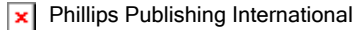
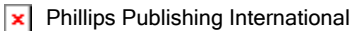


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Positive Passenger-Bag Match Urged to Tighten Security -- U.S. airlines probably now at same level of risk as Israel's El Al, MIT

Story Filed: Monday, November 12, 2001 2:02 PM EST

Nov 12, 2001 (Air Safety Week/PBI Media via COMTEX) -- professor asserts

MIAMI BEACH, Fla. - The feasibility of a full passenger-bag match is being demonstrated on a daily basis, and the evolving case study may well show that the massive disruption of flight schedules long feared by the airlines is unfounded.

Speaking at a symposium here, Arnold Barnett, Ph.D., a professor at the Massachusetts Institute of Technology (MIT) Sloan School of Management, decried the attempt through prescreening to identify potential threat passengers and their bags in lieu of a full passenger-bag match. The so-called computer assisted passenger prescreening system (CAPPS) utilized criteria that appear to have been "formulated by researchers who overestimated their cleverness," Barnett believes. The fact that the percent of passengers who meet the "profile" increased substantially after the September 11 terrorist attacks suggests the limited degree of true confidence in the original formula.

Up until that cataclysmic day, Barnett said aviation security officials "basically were going through the motions. They really didn't believe the threat was serious, that any terrorist was really going to challenge them." Barnett was speaking at the annual convention of the Institute for Operations Research and the Management Sciences (INFORMS).

Today, he said, "Lots of things are better." Some additional measures might not meet the test of effectiveness for the effort involved, but Barnett believes positive passenger-bag match for most, if not all domestic flights would substantially improve U.S. aviation security His ardent argument comes at a time when decisions will be made over the next 30 days that will set the course of aviation security in the U.S. for years to come. As of this writing, House/Senate conferees in the U.S. Congress are about to resolve differences in their respective aviation security bills (see ASW, Oct. 29).

The knife collector

A number of factors buttress Barnett's call for stronger measures. First, there was the horrible breach in security Nov. 3 involving the case of passenger Subash Gurung, a 27-year old Nepalese national with a forged Immigration and Naturalization Service (INS) work card. Gurung tried to pass through security at Chicago's O'Hare International Airport (ORD) with nine knives, a can of Mace and a stun gun. Two knives were found on his person, but the other seven knives and related articles contained in his carry-on bag passed through the X-ray machine without raising any questions. Since, according to various accounts, Gurung had made a cash purchase of his one-way ticket for the United Airlines [UAL] flight to Omaha, he was identified for additional screening by airline personnel. During this hand-search, the items in Gurung's carry-on bag were discovered.

Fortuitously, Gurung had checked a bag for the flight, which put him under the CAPPs umbrella, which caused the additional search. As it turned out, Gurung missed the flight and his checked bag, which was screened, went on without him.

The case, which caused a huge outcry about the porous state of security even after the September 11 attacks, illustrates that the CAPPs system won't necessarily prevent the transport of unaccompanied bags and leaves the entire system dependent upon the machine's ability to detect a concealed bomb in a bag. In any case, there are now too few machines to screen all bags, and achieving such a capacity will take years. A bomb in an unaccompanied bag destroyed Pan Am Flight 103 in 1988.

Gurung was arrested by local authorities, released that night, and then re-arrested by Federal Bureau of Investigation (FBI) agents when he returned to ORD the following day to retrieve his checked bag. Although initial media reports suggested a link between Gurung and the September 11 plotters, the FBI said these reports were "not accurate."

Nevertheless, the Gurung fiasco triggered a strong reaction. Transportation Secretary Norman Mineta characterized the incident as "a failure of dramatic dimensions." He intimated that the carrier is likely to face a "substantial fine." The airline ultimately is responsible, although United had contracted with Argenbright Security, Ltd. for its screening operation at O'Hare. Argenbright presently is on probation for lapses in the hiring and training of its front-line screeners (see ASW, Nov. 5). The lapses remain. The Chicago Tribune newspaper reported that three of the eight Argenbright employees suspended after the security breach had criminal records; Argenbright officials responded by saying no crimes were involved that would have disqualified these individuals under a Federal Aviation Administration (FAA) list of disqualifying violations.

Mineta ordered UAL to retrain all its O'Hare screeners, and he announced a meeting with carrier CEOs this week to once again bring high-level attention to gaps in security. In addition to the Gurung case at O'Hare, Mineta lamented that on Sunday, November 4, at the airport in Louisville, Ky., "some passengers weren't screened at all."

The obvious question is why Gurung's carry-on baggage was not closely inspected after two knives were found on his person as he passed through the portal of the metal detector. Argenbright President Bill Barbour said in a statement that his people were acting at the time in accordance with FAA guidelines but, henceforth, bags will be examined whenever suspicious items are found on passengers.

And, finally, FAA Administrator Jane Garvey announced November 5 that her agency would be hiring additional security employees on a temporary basis to augment the oversight provided by the FAA's nationwide force of about 500 security agents. It appears that these additional forces are needed to augment U.S. National Guard troops now at airports, but assigned to this duty for only six months.

All of these developments feed into Barnett's belief that more can and must be done to strengthen security.

Passenger-bag matching

Moreover, reports are surfacing that the FAA may be on the verge of proposing PPBM for domestic flights (or at

least considering the matter more seriously). The airline industry has resisted PPBM for domestic flights, asserting that the matching process would utterly disrupt domestic flight schedules (notably closely coupled hub-and-spoke operations). PPBM is now required for all international flights. In fact, the FAA appeared to distance itself from the results of the 1997 field trials conducted at its direction, to the great dismay of Barnett and his colleagues who were involved in that effort.

However, the situation for inbound and outbound flights at Washington's Reagan National Airport (DCA) provides yet another real-time example of PPBM for domestic flights in action. Since the airport was re-opened October 4 (after having been closed for weeks after Sept. 11 until tighter security arrangements were negotiated with carriers and put in place), PPBM is required for all flights. The DCA situation is instructive, as there have been numerous complaints from public citizens, not that the extra precautions are onerous, but that the added security measures taken for the airport should apply nationwide. They believe the extra security at the airport closest to the nation's capital in effect sets up a two-tier security system. Had Gurung attempted to take a flight to DCA instead of to Omaha, his checked bag never would have left O'Hare.

Field trials of PPBM for domestic flights in 1997, involving nearly three-quarters of a million passengers, covering both point-to-point and hub- and-spoke flights, showed that PPBM could be done. Less than five percent of flights involved "no board" passengers, and reconciliation delays averaged just seven minutes on the small percentage of flights on which they arose (see ASW, June 18). "The airlines talked in the same apocalyptic rhetoric" about the unfeasibility of PPBM "even after they had the data in hand," Barnett recalled. He was one of the leaders devising and supervising the 1997 field trials, and his report served as the basis for the FAA's May 1999 report to Congress on bag- matching.

Now is the time, Barnett believes, to take advantage of operations at DCA to further explore the potential for PPBM. Even more passengers may be involved. For example, with 200 flights a day originating at Reagan, assuming an average of 80 passengers per flight, some 16,000 passengers a day are contributing to a database of PPBM experience. Add a like number of inbound passengers, and the database is growing by some quarter million passengers per week. In a month, more passengers will have gone through a PPBM process than in the 1997 trial. Further, in the 1997 trial PPBM was suspended in foul weather, leaving a gap in terms of its feasibility in all weather conditions. What is happening at Reagan National could fill that knowledge gap. "This could be a real-time update of the 1997 trials," Barnett exclaimed. The impact of weather, more current information about the percentage of passengers with checked bags, and the percentage of passengers with connecting flights, are all items providing grist for greater insights. However, he warned, it is important to distinguish PPBM delays from those arising from several other security measures introduced simultaneously at Reagan National, and to distinguish any PPBM delays from such usual sources of delay as mechanical problems.

One level of safety, two levels of security

If a two-tier security system is evolving - Reagan National and the rest of the country - so is a two-tier security system among airlines. Some already are implementing PPBM, while others are not.

Barnett pointed to the situation where one could book a flight from New York to Seattle on JetBlue Airways, which has PPBM, and on a competing carrier, which does not. "Guess on which flight I'm going to book my daughter?" Barnett asked. Sun Country Airlines also has full PPBM on its flights. Now that PPBM is required for all flights at Reagan National, large carriers like United also are gaining domestic experience in the process.

The JetBlue experience with PPBM provides further evidence that schedules will not be disrupted. The start-up carrier had been tracking bags since it launched operations 21 months ago and went to a full PPBM program immediately after September 11. Operating more than 80 daily flights, the carrier posted the best on-time performance in its history last month, at more than 92 percent of flights. JetBlue's PPBM program represents a crack in the industry position. The Air Transport Association (ATA), representing the major carriers, opposes PPBM and is proposing a forgery-proof identification (ID) card system instead - which would serve like CAPPS by concentrating the potential pool of "threat" passengers into those without such ID cards. However, JetBlue joined ATA just two months ago, and its ability to implement PPBM while at the same time improving its on-time

performance contrasts markedly with the ATA position.

Good for business

In his remarks at INFORMS, Barnett maintained that a visible effort to assure the public that aviation security is being tightened would be good for business. As an example, he pointed to the fatal 1989 crash of United Flight 232 at Sioux City, Iowa. In the weeks after the crash, overall passenger bookings declined dramatically:

First two weeks - 35 %

Next 2 weeks - 17 %

Next 2 weeks - 13 %

Next 2 weeks - 10 %

In other words, about two months after the crash, the level of passenger avoidance was about one-quarter the level observed in the immediate aftermath of the crash.

Following the terrorist attacks of September 11, the situation is more elusive. "The number of passengers missing in the last week of October probably equaled the number of passengers missing in the first week of October," Barnett observed, adding, "And that's even with deep fare discounts."

Should another terrorist attack against an airliner succeed, Barnett believes the impact on potential customer behavior would be "really chilling."

When should passengers return in their former droves? In response to this hypothetical question, Barnett suggested, "When it's reasonable to believe that all steps have been taken to prevent a repeat of the September 11 situation." That "situation," he said, was really captured by the title of his remarks, "The Worst Day Ever" for commercial aviation.

"Can we prevent another September 11? I don't know, but we have an obligation to try," Barnett said, adding for emphasis that "U.S. carriers are probably now at the same level of risk as El Al," Israel's flag carrier.

Barnett is not the only one concerned about passengers' willingness to return. Darryl Jenkins, director of The George Washington University's Aviation Institute, said in his September 17 postmortem of the September 11 tragedy the airlines' load factors will be "a function of how many people fall out of traffic counts due to a lack of security confidence."

"Generally, airlines bring travelers back by lowering prices after a disaster. It will be more difficult this time," he said - as borne out by Barnett's review of the flatline trend for October. Jenkins suggested it could take until June 2002 to return to the 60 percent + load factors that preceded events of September 11.

Time to get real about security

In his INFORMS address, Barnett criticized the approach to security in recent years. Could the catastrophe have been anticipated? While few may have imagined losing the twin towers of the World Trade Center, Barnett recalled the Air France jet hijacked December 24, 1994 (and recaptured on the ground by French commandos). In that case, the Algerians who hijacked the plane intended to crash it into the Eiffel Tower. Shortly after that event, a disgruntled former Federal Express employee unsuccessfully attempted to hijack a FedEx cargo plane with the intent of crashing it into the company's main package processing center in Memphis, Tennessee.

In other words, there were precedents for seizing airplanes with the intent to use them as weapons.

Could the September 11 catastrophe have been prevented? "U.S. security was so lax, we can't tell whether tight security would have prevented the catastrophe," Barnett said. He lamented the "intellectual sloppiness" that seems to have prevailed before September 11.

As an example, Barnett said passenger prescreening (a euphemism for profiling) originally was to be applied to all passengers, to all bags (checked and carry-on). In 1998, the focus was narrowed in CAPPs to only those passengers with checked bags. Why this decision was made remains locked behind the doors of government secrecy. How did officials determine that only people with checked bags posed a potential threat, Barnett asked.

A year later, the FAA issued a proposed rule (FAR Part 108) on the security of checked baggage for domestic U.S. flights which said that CAPPs would only apply to passengers flying on airplanes with 61 or more seats. Published in the Federal Register April 19, 1999, and available for anyone in the public at large to read, this document "almost declared to terrorists it was open season on commuter planes," Barnett charged. If five percent of passengers on the big planes fell under the CAPPs criteria, then with an average of 30 passengers on a commuter airplane, that five percent factor meant perhaps two passengers per commuter flight would trigger the CAPPs criteria for scrutiny. And perhaps one of those would have checked a bag. In other words, extending CAPPs to commuter planes would have involved little extra work or delay, and it would have been far preferable than signaling to the world those small planes would not be covered.

"This was the system used to exclude the vast majority of passengers from scrutiny," Barnett said, noting that CAPPs "was central to security arrangements prior to September 11." Moreover, he charged that the criteria and the mathematical equations used to identify selectees "were formulated by researchers who missed a crucial point." To get past the system, Barnett explained, one did not have to know the precise equation being used. One simply needed to know whether a particular combination of characteristics (e.g., type of ticket, form of payment, past travel behavior) would allow the traveler to check a bag, which would then travel unaccompanied. And answering this latter question was not necessarily very difficult.

The way forward

Despite the horrendous events of September 11, and recent fiascos like the deadly cutlery almost smuggled aboard the United jet by would-be passenger Gurung, Barnett believes security is better today. Some initiatives being proposed are problematic. For example, should advanced seat selection be prohibited? By this means, weapons could not be smuggled aboard and stowed next to particular seats for later use by hijackers involved in a plot. "It's a pretty radical idea, and it would cause lots of disruption," Barnett surmised. As a "security" measure, Barnett believes a ban on advance seat assignments "does not pass any rational cost-benefit calculation." To be logical, one would have to extend the idea and prohibit open seating as well, the underpinning of the rapid turnaround operations honed to such efficiency by Southwest Airlines [LUV]. He does believe cargo holds represent "the soft underbelly" of the industry, a target for terrorist attack. And for this reason, he is an ardent advocate of full PPBM for domestic flights. He pointed out that Irish carrier Ryanair, a low-cost frequent-flight carrier like Southwest Airlines in the U.S., employs 100 percent PPBM. "And Ryanair practices Southwest's famed 25-minute turnaround, too," Barnett added.

He strongly advocates an independent assessment of the PPBM data now being amassed as a consequence of operations at Reagan National (because some carriers seem fanatically opposed to bag-matching, independent oversight of the data is important for full confidence in the tabulation). If the data bear out the feasibility, which Barnett thinks may be likely, then a nationwide PPBM policy could be implemented. If short of 100 percent, Barnett suggests immediately implementing PPBM for originating passengers. "Starting with originating flights will cover 75 percent of all passengers," he suggested. But he favors subsequent expansion of PPBM to connecting passengers, to the greatest extent possible.

"If CAPPs cannot concentrate the threat population, it's worthless," Barnett declared. CAPPs is grounded on the notion that threats can be identified, thereby reducing the cost of extra screening, to include examining bags by explosives detection systems (EDS).

Barnett points to security at UK's Manchester Airport as the kind of layered system that's needed - 100 percent PPBM and very extensive EDS screening.

Many passengers in the U.S. have expressed dismayed surprise when they learn that only a small fraction of checked baggage is subjected to EDS examination.

"I haven't talked to a passenger yet who doesn't support PPBM, yet some airlines are fighting it to the end for reasons I find incomprehensible," Barnett said. >> Barnett, e-mail abarnett@mit.edu <<

'A Paradoxical Situation'

Extracts from letter of Professors Barnett, Hansen, Odoni and Shumsky on the FAA's perplexing effort to distance itself from 100% domestic bag match (Docket Number FAA-1999-5536):

"In its statement in the Federal Register...FAA argues that:

* Pending the arrival of explosives detection systems, 100% positive passenger

bag match (PPBM) would achieve greater security against terrorism than would bag match focused on a minority of passengers...

* The terrorist threat facing U.S. domestic aviation is sufficiently great as to

justify the expenditure of \$2.8 billion on bag-match procedures over the next decade...

* Moreover, in its May 1999 Report to Congress...FAA estimated that 100%

bag-match would cost about 40 cents per passenger enplanement (which works out to about \$2.8 billion per decade).

"Under the circumstances, one might have expected that FAA would support 100% bag-match as an anti-terrorist measure. On the contrary...FAA strongly disavowed this policy...asserting it would be prohibitively expensive and disruptive. How did such a paradoxical situation arise?

"In short, FAA based its report to Congress on a painstaking analysis of actual domestic experience with 100% bag-match performed by a team specially assembled by FAA. For the Federal Register, however, FAA relied instead on other statistics that were unsubstantiated and/or discredited. Accordingly, we urge FAA to act vigorously to eliminate the misconceptions raised by its Federal Register document. The agency should explicitly correct all statements in the Register that are inconsistent with the report that the Administrator sent to Congress.

"Having done that, however, FAA must face the deeper problem with its position. 100% bag-match is routinely applied in Western Europe, and FAA has endorsed it for U.S. international flights. Now, FAA has gone on record indicating that 100% bag-match can be achieved in the U.S. at a cost the FAA deems justified by the danger of domestic air terrorism. Given these circumstances, why has FAA gone to such lengths to distance itself from 100% domestic bag-match?"

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