

STANDARD DEVIATIONS: Understanding Risk

Ummm,

I realize that I preach a lot about risk and risk assessment. I apologize for shouting the same alarms again and again, but, remember, every streetlight you come to has three warnings; **STOP**, **CAUTION**, and **PROCEED**. Biosafety is kind of like that (well, okay, but hang with me, I get paid for coming up with this stuff) in that it makes us look both ways before performing tasks that present risk.

There are other flavors of risk we should think about. Even though my concern is that we are handling infectious organisms and how to do that safely, there are other risks that we must consider. Chemicals, sharps, environment, ergonomics, air flow, staff health, etc. are all components of the risk assessment that we include along with infectious dose and Risk Group classification. Bored, yet? Then consider these little nuggets.

In 2018, 973 attacks on health in 23 countries resulted in 167 health worker deaths and another 710 injuries. A total of 40 health facilities were destroyed across 11 countries. One hundred eighty facilities were attacked in 17 countries.



The attacks are not discriminatory. Vaccination workers, paramedics, nurses, doctors, midwives, patients, community volunteers, and drivers and guards, and yes, laboratorians are affected. Bombs, air strikes, surface-to-surface assaults, soldiers, and rebels jeopardize the safety of health care workers.

These attacks aren't always perpetrated by armed forces. In the DRC, over 100 attacks against the Ebola responders have occurred. While some are instigated by rival political groups as civil protest, many are family and village citizens upset with how they or their deceased are treated. Several treatment centers have been attacked and burned by villagers. Burning, stoning, kidnapping are becoming commonplace events that hamper the outbreak response. There are eight laboratories with Ebola virus diagnostic capacity operational in the Democratic Republic of the Congo (located in Mangina, Goma, Komanda, Beni, Butembo, Katwa, Bunia and Kinshasa). To date, none of these facilities have been targeted.

The polio vaccination providers in Pakistan are facing similar attacks from locals. These events result in stoppage of the work health care providers are trying to provide. Polio remains endemic



and a threat. The lack of communication, information and trust in a community are just as harmful as the political unrest and armed violence.

Here's another take on risk. This spring an outbreak of HIV in Pakistan came to light. A pediatric clinic in the Sindh province saw an exceptional number of febrile infants over an age range of 2 months to 8 years. When their fevers did not respond to treatment, a second physician ordered HIV screening. The finding of HIV in the first few children tested resulted in an intervention where 10,000 citizens (children and adult) were tested. In total, 607 were HIV-positive: 113 adults and 494 children. According to the authorities, in most cases the parents of these children are not HIV-positive. As of May 20, 494 children in the city of Larkana, Pakistan, are HIV positive. Contaminated and reused syringes, unscreened blood transfusion, reuse of IV supplies, and even razors used in barbershops are suspected vectors of transmission. In certain villages in Pakistan, parents still take infants and young boys to barbers for circumcision. The physician involved has tested positive and is believed to have been infected by an unscreened blood transfusion. If that wasn't bad enough, another 50 cases have been traced to the hospital's dialysis unit in Larkana. Poor use of sharps and disinfection = increased risk.

Back in the Congo, another twist. Health care workers in some health facilities in Masereka Health Zone no longer wear personal protective equipment and have become reluctant to institute IPC (infection prevention and control) practices following threats to burn down their structures; putting themselves at risk in a more conventional sense. Water, sanitation and hygiene (WASH) activities continue where possible, but some interruption due to vandalism has been reported this week from the Hewa Bora Health Centre, Beni. At last count (5/22) 104 health care workers have contracted Ebola, 34 have died. Okay, if your risk assessment says that it's safer to work with Ebola not in PPE than in it, someone's not doing their job at mitigating risk.

In Nigeria (2019) Lassa fever continues to be a concern. This year has seen 569 confirmed cases with 128 (23%) deaths. Around 3% of health care workers have been diagnosed with Lassa fever in contact related risk. A total of 18 health care workers have been infected since the onset of the outbreak in 8 states, with 2 deaths in Enugu and Edo states

I hope that I speak for you when I say many of us in this field are dedicated to public health. We do this work, despite the risks, because we believe it's the right thing to do. Yeah, we say that we use risk assessment to validate the safety of our procedures. It's important to recognize that our tolerance of risk is subjective. What one person considers an acceptable level of risk may look completely different in another context. And, our assessments may need to account for more risk than the infectivity of the growth on our plates. Whatever the situation, we need to make sure we have a **green** light before proceeding with our work.

Have a great week and be safe,

Bryan

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