THIRD QUARTER **2019**

SafetyMatters

A quarterly, collaborative publication
from MedFlight and HealthNet
Aeromedical Services

Are You Making Your Patients Sick?

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The cost of healthcare acquired infections is great. A Boeing 747 crash once a week for an entire year is equal to the number of people dying from a healthcare acquired infection (HAI). The latest statistics show approximately 23,000 people die each year due to an infection, such as pneumonia, bloodstream infection or a urinary tract infection contracted while receiving healthcare. Adding healthcare costs, lost wages, legal costs and other patient factors the annual cost of an HAI is between $96 to $147 billion.

Three of the most common HAIs are ventilator associated pneumonia (VAP), catheter related bloodstream infection (CRBSI) and catheter related urinary tract infection (CAUTI).

A VAP is defined as a pneumonia that develops 48 to 72 hours after intubation. Chart reviews estimate VAP as being the cause of 50% of all hospital acquired pneumonia, occurring in up to 27% of ventilated patients. Mortality rates vary ranging from 33% to 50%. A 2017 meta-analysis showed the average cost of an ICU stay was $19,000, compared to $80,000 for an ICU patient with a VAP. Bacteria begin to form biofilms on the ET tube within hours of insertion. The type of bacteria most frequently causing VAPs include Staphylococcus, Enterococcus, Enterobacteriaceae, Pseudomonas and Acinetobacter. Bacteria migrates from the oral cavity to the stomach then to the esophagus and is aspirated into the lungs.

Costs for a CRBSI range between $17,896 to $48,108 with an increased 10 days length of stay. A CRBSI increased mortality rates to 150 deaths per 1000 central line patients. In 2017 there were an estimated 119,247 CRBSI due to Staphylococcus aureus with an associated 19,832 deaths. Staphylococcus, including MRSA, is the number one bacteria causing CRBSIs followed closely by Pseudomonas, Enterococci, Klebsiella and Acinetobacter. Infections are due to bacteria migrating down the IV catheter or central line, contamination of the catheter at insertion or contamination of the IV tubing ports. All may lead to the formation of biofilm on the catheter. Intraosseous devices cause bloodstream infections approximately 0.6%. IO infections are typically due to prolonged use.

Another common cause of HAIs is urinary catheters. The incidence of CAUTIs in the US is approximately 4.40 per every 1000 urinary catheter days. The cost of a CAUTI ranges from $800 to $10,197 depending on location of the patient, increased length of stay and comorbidities and complications such as sepsis due to the CAUTI. Gram negative bacteria – E. coli, Pseudomonas, Klebsiella along with Candida species were the most common pathogenic causes.

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Mission. Ready.

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What you can do to protect your patients:

- ✓ Hand hygiene with frequent glove changes. Remember to change gloves between tasks and between patients
- ✓ Elevate the head of the bed at least 30° for ventilated patients if not contraindicated by:
  - o Spinal fracture or injury
  - o Open abdomen
- ✓ Perform subglottal suctioning when adjusting the tube or balloon
- ✓ Insertion of an IV or IO is a sterile procedure – you are introducing a sterile product (IV/IO cath) into a sterile site.
  - o Make sure to prep the site as thoroughly as possible
  - o Do not use tape that's been in your pockets or thrown in a bag. Tape is easily contaminated with bacteria
- ✓ Scrub the hub – don't just do a promissory swipe with an alcohol pad. Use friction for at least 10 to 15 seconds
- ✓ Keep the urinary catheter bag below the level of the bladder. This may take some creativity – at the very least do not place the collection bag on the abdomen or carry it above the cot
- ✓ Do not "break" the system – do not separate the catheter from the collection bag
- ✓ Empty aseptically – clean the spigot with an alcohol wipe; do not touch the spigot to the container

These are simple, easy to accomplish methods to protect your patients from a healthcare associated infection. ■

NEW LZ BRIEF QUESTION?

AMANDA BALL, SAFETY OFFICER

LET'S BE

PROACTIVE

WITH DRONE SAFETY.

As Unmanned Aircraft Systems (UAS/UAV) become more and more utilized in disaster & emergency response and assessment,

ASK IN YOUR LANDING ZONE BRIEF:

"Are there any drones in the air near the landing zone?"

If so, kindly ask them to land the UAV. We can help train first responders to identify this potential threat by starting proactive conversation.

Work-Life Balance

By Mike Perkins
VP of Field Operations
MedFlight

I recently returned from a week's long vacation where I was able to totally disconnect, and I plan to do it again later this summer. For those of you that don't know me well, that's an extremely difficult task. Up until four years ago, work-life balance was a real struggle. It wasn't until my family moved to our small farm, started raising chickens, began mowing a ton of grass, and watched both my daughters head off to college that I finally "got it."

While we need to continue working hard to ensure we are doing what's best for our patients and the organization as a whole, we also need to be taking care and making time for ourselves. It's an old saying that in order to take care of others, we need to take care of ourselves first.

There has been a great deal of focus lately on providing support for caregivers. This support carries over to daily duties and interactions, not just during or after difficult events. At MedFlight we initiated an internal Critical Incident Stress Debrief team (CISD) and Comfort Dog program to help provide that support both internally and externally. Equally important, information and education has been provided to MedFlight partners on how to recognize stress and teach preventative methods of reducing stressors in our lives. We all have stress. The key is how we deal with that stress. As we know, there are healthy ways to deal with the stressors like exercising, hobbies, and non-work-related outlets. Conversely, there are some not-so-healthy ways.

Unfortunately, stressors are a major part of this profession. We need to do our very best to stay healthy, both physically and mentally. Many of you probably already do this. For those that do, kudos to you! Additionally, help keep an eye on your colleagues. This includes making sure they find a support system and have an avenue to disconnect from work. Encourage them to find a hobby or reconnect with family and friends and focus on what's truly important. For those of you that struggle with work-life balance like me, I encourage you to step back and really reflect on other aspects of your life. Trust me, there is more to life than constantly working, checking email 24/7 (guilty), and being tethered to smart phones.

I encourage you to find your Zen outside of work. Mine just happens to be taking care of our hobby farm and beekeeping. I suggest you find something that allows your mind to wander and requires very little brain power. It's truly therapeutic and will make you happier and healthier. Stay safe. Stay healthy. Thanks for all you do. ■

Better Lucky Than Good?

By Justin Koper, M.S., GSP, MTSP-C, FP-C
Safety Officer
HealthNet Aeromedical Services

While attending the Safety 2019 conference in New Orleans, I had the opportunity to interact with some of the nearly 6,000 safety professionals in attendance. During all of the networking I was asked about the type of industry I worked in to which I replied air and ground ambulance services. Predictably, everyone remarked about the precarious nature of air medical operations but very few made remarks about the dangers of ground ambulance operations. Unfortunately, I feel this is an all too common misnomer even among our own ranks. Yes, the consequences of a helicopter related incident are far more severe than ground incidents but thankfully air incidents are far less frequent.

During routine ground EMS operations, crews are exposed to a multitude of hazards not commonly present in the aviation industry such as distracted drivers, impaired drivers, road rage incidents, drivers violating traffic laws, and the list goes on and on. Despite these external threats that come at us day in and day out I still routinely see crew members partake in at-risk behavior such as speeding, use of a mobile device behind the wheel, not using seat belts, etc. There is an adage from law enforcement which says that for a criminal to not be caught, he or she must be lucky every single time, whereas the officer only has to be lucky once. This mindset holds true with complacency and at-risk behavior where the complacent individual has to be lucky every single time they engage in at-risk behavior in order to avoid a bad outcome whereas the threat or hazard only has to be lucky once to get through all of our defenses to cause a bad outcome.

For EMS as a whole to move past a reactive safety mindset to one that is focused on prevention each employee must have an appreciation of the problems and hazards we face. They must also reinvest themselves into their organization's safety culture.

Since the beginning of 2018, HealthTeam Critical Care Transport has closely monitored any and all vehicle related incidents so we can carefully analyze trends within our organization. The data listed below shows the total number of at-fault incidents from January 1st 2018 to May 31st 2019.

Base	At Fault Incidents
Beckley (Opened Nov. '18)	0
Charleston	16
Martinsburg	3
Morgantown	6
Moundsville	2
Petersburg	1
Total	28

Just looking at total number of incidents does not truly paint a picture of where our opportunities for improvement are at. During this time frame our program's ambulances have logged more than 2.7 million miles so just looking at sheer number of incidents makes it difficult to identify trends or problem areas. Listed below are each of the bases incident rates per 100,000 miles driven. Please note that even though Moundsville Ground has the highest incident rate, they had not yet accumulated 100,000 miles in this time period.

Base	At Fault Incident Rate
Moundsville	2.02
Charleston	1.67
Petersburg	0.98
Morgantown	0.63
Martinsburg	0.53
Beckley	0.0
Company Average	1.02

With this data in mind it is important to remember that each one of these incidents were preventable and many were the result of complacency. Backing incidents, overhead strikes (driving under awnings) and sideswiping objects (cutting corners too close) accounted for 83% of our overall at-fault incidents. It is also important to note that this data does not include the two at-fault collisions which occurred in July 2019.

What we have experienced within HealthTeam Critical Care Transport is like the rest of the EMS industry in terms of causal factors and preventability of incidents. According to NIOSH, backing incidents were the cause of 25% of all vehicle accidents even though we drive forwards 99% of the time.

Now that the extent of the problem is known, the next logical question is what we can do to make things better. Considering all the at-fault incidents were the result of unsafe actions or complacency, the answer is simply personal accountability. You have a responsibility to yourself and your partner to operate in accordance with the law and policy and failure to abide by them places everyone at an unacceptable level of risk. If you notice your partner taking unsafe actions, you need to hold them accountable in order to ensure everyone's safety. We, as a program, have tried to instill the principle that safety is fundamental to our culture, but it only works when people are accountable for their actions and don't rely on blind luck for a good outcome. ■

Sentry and Safety

Bev Meade, DNP/HSL, RN, MHA, CEN, CCRN, CFRN, CTRN, TCRN, Paramedic
MedFlight

The granite & metal memorial dedicated to flight paramedic Shawn Baker, who passed away unexpectedly in 2010 from medical complications, stands like a sentry at the entrance to MedFlight 3's base in Pomeroy, Ohio. For me, it is a reminder, and a caution, of the fragility of life. As I enter the base it also serves as a profound incentive to move situational awareness to the forefront of my actions for the coming shift.

When we consider safety in critical care transport, we think of vehicle walk-arounds, safety belts, sterile cockpit, speed limits and more. But do we consider that safety also involves listening, looking, and being aware when our team members are not at the top of their game?

Safety by definition is "the state of being safe, freedom from the occurrence or risk of injury, danger, or loss" (Webster Dictionary, 2019). We complete an individual Risk Assessment (RA) during crew briefing at the beginning of our shift that includes our activity level, restfulness, previous 12 hours' mission hours, and work days in a row that helps us identify the potential dangers associated with our cognizant and physical needs during our work hours. In addition, we need to listen to our colleagues during our conversations and observe indicators of their physical well-being.

Recently, I came to work with a nagging sinus issue that had not resolved after some home remedies (after all, I AM a seasoned nurse!). I was not in pain or otherwise compromised but was just not feeling 100%. After 20+ years of flying and ground transport, I had adopted "push forward, push forward" as my mantra and I continued my shift. We received a mission request. We responded as usual with our safety walk-arounds and Crew Resource Management (CRM) in all phases of our flight. As we flew back to base following the mission, I experienced a pop in my left ear that quickly turned to intense discomfort. We landed safely at the base, and I continued with the post-mission associated responsibilities even though I had essentially lost the hearing in my left ear by this time. The paramedic I was partnered with for the shift had noticed the change in me and said "you seem a little off today. Are you okay?" That was all I needed to reevaluate my situation and be aware that I was giving less than my usual 100% to not only my team and organization, but perhaps to my patients as well.

The paramedic had acted as the "sentry" to my team member performance, and that brought safety to the forefront of my CRM contribution. I took some time to reevaluate what I was doing to myself and my team in terms of safety and wellness. I announced to the pilot and paramedic that I was going home and needed to care for myself before I could care for our patients.

I suggest transport clinicians not only use risk assessment tools as a numerical identifier of "the risk of danger", but also as an opportunity of listening, awareness, and observation of each other as well.

As I continue to be part of the MedFlight 3 team and Mobile ICU teams in our organization, I will hold the "sentry of safety" close to my heart. Listen to each other and HEAR each other during your mission conversations and casual conversations, which helps fulfill a "Safety First" mission at your workplace.

Partners for Life. ■

Personal Situational Awareness

AMANDA BALL, SAFETY OFFICER

TIPS FOR IMPROVING PERSONAL SITUATIONAL AWARENESS:

- **Learn to predict the actions of elements around you.**
- **Identify threatening and non-threatening elements in your environment**
- **Trust your "gut feelings".**
- **Minimize distractions to decrease errors & high stress.**
- **Actively keep yourself in the right mindset. Avoid complacency.**
- **Allow extra time for unexpected events to potentially occur.**
- **Understand your environment by recognizing patterns in your environment, then interpret and evaluate them.**
- **Actively prevent fatigue.**
- **Constantly assess your situation. Does it still fit the pattern you recognized?**
- **Monitor the performance of others. Speak up if you recognize fatigue, overload, stress, etc.**

WHAT STAGE OF READINESS ARE YOU IN AT HOME? AT WORK?

WHITE	**Unprepared & unready to take action.**
YELLOW	**Prepared, alert, relaxed. Good situational awareness.**
ORANGE	**Alert to PROBABLE danger. Ready to take action.**
RED	**Focused on the emergency at hand.**
BLACK	**Panic. Breakdown of physical/mental performance.**

FAAST Safety Represetnative

MedFlight Safety Officer Amanda Ball recently joined the FAA's ranks as a Safety Representative. The FAASTeam represents organizations and individuals that have a vested interest in the promotion of aviation safety, and she has proudly become the first air medical representative on Ohio's FAASTeam division. ■

The Dangerous Turn

Jeff White, M.S., MTSP-C, FP-C
Director of Safety
HealthNet Aeromedical Services

In the helicopter air ambulance (HAA) environment we know that at any given time there could be a catastrophic event. We train and try to prepare ourselves to the very best of our abilities, always trying to be ready for the worst. Often the focus on safety is lost until something catastrophic happens, then it is in the forefront again. This ebb and flow of accidents can be seen in the retrospective looks completed by the FAA and NTSB. We bring this up now as 2019 is shaping up to a high accident year.

FY 19 – U.S. Registered Rotorcraft Event Counts

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	YTD
Accidents:	8	8	3	10	3	11	15	13					71
Fatal Acc:	3	4	0	2	0	4	2	3					18
Fatalities:	4	11	0	4	0	5	4	7					35
Same time period, previous FY: 71 Accidents, 15 Fatal Accidents, 37 Fatalities													

Data Source: FAA, NTSB Databases. Includes only events classified as accidents and does not include incidents. The accident numbers for each month of the Fiscal Year may vary from the previous monthly briefing based on analysis between FAA and NTSB databases for the specified month. The NTSB database may include accidents that were not reported to this office resulting in slightly different numbers.

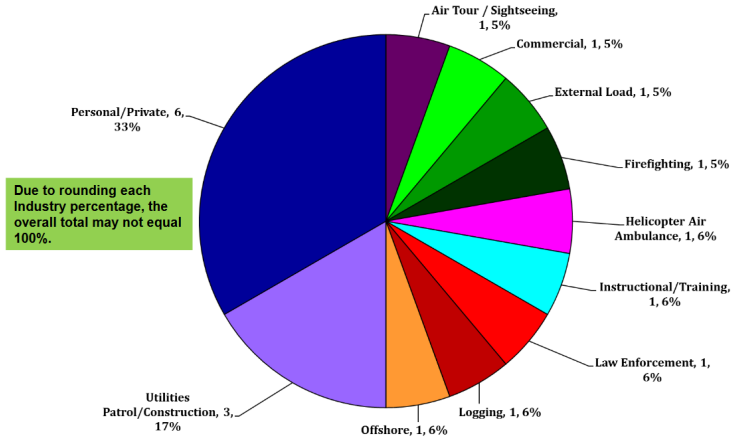
Estimated Rates by Month (per 100,000 flight hours)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	YTD
Accidents:	2.57	3.00	1.29	4.22	1.11	3.53	4.74	4.18					3.14
Fatal Acc:	0.96	1.5	0	0.84	0	1.28	0.63	0.96					0.80
Fatalities:	1.28	4.13	0	1.69	0	1.6	1.27	2.25					1.55

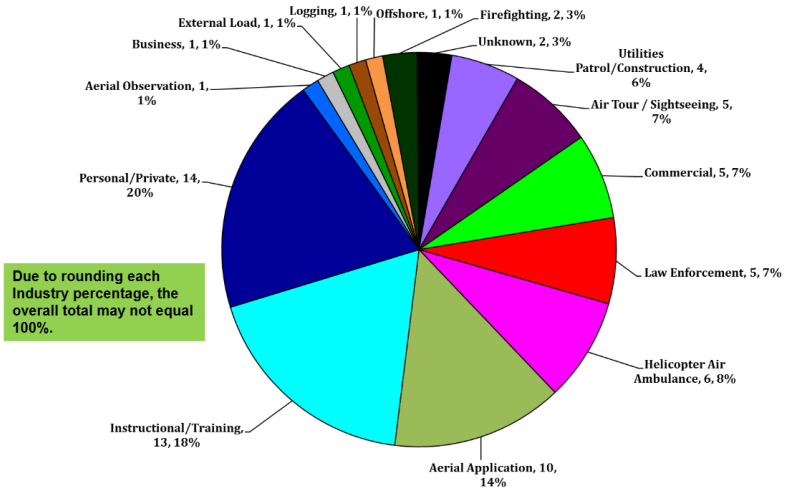
It seems with all the focus and attention on accident prevention and safety we are climbing higher and higher in 2019. Why is this happening? Can every accident be attributed to human error? Some would argue it is always human error because even a mechanical failure of a part involved a human designing, building and installing the part. We tend to deviate from normal standard practice once we get into a routine and habit, thus leading to a normalization of deviance. Researchers say that approximately 95% of a person's day is subconscious, meaning we are running on auto pilot and going through the motions of our daily routine. For example, once we have used a checklist enough times so memorize it we often stop using the checklist or once we have checked our equipment enough times we just expect it to be there when we do our daily checks. Is this normalization an issue that we can overcome? Is most training not set up to create these repetitious, muscle memory type patterns? Is our current method of training and operation part or the problem? How unsafe is changing processes too frequently?

Oversight and regulation have quite a bit of influence on all the areas questioned above. There is a large push in general aviation to get the safety message out to smaller and private operators who often miss the national releases and programs. As you can see from the graphs provided by the FAA, HAA operations account for a very small portion of the overall aviation accidents. However, they get quite a bit of attention in the public eye because most often they involve a patient or response to a patient potentially causing harm to those outside of the industry.

FY 19 – Total FATAL Accidents by Industry (Oct 2018 - May 2019)



FY 19 – Total Accidents by Industry (Oct 2018 – May 2019)



It is incumbent on all of us as an industry to be our brother's keeper and help each other. Small to large operators must work together to make sure we all go home at the end of our day.

Reference:
https://www.rotor.org/Portals/0/08%20FY2019%20May.pdf ■

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Intranet Website Resources:

ninthbrain

NinthBrain can be accessed via the worldwide web at suite.ninthbrain.com.

*Safety*Matters

Do you have any ideas for *SafetyMatters*?
Let us know by emailing jeffrey.white@healthnetcct.com