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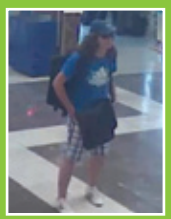

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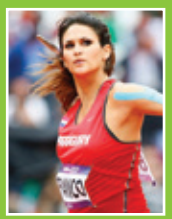


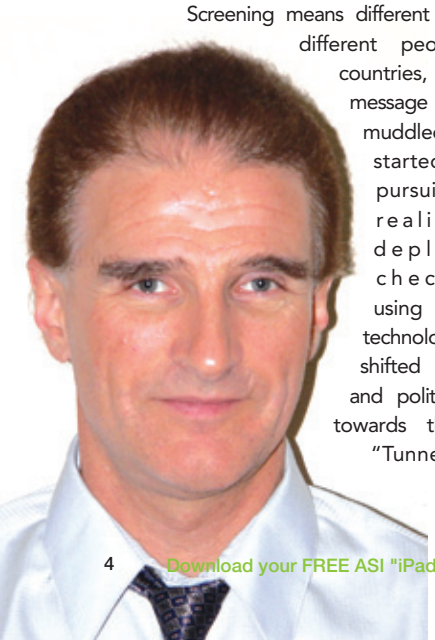
Are We Ignoring the "Risk" in Risk Based Screening?

By Steve Wolff

In the past year, and in response to many stresses on our industry, significant efforts have been made around the world to adopt elements of the IATA Checkpoint of the Future proposal (to which the author is a contributor). Passenger traffic is increasing by roughly 6% per year; checkpoint throughput is only about 50% of its pre-9/11 capacity and passenger satisfaction has similarly taken a nosedive. The pressure from increased security and restrictions is felt by regulators, airports, airlines and passengers, and the industry recognises that without significant change, we're heading for a passenger processing crisis, as witnessed by the number of airports that have recently diverted or developed space to expand their security checkpoints. The checkpoint process we set up 40 years ago is unable to accommodate the trends, and in trying to force it, we're hurting all air transport stakeholders. On the positive side, we're recognising that we can't screen everyone effectively for every possible threat and that one-size-fits-all screening won't work.

> "...checkpoint throughput is only about 50% of its pre-9/11 capacity..."

In response, there's increasing acceptance that Risk Based Screening is a good basic approach, at least at the strategic level and ICAO, Interpol and many airports and countries are showing support. However, Risk Based Screening means different things to different people and countries, and the message is getting muddled. IATA started out pursuing a realistically deployable checkpoint using available technologies, but shifted its media and political focus towards the three "Tunnels of Truth" that have received extensive media and industry exposure. This approach, while useful to persuade regulators to get on board, by using data to sort passengers and screen them to different standards, ignored limits imposed by the laws of physics. Unless we become willing to subject travellers to higher radiation doses, there are no technologies out there or in development that are sensitive enough to detect and pinpoint a threat's location in real time while passengers and their bags pass by at walking speed. This allowed many in the industry to ignore the intent of the Checkpoint of the Future effectively, by just saying, "Great idea but the technology is decades away." This had the regrettable effect of overlooking the fact that the original IATA concept can be implemented with technology that is either available today or, for certain threats, will be available within two years.



The IATA Risk Based Screening process called for sorting passengers into 3 lanes: Trusted Travellers, Elevated Risk and everyone else. In response, TSA (through its PreCheck programme) and Canada (through NEXUS) have embraced and are implementing the Trusted Traveller aspects of a risk-based strategy. While politically and tactically valuable for improving passenger facilitation, it does not directly address the risk posed by determined terrorists. The implications of this strategy are that, at least within the US, the percentage of passengers considered to be of elevated risk is miniscule and that there is an assumption of almost perfect, and precise, intelligence on anyone who might be a threat. This appears to abandon the potential for "clean skin" terrorists, who would likely only be revealed by an analysis of information that resides in the Passenger Name Record. Such an analysis, Computer-Assisted Passenger Pre-screening (CAPPS) was used in the 1990s for hold baggage security and identified 11 of the 19 9/11 terrorists. However, such an analysis is less precise and casts a wider net in an attempt to ensure that anomalies or indicators in flight reservations lead to enhanced screening. If implemented, it would increase the percentage of elevated risk passengers likely to somewhere between 5 and 10% of the total passengers, possibly higher for certain flights. The fact that so few passengers appear to be subjected to enhanced screening by the TSA implies that neither a system like CAPPS nor the use of significant random selection of passengers (as part of a deterrence strategy) is included in the pre-screening process... at least for now.

For those of us who have worked with and tested individual devices and systems of scanners, there are no technologies or procedures currently deployed at the checkpoint that can counter the threat that terrorists have demonstrated that they pose or, by easy extension of techniques used in other crimes (e.g., drug smuggling), could adapt in order to attack commercial aircraft. Without new, carefully selected and configured technologies operated by highly trained staff, TSOs who search elevated risk passengers need to be very well trained and motivated to implement thorough and intrusive physical searches that are virtually guaranteed to be unpopular with the screeners that would have to carry them out, not to mention elected government officials and the travelling public.

So, the lack of a robust pre-screening process that accounts for pre-flight behaviour and the lack of a significant random diversion of non-suspect passengers to a high security lane is virtually guaranteed to present a large enough loophole for terrorists to exploit. When combined with the fact that existing deployed technology lacks the ability to detect the types and quantities of threats and concealment methods terrorists are likely to use, the risk of a successful attack via the checkpoint remains high. However, it seems that we are hiding behind the fact that such an event is of extremely low probability.

Based on the above, I believe the current approach is a dangerous way of avoiding the problem, in much the same way as ignoring safety concerns leads to failures and catastrophes. When I was studying engineering and, in particular, failure analysis, we used a term called Mathematical Expectation (defined as "the probability of the occurrence of an event multiplied by the value associated with the event's occurrence") to assess the importance of various system failures. Mathematical Expectation analysis means that even if the probability of an event is low, if the

result of the event occurring is substantial (such as a successful terrorist attack on an airliner) then the Mathematical Expectation might be higher than a different event with a higher probability of occurrence but lesser consequences. So the low probability, high Mathematical Expectation event should receive more attention. Applying this to 9/11, while the probability of such an event was miniscule (as measured by the number of terrorist attackers, 19, as a fraction of the total number of passengers that had flown since the last serious attack - the PanAm 103 bombing), the quantifiable consequences in lost lives, lost airline revenue, damage to infrastructure, and slowing of the economy were in the hundreds of billions of dollars. This means that the Mathematical Expectation of a similarly severe attack is very high even though there's only one terrorist in several billion travellers.

Such an analytical strategy could be used not only to assess the value of a lane for processing elevated risk passengers (a High Security Lane) versus other security measures but also to assess how capable such a lane would need to be in order to effectively reduce the risk and consequences of an attack. Mathematical Expectation analysis could also be used to compare security measures across different threat vectors, with a view to ensuring, for example, that the Mathematical Expectations for hold baggage screening, the checkpoint and cargo are roughly equivalent. This would ensure that we don't focus on hardening one threat vector while leaving others wide open.

To put risk reduction back into Risk Based Screening, we need both good technology and an effective end-to-end screening process. This was the premise of the Checkpoint of the Future work.

So what could we do to address the risk (which, as security professionals, is what we are supposed to do)? I recommend that:-

- We reinstitute, along with a significant random component, the analysis of the passenger name record (PNR), similar to CAPPS, to use risk indicators to direct passengers to more intensive screening. This would provide a systematic method for identifying whether a passenger might be a "clean-skin" terrorist who would not otherwise have been selected (by not being on government watch-lists).

- Each lane needs to be designed to counter the types of threats that each passenger category presents. Trusted travellers are not zero risk; they can still go insane and cause catastrophic damage. However they're unlikely to have attended Waziristan University and become experts in homemade explosives concealment in the way that elevated risk passengers might.

> "...trusted travellers are not zero risk..."

- Serious attention needs to be placed on alternate configurations of high security lanes for elevated risk passengers for different types of airport operations. This will help us move towards real detection and away from assuming that today's flawed technology configurations and procedures will find the types of materials and concealment methods that terrorists are likely to use against us. These efforts can occur in parallel with – and not necessarily impact - the rollout of trusted traveller programmes.

If we can embrace these, and potentially other, measures, we can put risk reduction back into risk-based screening and improve our security in measurable and effective ways, rather than merely using it as a way to get passengers – unfortunately including terrorists – through security and on to aircraft more rapidly.