleging that the defendant supplied plaintiffs with defective containers. Plaintiffs claimed that the defective containers allowed contaminants to seep through containers, thereby causing yeast infestation into their jelly preserves and consequently creating a product that could not be sold in the market place. After thorough examination of the containers by the defendant's expert, as well as a review of pertinent documents and viewing the videotape of the plaintiffs' plant site, it was determined that there was nothing wrong with the containers or the container caps. Defendant's expert opined that the problem arose from the

plaintiffs' lack of knowledge of current Federal Regulations for the processing of a food product, a lack of technical expertise in packaging foods, and a lack of knowledge on the importance of proper food plan operations, design and sanitation procedures required to effectively prevent microbial and yeast infestation when processing and packaging a food product. Defendant's expert further opined that plaintiffs' plant site, which appeared on the videotape as resembling a converted barn, would never have passed a rigorous Food & Drug Administration Inspection, for the processing and packaging of a food product under present day Federal Regulations. 


EDR: An Independent Witness!

R. Scott King, BSME

Among the two most common allegations of vehicle failure after an incident are unintended acceleration and brake failure. Experience has shown that each type of failure is rare but they can and do occur; however, when the allegations are coincident, the likelihood of such a simultaneous failure is even more remote. In these cases, the most plausible explanation is operator error; however, historically proving this has been difficult if not impossible. But new vehicle technologies and the event data recorder (EDR) are changing that.

By now, most claims personnel are aware that many vehicles are equipped with event data recorders capable of recording information relative to a collision. These devices have proven their worth to collision reconstruction engineers over and over. But what many are not aware of is that most new vehicles today are equipped with an electronic throttle control system that uses sensors, wiring, and algorithms to translate accelerator pedal position to the throttle control valve, located on the engine. Fewer still are aware that the EDR in many vehicles can record accelerator pedal position versus throttle control valve position. In sim-

pler terms, the EDR can tell whether a vehicle accelerated on its own, or under driver command, via application of the accelerator pedal. Couple this with the EDR's ability to record brake pedal application, it provides an independent "witness" of how the pedals were used in the moments preceding a collision.

So, it was in a recent case wherein the operator reported that her vehicle suddenly accelerated and would not stop even though she was firmly applying the brake pedal. A mechanical inspection confirmed all vehicle systems operated normally and ruled out issues such as pedal entrapment and other abnormal conditions. If the vehicle did not have an EDR, the investigation likely would have stalled at this point, recognizing that while remote, the driver's allegation was still possible. However, the vehicle did have an EDR and the data it recorded showed that the driver fully depressed the accelerator pedal and never applied the brakes. In this case, the operator conceded that she thought she was applying the brake pedal when, in fact, she was applying the accelerator. 

Design Modification Creates Hazard

Thomas J. Cocchiola, PE, CSP

Case Synopsis: An engineering firm designed and built a process system with an elevated operator platform that also served as a loading platform. Sliding gates along one edge of the platform were normally opened while loading materials at the start of the process, but were then closed and latched during production. The sliding gates were intended to provide the same level of fall protection as the guardrails along the other edges of the platform. The sliding gates were closed and latched when an operator went on the platform to obtain a sample for quality control testing. At one point the operator leaned against a sliding gate, which unexpectedly separated from the platform, and caused him to fall to the plant floor.

Expert Analysis: Approved design drawings showed sliding gate rollers mounted on axles welded to supports. The welded axles were intended to secure the gates and prevent them from moving when subjected to the same types of forces as the guardrails. Unfortunately, the sliding gates were not fabricated and installed in accordance with approved drawings and specifications.

The sliding gates were fabricated with threaded axle bolts instead of welded axles. The threaded axle bolts were not secured with locking fasteners, pins, or any mechanism to prevent them from loosening. Consequently, a threaded axle bolt gradually loosened and backed out of its mounting hole. As a result, when the operator leaned against the sliding gate, the roller disengaged from the axle and the gate swung away from the platform. An engineering analysis determined that the accident occurred as the result of an unapproved, undetected design modification.

Result: The case was resolved. 

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