



**Characterizing Major U.S.  
Pilot Peer Support Programs as a  
Potential Aviation Safety Risk Control  
Study Report**

**March 2026**

This report is intended for informational purposes only and does not constitute regulatory or policy guidance.  
Findings should be interpreted in light of the study's exploratory design and methodological limitations.  
All content and views herein are solely those of the authors.

## Executive Summary

This report summarizes the Aeromedical Safety Coalition's (ASC) exploratory research study characterizing major U.S. airline pilot peer support programs (PSPs) and their potential to serve as an aviation safety risk mitigation. ASC brings leaders from airlines, unions, the FAA, and other organizations together to innovate ways of better managing aviation safety risks related to health and human performance. This report is intended to inform the actions of stakeholders to enhance aviation safety and understanding rather than show causality or assert policy.

Using a mixed-methods research design, the ASC Study team combined in-depth interviews of leaders who represented most major PSPs with structured expert elicitation (SEE) to generate estimates of PSP usage, outcomes, and operational features. The team conducted a total of ten interviews with peer support leaders and volunteers and thematically analyzed the resulting 20+ hours of interview data.

Given the lack of available PSP metrics, the team used SEE, a scientific method for obtaining quantitative estimates with some level of confidence (90%) when data is scarce. The team also used methodological triangulation with the qualitative and quantitative findings to enhance credibility and trustworthiness of findings. The team did **not** collect any identifiable peer support program data (e.g., information from individual PSP calls).

This study found that PSPs had similar call-handling practices and volunteer training protocol, while also highlighting innovations such as proactive outreach, PSP visibility during mandatory training, expanded promotional strategies, and enhanced airline-union collaboration on PSPs. Semi-structured interviews also revealed variability in areas such as PSP operation, airline-union collaboration, as well as volunteer vetting, coordination, and airline support.

In addition, participants estimated that about 4% of an airline's pilots used their PSP in the past 12 months. Calls to PSPs were most often related to family stress, negative life events, and job-related pressures. Participants estimated that about 89% of PSP calls resulted in positive health outcomes (e.g., helped pilot with their issue or feel better) and 78% in improved safety outcomes (e.g., helped pilot self-assess their fitness to fly). Note that estimates reflect informed expert judgment under uncertainty and should be interpreted with caution. Overall, the study findings suggest the potential role of PSPs in supporting safe aviation operations.

Based on study findings, ASC provided a set of consensus-based recommendations for airlines, unions, and others. Recommendations suggested by correlations with positive health outcomes include promoting PSP awareness at mandatory airline training sessions for pilots and making proactive outbound calls to pilots who may be struggling. ASC also recommends aviation leaders explore how PSPs could be more formally integrated as safety mitigations within Safety Management Systems and how to collect privacy-protected program metrics.

ASC welcomes stakeholder action (and [feedback](#)) to advance aviation safety and pilot health based on its study findings and consensus recommendations, as well as collaboration on future aeromedical safety management and solution co-development.

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## Introduction

### About the Aeromedical Safety Coalition

The Aeromedical Safety Coalition (ASC) was formed in 2024 to address the absence of a coordinated, evidence-driven approach for integrating health and human performance into U.S. aviation safety management systems (SMS). ASC brings together leaders from airlines, unions, the Federal Aviation Administration (FAA), healthcare, and safety research with the vision, “Safer skies through healthier pilots and air traffic controllers.” ASC members work collaboratively to advance their shared mission, “driving innovation in managing aviation safety risks related to mental and physical health through information sharing and systems-of-systems analysis.”

ASC’s mission involves elevating health and human performance as safety topics, reducing uncertainty surrounding medical-related aviation risks, and strengthening SMS-based coordination and education across organizations. By promoting both traditional Safety I (what goes wrong and how to prevent that) and Safety II (what goes right and how to promote that) approaches, ASC seeks to proactively identify hazards, understand system resilience, and reduce negative consequences of health issues affecting pilots, air traffic controllers, and the broader aviation system. These priorities reflect a modernized, evidence-informed vision for medical oversight that enhances safety and trust.

ASC’s structure, mission, and emerging body of work collectively show how aviation stakeholders can move toward a more integrated model of aeromedical risk management that treats health as a safety imperative and leverages shared evidence to better protect pilots, air traffic controllers, and the flying public.

ASC goals include:

- Elevating and normalizing health and human performance as safety topics.
- Reducing uncertainty about medical-related SMS hazards and barriers.<sup>1</sup>
- Fostering ongoing SMS-based integration, coordination, and education.
- Reducing negative consequences stemming from health issues that can affect pilots, air traffic controllers, airlines, the flying public, and the U.S. economy.
- Promoting both Safety I and II approaches that mitigate negative events and promote preventative measures.
- Optimizing the future of medical oversight for aviation safety-sensitive personnel (e.g., pilots and air traffic controllers).

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<sup>1</sup> In SMS, a **hazard** is “a condition or an object that could foreseeably cause or contribute to an incident or aircraft accident” (14 CFR § 5.3), a **risk** is the combination of predicted severity and likelihood of the potential effect of a hazard, and a **barrier** is the safety risk management control that prevents the occurrence of or mitigates the effect of the hazard.

ASC members bring perspectives from airlines, associations, medical providers, researchers, and other stakeholder groups. ASC members' affiliations are for identification only and do not imply endorsement of ASC or related content by any organization.

Early ASC achievements have demonstrated the value of system-of-systems insights, information sharing, and cross-sector collaboration in shaping risk decisions. These achievements include:

- Formation of specialized working groups, which have established formal mechanisms for consensus building and joint priority setting.
- Creation of a 10-year *Roadmap* that clarified major objectives across 4 phases of operation and identified specific near-term activities (e.g., studies) to achieve those goals.
- Implementation of an action-oriented research study characterizing major U.S. pilot peer support programs, which has already produced foundational insights.

The study and the *ASC Roadmap* illustrate how collaborative data sharing can inform safety intelligence and advance the four pillars of SMS (see Figure 1 below), a systematic approach to achieve acceptable aviation safety risk.

### A Safety Management System Coordinates Four Pillars to Achieve Acceptable Risk

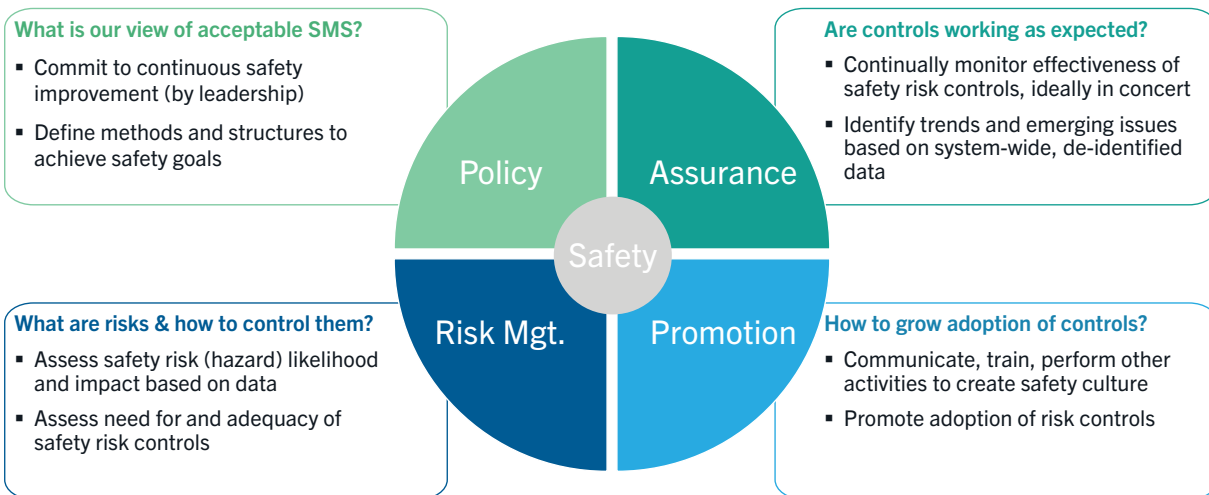


Figure 1. Four Pillars of a Safety Management System

### Data Privacy and Protection

The purpose of ASC is to collaborate strictly for safety and in the public interest. ASC members understand how inappropriate or punitive data usage can put pilots and airlines at increased risk of negative health, financial, reputational, and safety impacts. Confidentiality is critical because pilots may avoid participating in ASC studies if they perceive that could put their medical certification, ability to work, or well-being at risk. Therefore, ASC members co-developed and adopted the following data privacy and protection requirements in their ASC Charter. The purpose of ASC is to collaborate strictly for safety and in the public interest.

As a steward of data it is entrusted with, ASC:

- Manages risks to ASC study participants, members, and other affected parties.
- Ensures appropriate data uses are controlled by data owners.
- Safeguards data through security and privacy controls (e.g., access control, encryption, non-attribution, de-identification).
- Ensures ethically-driven research through mission alignment, representation (e.g., “nothing about us without us”), and Institutional Review Board (IRB) review.

The focus of ASC is public benefit and to that end, ASC shares its findings to increase knowledge and advance aviation safety and health of aviation personnel. The high-level process that ASC uses to carry out ethical safety research aligned with its mission and data protections follows:

1. Select a roadmap-aligned study to conduct by consensus, taking into consideration emergent priorities, tradeoffs with other studies/activities, and available resourcing.
2. Charter a Workgroup of voluntary ASC members to collaboratively design and plan the study in accordance with its mission and data privacy and protection requirements.
3. Convene the Study Workgroup to guide planning and execution of study with a smaller core Study team handling data collection, de-identification, management, and analysis.
4. Co-develop, interpret, and clarify study findings along with related recommendations.
5. Converge on the final results through a consensus process, recording any caveats and dissents.
6. Obtain tri-chair approval to appropriately release results in the public interest.

## Background

The mental health of commercial airline pilots has garnered attention in recent years due to several high-profile aviation incidents attributable to pilot depression and/or suicide. In the last 35 years, 17 commercial aviation accidents/incidents with 576 fatalities have been associated in prior analyses with pilot mental health issues. Negative life events have played a major role in fatal aircraft accidents attributed to mental health issues; events most frequently resulting in suicide include work problems, family discord, somatic illness, financial problems, unemployment, separation, and interpersonal loss. [1]

A systematic review of commercial pilots worldwide found that the prevalence of depression ranged from 1.9% to 12.6% [2], while a Harvard study found that 12.6% of pilots met the depression threshold and 4.1% reported having suicidal thoughts [3]. Currently the FAA’s Aerospace Medical Certification Division estimates that 30-40% of general review cases have a mental health component [4].

Many pilots are afraid to seek medical care due to fear of loss of livelihood. One major study found that 56% of pilots self-reported a history of healthcare avoidance [5]. Stakeholders have called for

improvements to the current aeromedical system and expressed a willingness to re-envision it as a more collaborative and evidence-based approach to aeromedical risk management.

The FAA formed a Mental Health and Aviation Medical Clearances Rulemaking Committee (ARC) in December 2023. The ARC provided a forum for the aviation community to discuss the barriers preventing pilots and air traffic controllers from reporting and seeking care for mental health issues and provided recommendations to the FAA in April 2024. ARC Recommendation #10 states that mental health screening functions should be performance-based and managed within a safety management system (SMS) framework. [6]

Similarly, the European Mental Health for Aviation Safety (MESAFE) research project assessed new medical developments for the early diagnosis and treatment of mental health conditions that could pose a safety risk for aviation. MESAFE Recommendation #2 focuses on implementing a risk assessment approach, in which the safety risk caused by mental incapacitation events is assessed by estimating its severity and the probability that it would occur on duty. [7]

PSPs for pilots are one important mitigation strategy for addressing mental health issues, and especially for helping pilots deal with negative life events. Negative life events are less stigmatized than mental health issues, since they are perceived to be something bad happening to people, as opposed to an inherent weakness. Therefore, seeking help from a PSP for a negative life event may be easier than seeking help for a mental health issue. [1]

Aviation-focused PSPs are unique in that they are proactive and preventative, aiming to help pilots maintain optimal performance by identifying mental health issues early and providing appropriate support (e.g., referral to a provider). Many other PSPs provide support after critical incidents and trauma. [8]

ARC Recommendation #3 supports the establishment and expansion of PSPs for pilots, suggesting that pilots will be less likely to conceal and more likely report a mental health condition in a culture of mutual trust and collaboration. It also calls on aviation stakeholders to consider and apply recommended practices from mature PSPs. [6]

In 2018, the European Union passed legislation requiring European operators to implement support programs for flight crews to assist and support them in recognizing, coping with, and overcoming any problem which might negatively affect their ability to safely exercise the privileges of their license [9]. In the MESAFE Review Report and Impact Assessment, stakeholders viewed peer support groups as a key measure for mitigation of reduced performance between two aeromedical exams. They considered these programs to be the most effective option for maintaining confidentiality, ease of connection, and common field knowledge for pilots but emphasized that these programs need additional reinforcement. [7]

The aviation community clearly views PSPs as an important risk mitigation, yet a recent systematic review found a lack of studies evaluating the effectiveness of PSPs in detecting and preventing mental health issues among pilots. The authors note an important reason for the lack of evidence: PSPs are generally run independently and are confidential by design, making it difficult for anyone

outside of their programs to study data and nearly impossible for external parties to evaluate these programs [8]. The Study team was able to identify only one study with data about PSPs [10].

## Risk Management and Data Scarcity

ASC recognized that aeromedical safety risk decisions may occur without sufficient data on how complex sociotechnical systems interact, how well controls mitigate risks in real-world system-of-systems environments, or how prevalent and potentially impactful specific risks are due to insufficient data. Other safety-critical sectors, including nuclear energy and emergency response, have successfully applied risk management methods that go beyond (even deeply experienced) expert opinion.

Advances in decision science and the study of cognitive heuristics/biases show that substantially better decisions can be made when data is scarce through methods like structured expert elicitation (SEE).<sup>2</sup> SEE is an established scientific method for producing quantitative estimates at a specified confidence level. SEE effectively crowdsources the estimation of an unknown parameter and attempts to control for experts' (varied) abilities to provide accurate estimates at some established level of confidence. Much like human factors (usability) assessment techniques can reveal substantial insights about system-level issues with relatively small sample sizes (e.g., 6 to 12 participants), SEE produces useful insights/estimates and helps reduce uncertainty around the parameter of interest. While SEE can improve decision-making under uncertainty, it does not replace empirical measurement and resulting estimates may reflect bias in expert judgment despite structured calibration methods.

## Study Design

### Selection

To select a study, ASC followed the six-step process noted above, which is centered on the driving role of Study workgroup. The ASC Study workgroup was comprised of volunteer staff from ASC member organizations and represented pilot, operator, association, aeromedical, safety, and research perspectives. The workgroup initially considered several other ideas for the first ASC study and ultimately selected pilot peer support programs (PSPs) – which offer pilots a safe, confidential way of obtaining help for managing life stressors from trained volunteer colleagues.

The workgroup ultimately chose this topic because PSPs are viewed as a safety mitigation, yet relatively little is known about PSPs (due to their confidential nature) or published in the scientific literature about PSP health and safety outcomes. Among candidate studies, this study optimally balanced safety insights/benefits, pilot privacy and protection, and was seen as likely to also successfully demonstrate the power of collaborative research in health and human performance-related SMS. As a result, ASC members unanimously selected PSPs as the subject of the coalition's first study, choosing the title, "Characterizing major U.S. pilot peer support programs as a potential aviation safety risk control."

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<sup>2</sup> See for example Cooke's method, Sheffield Elicitation Framework (SHELF), and the IDEA (Investigate, Discuss, Estimate, and Aggregate) protocol which modifies the conceptually related Delphi method.

## Scope

The scope of this study included insights about PSPs that major U.S. mainline passenger airlines and unions have implemented to support pilots – including how effectiveness of these programs is measured – to characterize the practice of PSPs as they exist today.

The Study team defined PSPs as ongoing, volunteer-based initiatives that provide pilots confidential support from trained colleagues to address stressors and mental performance. This study did **not** include potentially related programs such as union-offered aeromedical advice, accident support (e.g., Critical Incident Response Program, Critical Incident Stress Management), Human Intervention and Motivational Study (HIMS), Professional Standards, and airline-offered employee assistance programs.

The study was guided by the following research hypothesis: PSPs exhibit some properties of a safety risk management control, which need to be better understood to be integrated into SMS.

While this study did not explicitly test this conceptual model, the pathway by which PSPs may serve as a safety risk mitigation can be conceived as:

1. Pilot experiences life stressor(s) and seeks help from PSP (predicate: awareness of PSP and trust that the benefits of using the PSP outweigh any risks).
2. PSP provides pilot confidential support and resources as designed.
3. Pilot gains needed support, greater self-insight, and/or access to additional resources.
4. Pilot can better self-assess their fitness to fly (may choose to fly when their IMSAFE<sup>3</sup> has been strengthened by the PSP or may choose to temporarily remove themselves from duties as a result of insights gained from the PSP call).
5. Pilot thus avoids less-than-optimal performance that could potentially lead to unsafe operation, yielding benefit to their personal safety and the flying public.

Underlying and supporting the research hypothesis was a working hypothesis: ASC members with different organizational interests can voluntarily and productively contribute to collaborative research that advances holistic SMS.

The following high-level research questions aimed to prove or disprove the hypotheses above. They included a question to guide the initial study and a question for potential follow-on research:

- What are the characteristics of mainline U.S. passenger airline pilot PSPs?
- To what extent are PSPs effective, and do they add resilience to the safety of the National Airspace System?

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<sup>3</sup> The IMSAFE checklist referenced in early versions of the U.S. Aeronautical Information Manual [12] is intended to help aircraft pilots quickly check their fitness to fly by considering Illness, Medication, Stress, Alcohol/Substance, Fatigue, and Emotion (and/or Eating in certain uses).

Expected benefits of this study included:

- Expanding knowledge of PSPs and potential avenues for measuring their effectiveness.
- Advancing the integration of health and human factors into Safety Risk Management.
- Ultimately improving pilot wellbeing and improving aviation safety.

## Methodology

The sections below describe the study's participant selection and mixed (qualitative and quantitative) data collection methods.

### Participant Selection

The study sought participants with current, firsthand knowledge of the operation of PSPs at major U.S. airlines, based on their role as a PSP leader and prior/current experience as a PSP volunteer; exposure to other pilot assistance programs (e.g., critical incident response team, Human Intervention Motivation Study) was useful but not required.

Based on these criteria, the Study team identified 11 study participant candidates with the assistance of ASC members. Per The MITRE Corporation's Institutional Review Board guidelines, all participants voluntarily signed an informed consent form before being included in the study. Participants received no compensation or financial incentive for their time. Study participants attended a kickoff meeting and received an orientation from the team. Following orientation, one participant chose not to continue in the study out of deference to another member from their organization who was participating, yielding 10 actual participants.

### Data Collection

#### Qualitative

The Study team implemented semi-structured interviews with 10 interview participants representing 7 major U.S. PSPs representing about 73,000 pilots and 84% of the U.S. aviation industry based on passenger revenue miles<sup>4</sup>. Each interview lasted approximately two hours. The team collected data from more than 20 total hours of interviews covering 26 questions in the interview guide (see Appendix A: Qualitative and Quantitative Instruments).

Upon conclusion of the interviews, the team conducted a thematic analysis based on detailed notes, supplemented by recordings to ensure accuracy and completeness of notes. The team consolidated responses for each question and removed incidental and sensitive (i.e., identifying) information in the comprehensive set of responses. The team synthesized participants' responses – along with any documentation they provided about their PSP – to identify themes, similarities, differences, and innovations. The team used these themes in collaboration with ASC members to identify key findings and recommendations. During analysis, the team identified cases when a

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<sup>4</sup> This indicates a Pareto effect, wherein a relatively small number of PSPs constitute the majority of relevant programs based on pilot headcount and passenger revenue mile metrics.

participant represented insights from multiple PSPs. In those cases, the team considered that participant's input when it was linked to a specific PSP.

## Quantitative

To address the data gap in PSP metrics, ASC employed SEE for this study, recognizing the capabilities and limitations discussed above. Specifically, the Study team adapted the IDEA protocol [11] for conducting SEE.

The team co-designed the quantitative elicitation instrument (see Appendix A: Qualitative and Quantitative Instruments) to estimate metrics associated with PSPs. For each question, participants were asked to provide three estimates (lowest plausible value, highest plausible value, most likely value) then use the equivalent bet exercise to obtain 90% confidence, refining their estimates as needed (for more information, see Appendix B: Equivalent Bets Exercise). If they had ground truth data (an actual statistic), they were asked to input the same statistic for all three estimates and indicate "actual" in the optional notes column. Participants were asked to provide estimates for their airline and all U.S. airlines separately (see below), as well as estimate a set of 6 "seed" or calibration questions. These seed questions were different for each round (training, initial estimate, final estimate) and have actual answers known to the researchers but not readily known to or findable by the participants.

The team conducted SEE based on a tailored version of the IDEA protocol using the following steps:

1. The team trained participants on how to make and record estimates for this study, including a method of self-assessing the level of confidence in one's estimates called the "equivalent bets" test (for more information see Appendix B: Equivalent Bets Exercise).
2. Participants provided independent estimates on 13 PSP metrics over the past 12 months, addressing usage, operations, and perceived outcomes (see Appendix A).<sup>5</sup> Based on when the above data was elicited, that 12-month timeframe corresponds approximately to the period of June 2024 to May 2025.
3. The team analyzed the resulting estimates in light of participants' estimating performance for calibration questions and prepared a summary for the group to consider.
4. The team convened the participants to review initial estimates and clarify underlying assumptions and common definitions.
5. Participants revised their estimates with clarified assumptions and common definitions.
6. The team calibrated and aggregated participants' final estimates.

## Triangulation and Limitations

The team obtained complementary insights from the two data collection methods (e.g., participants mentioned metrics in interviews and provided context during SEE). The team used

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<sup>5</sup> Participants also provided estimates of these metrics for all U.S. Passenger airlines PSPs; for purposes of this report, these served as calibration with national-airspace (vs. airline) level.

methodological triangulation with the qualitative and quantitative data to enhance credibility and trustworthiness of the findings overall.

Given the methodology, this study has several limitations:

- Small sample size ( $N = 7$  PSPs), limiting generalizability. Yet, the team found few PSPs for pilots at U.S. airlines beyond this sample and the study fairly represented most major PSPs.
- Reliance on structured expert elicitation rather than observational data, given challenges in collecting observational data (due to PSP confidentiality and the lack of existing metrics).
- Lack of independent validation of estimated outcomes.
- Potential selection and confirmation bias. By virtue of their role as PSP leaders, experts' judgments likely reflected a positive valence around PSPs.

## Data Analysis

### Preparation

The Study team collected data at a per participant, per session level. To preserve anonymity and preclude attribution of data to any participant, the team (1) identified participants only by codeword and (2) sanitized references to names and other identifying information from raw responses, working data, and final results. The team then combined all data from all participants into an analysis dataset and checked for missing and anomalous (unexpected, identifiable) data.

### Analysis

The team analyzed the combined dataset by utilizing a Monte Carlo simulation, a way of repeatedly random sampling a dataset to yield statistical insight. Rather than simply averaging each participants' estimates, a Monte Carlo simulation accounts for the full range of each participant's uncertainty and mathematically combines their inputs into a single 90% confidence estimate for further analysis. Accordingly, aggregated outputs represent modeled distributions of expert input rather than observed system performance. For more information, see Appendix C: Data Analysis Method.

### Correlations

The team sought to assess correlations between PSP outcome measures and PSP attributes identified from qualitative analysis. To this end, the Study team developed Bayesian linear regression models with weakly informative priors in Python, with the unit of analysis at the PSP level. The number of PSPs available for analysis was limited ( $N = 7$ ), which constrains statistical power. Accordingly, results should be interpreted cautiously and primarily as exploratory screening evidence intended to highlight potentially important relationships for future investigation. For more information, see Appendix C: Data Analysis Method.

## Findings and Discussion

### Qualitative Findings

The qualitative findings presented below are based on participant-reported information for the seven PSPs studied and are organized around the following themes: Operations and Procedures, Volunteers and Training, Call Outcomes and Referrals, Challenges and Success Factors, Evaluation and SMS Integration, and Innovations.

#### Operations and Procedures

Across the PSPs studied, programs were always hosted by unions, with airlines providing varying degrees and types of support. One program had a PSP memorandum of understanding (MOU) with its airline, while a few others were trying to negotiate with them.

In most cases, unions provided a majority of funding, while airlines tended to cover pay and trip loss for volunteers involved in PSP training. However, one participant shared that their airline funded 50% of the PSP budget, while another noted their airline funded a full-time PSP position.

Eligibility was mostly limited to only pilots, although a few PSPs did permit families to call and use their services. Regional partners were not officially eligible for the major PSPs, but callers weren't turned away if they chose to call the PSP hosted by their major airline.

Procedures for call handling procedures are similar across PSPs, with variation in hotline (call routing/management) technology used and how volunteer duty schedules were organized.

#### Volunteers and Training

Regarding volunteer qualities and vetting, this study found that the PSPs had similar qualities they wanted and didn't want in their volunteers (e.g., altruistic motivation for volunteering, people-aligned skill set, not a fixer). The robustness of vetting process (e.g., quantity of and rigor in interviews and reference checks) varied across the PSPs studied.

Training topics were similar across PSPs, covering: an overview of PSP and unions; active listening and call procedures; role playing; finding resources for callers; and compassion fatigue and self-care for PSP volunteers.

Training duration and whether PSP volunteers were paid for training days varied across the PSPs studied; most initial and recurrent trainings were in-person; recurrent training was viewed as critical, but not always mandatory in-person due to cost and budgets of the PSPs.

All PSPs studied had policy manuals/handbooks, but there was variation in other resources offered to volunteers to help support them (e.g., mentoring, call debriefs, volunteer chat groups, and professional development opportunities).

#### Call Outcomes and Referrals

Participants reported similar reasons for PSP calls. Common stressors reported by pilots included: marriage and relationship problems, family stress, workplace stress, anxiety and depression, and

experiences with death and/or grief. The workplace stressors reported vary depending on the airline (e.g., merger-related uncertainty, challenges with the reserve system).

In terms of escalation, the Study team found that PSPs had similar procedures for calling emergency services when a pilot was in crisis, but they differed in protocol for engaging PSP leaders, mental health professionals, and the union.

Studied PSPs emphasized the importance of referring pilots to aviation-savvy health professionals who understand the context of aviation. These providers understood both the unique stressors and constraints of being a pilot; they also employed non-inflationary medical coding practices (e.g., used Z-codes). The latter mitigates the risk to pilot livelihood associated with the (perceived to be prevalent) practice of prematurely coding patients as having significant mental health diagnoses or even upcoding diagnoses to maximize insurance payment. For example, a natural state of loss following a death in the family may be misdiagnosed as major depression, thus triggering special scrutiny under current aeromedical policy. Several PSPs made available to pilots (minor variations of) a shared list of aviation-savvy mental healthcare providers. Another PSP reported they have a list of five mental health practices they recommend to their callers.

PSPs tended to steer pilots away from airline-sponsored employee assistance programs, except for use by their families, due to concerns about confidentiality and inflationary diagnoses, though at least one airline program is allowing participants to receive a specified number of covered visits without requiring a diagnosis.

There was also variation in terms of protocols for making referrals out to a mental health provider. Depending on the PSP, referrals were made by the volunteer handling the call, a PSP chair/leader, or a mental health professional working for the associated union.

## Challenges and Success Factors

Across PSPs, participants identified several challenges:

- **Awareness.** Many noted limited awareness as a substantial impediment to adoption. This included limited funding for promotion and opportunities to raise awareness of PSPs among pilots.
- **Lack of MOUs.** Many noted the lack of formal agreements such as Memorandums of Understanding between the unions and the airlines; these are intended to ensure the generally positive yet informal labor-management collaboration on PSPs is sustained when those leaders transition into other roles.
- **Airline Support.** A few mentioned minimal support or buy-in from their airline.
- **Pilot Demographics/Culture.** Finally, some participants identified pilot characteristics that may reduce help-seeking through PSPs, such as generational norms for mature pilots and a culture of stigma around mental health.

Study participants also identified PSP success drivers:

- **Confidentiality.** Confidentiality was consistently considered a cornerstone that could bring down the program if violated.
- **Awareness.** The importance of PSP promotion and visibility was emphasized, typically achieved through branded materials, promotions in newsletters, and word of mouth, along with general education on resiliency, mental health, and performance.
- **Promotion at training.** PSP promotion during flight academy and mandatory pilot training sessions were deemed critical, though not all airlines allow it.
- **Self-service.** Several PSPs have a website available to union members, and one PSP has a smartphone app for its pilots to access some self-service resources.
- **Safety integration.** Participants noted that strong relationships and collaboration between the union and airline, especially the flight department, were key to integrating PSPs into the company culture.
- **Volunteer quality.** Finally, careful selection and vetting of volunteers to ensure they have right demeanor and skills (e.g., active listening, empathy) was noted for a successful PSP.

## Evaluation and SMS Integration

When asked to evaluate PSPs, participants reported that assessment is challenging due to the lack of available metrics and call documentation driven by program confidentiality. While few PSPs had formal measurement systems, many participants recognized the need to enhance their understanding of PSP operations and outcomes (through privacy-protected metrics) for purposes of improvement and advancing health/safety. They noted that PSP impact could be better measured as an aviation safety risk through non-punitive reporting, education about mental health, the IMSAFE checklist, and validated scales and/or surveys. The definition of success for PSPs included high PSP awareness and helping pilots feel better and get the resources they need when they need them.

Most PSPs did not track formal performance measures and metrics except for call volume. Airlines generally did not ask PSPs for metrics related to effectiveness and instead relied largely on testimonials. The study also identified philosophical differences across participants and whether PSP metrics should be collected at all, given concerns about confidentiality, and trust.

PSPs were not formally integrated into Safety Management Systems (SMS), although participants noted that informal or tacit linkages exist in practice.

## Innovations

Looking across current practices at major U.S. PSPs, the Study team identified several innovations that may serve as emergent leading practices.

Some PSPs were developing policies aimed at expanding sick-time flexibility for mental health needs while encouraging PSP engagement. One approach under negotiation would allow pilots to

take sick time for mental health issues under a special mental resilience category, contingent on participation in the PSP. Another approach would offer struggling pilots 10-15 days of extra sick time to seek treatment for a mental health issue; these days would not count towards yearly absence and reliability monitoring. Participants also noted movement towards the expanded use of Z-codes among mental health providers in employee assistance programs.

Participants described several new methods currently being used to increase visibility of PSPs and reach pilots and families through multiple channels. Ideas included:

- A PSP mobile app for all pilots.
- Greater support from the airline’s corporate communications department.
- More in-person engagement through concourse conversations.
- A dedicated airline PSP manager.
- Salons (such as those implemented by Japan Airlines).
- A PSP booth at the training center during Mental Health Awareness Month.
- Sending fridge magnets and flyers to every pilot family.
- Educating training center instructors to reinforce messaging (awareness) of PSPs.

Beyond policy and outreach, participants in the study highlighted operational innovations that could strengthen PSP learning, accountability, and integration. Examples included post-call surveys for PSP volunteers, tracking call metrics that go beyond call volume such as practiced in European PSPs, and building more collaboration between PSP and SMS teams.

### Quantitative Estimates

This report provides results in the format <Average> (<90% Confidence Interval>), for example, 31% (27-42%). The first number is the mean. The second set of numbers shown in parentheses is the range containing 90% of the data. See Figure 2.

Because underlying distributions are not necessarily symmetric, confidence intervals may be wide and/or skewed. Discussion of findings among participants and the Study team suggest that wide ranges may reflect underlying differences in how PSPs operate and their respective environments (e.g., airline/union support, safety culture, business dynamics) but note that this study did not empirically assess drivers of variance.

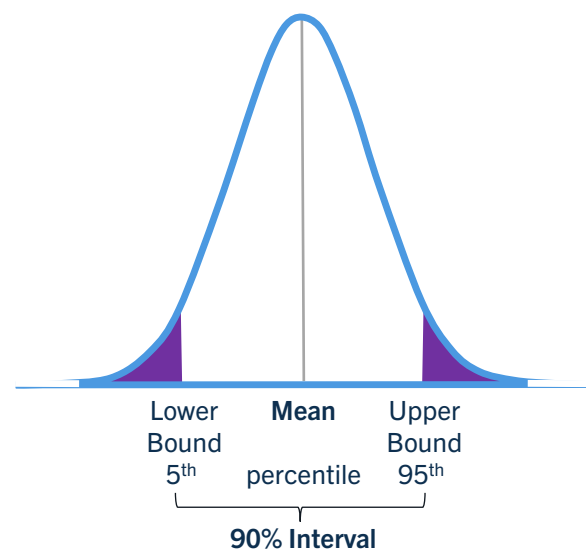


Figure 2. Illustration of the average, lower, and upper bound in relation to the 90% interval for a hypothetical normal distribution

As shown in Table 1 and the following sections, the quantitative findings are organized by theme: Perceived Outcomes, Usage, Support Topics, Operations, and Correlations between Estimates and PSP Attributes. The quantitative findings presented below are for the period June 2024 to June 2025, given participants provided estimates over the past 12 months in their final estimates submitted around July 2025. These findings represent inputs provided by 9 participants representing 7 PSPs (one participants’ estimates were not included given they pertained to a different scope of PSPs). The estimates reflect informed expert judgment under uncertainty and should not be interpreted as direct measurements or causal evidence.

Table 1. Summary of Quantitative Findings

Theme	Estimate [Question #]	Result
Perceived Outcomes	Percentage of calls to PSP that had a positive outcome (e.g., pilot expressing the call helped them with their issue they felt better as a result) [Q5]	<b>89%</b> (60-99%)
Perceived Outcomes	Percentage of calls to PSP that resulted in improved safety (i.e., helped pilot self-assess as fit to fly) [Q6]	<b>78%</b> (28–99%)
Usage	Count of calls made to PSP* [Q4]	<b>570</b> (23–5100)
Usage	Percentage by which the count of calls increased or decreased over the last 12 months [Q11]	<b>7.2%</b> (-7–50%)
Usage	Percentage of pilots who used PSP* [Q2]	<b>3.6%</b> (1.4–9.5%)
Usage	Percentage of users who reused PSP as ongoing resource i.e., called again later about new issue [Q3]	<b>1.5%</b> (0.2–48%)
Support Topics	Percentage of calls that involved family stress (e.g., relationship problems, family health issues) [Q8]	<b>54%</b> (20–84%)
Support Topics	Percentage of calls that involved negative life events (e.g., example, divorce, death of loved one) [Q9]	<b>41%</b> (18–69%)
Support Topics	Percentage of calls that involved job-related stress (e.g., irregular hours, heavy workload) [Q10]	<b>33%</b> (5.4–74%)
Operations	Percentage of airline pilot population currently serving as peer supporters* [Q13]	<b>0.3%</b> (0.1–1.4%)
Operations	Percentage of calls to PSP that were referred in from associated pilot assistance programs (e.g., HIMS, CIRT) [Q12]	<b>4.3%</b> (1.4–29%)
Operations	Percentage of calls to PSP that were referred out (e.g., to professional mental health provider) [Q7]	<b>17%</b> (2.8–73%)

\* Note this statistic was converted (absolute/relative) to preclude attribution to specific participants for results discussion.

## Aggregated Estimates of Perceived Outcomes

Aggregated estimates suggest that most PSP calls are perceived by participants to result in beneficial outcomes for pilots. Participants estimated that 89% (60-99%) of PSP calls had a positive health outcome. In other words, the call helped a pilot with an issue they were experiencing and/or helped the pilot feel better. Participants also estimated that 78% (28-99%) of PSP calls resulted in improved safety, that is, helped a pilot self-assess as fit to fly.

Based on participants' qualitative input, the Study team suggests that the range of estimated perceived outcomes could have been driven by factors such as:

- Expected congruence with the stated purpose of PSPs (helping pilots feel better).
- Selection bias in that those who see value in PSPs are more likely to volunteer for them and rate them highly.
- For safety in particular, challenges linking the PSP to positive safety outcomes given lack of data about activity after the call.
- Smaller lower bound indicating that while PSP leaders hear anecdotal and qualitative feedback indicating positive outcomes, they recognize that PSPs may not be for everybody nor are universally successful.

These findings reflect participant perceptions and should not be interpreted as evidence that PSPs directly cause improvements in health or safety outcomes. Future research may illuminate potential drivers of outcomes.

## Aggregated Estimates of PSP Usage

Over the study period, PSPs received an average of 570 (23-5100) calls. Participants estimated that there was a 7.2% (-7-50%) increase in calls over the same period.

Based on participants' qualitative input, the Study team suggests this range in both the absolute call volume and trend in call volume could have been attributed to:

- Variations in PSP operations, particularly the level of airline and union support for promotion and awareness (since adoption first requires awareness).
- Local business environment dynamics (multiple participants indicated their airline was experiencing significant business headwinds that could lead to widespread pilot job loss, driving an uptick in call volume).
- Differences in PSP operations, notably the relative maturity of some PSPs.

One participant's net decrease in usage was explained by their rollout of new pilot assistance channel (e.g., a self-service app) that offloaded simple information-seeking interactions that the PSP team had been handling, allowing volunteers to focus on providing actual peer support. Note that this study did not empirically assess the usage across program types (e.g., PSP vs. HIMS) nor channels (call vs. web vs. app).

In terms of reach or adoption, the average estimate was that 3.6% (1.4-9.5%) of pilots in a given airline used a PSP, and about 1.5% (0.2-45%) of PSP users used the PSP again later for a different topic).

Based on triangulation with other findings, the Study team caveats that usage metrics should not be interpreted as an indicator of success. The team suggests that variable local conditions (e.g., safety culture, awareness, prevalence of stressors) could have driven differences in usage. The team also suggests that the estimate for reuse was likely an underestimate, given PSPs are confidential by design, making it challenging to establish who spoke with who when (the chances of being assigned the same pilot later diminish with the size of the PSP, since among a team of a dozen volunteers, there is only a one-in-twelve chance a pilot reconnects with their original peer support volunteer again later on a new topic).

### **Aggregated Estimates of Support Topics**

Regarding topics discussed during PSP calls, 54% (20-84%) of calls involved family stressors, 41% (18-60%) focused on negative life events, and 33% (5.4-75%) were related to job-related stressors. Note that these categories were not mutually exclusive; calls may involve more than one topic.

Based on participants' qualitative input, the Study team suggests these findings conformed with qualitative findings that callers often report multiple reasons for calling. The possible linkage between collecting data about the reasons why pilots call and training the volunteers to meet changing and emergent needs is explored in the Recommendations section.

### **Aggregated Estimates of Operations**

Aggregated operational estimates showed about 0.3% (0.1-1.4%) of an airline's pilot population served as PSP volunteers. In addition, 4.3% (1.4-29%) of calls were referred to the PSP from other pilot assistance programs (such as HIMS), and 17% (2.8-73%) of calls were referred out (e.g., to a mental health professional).

Considering the qualitative findings, the Study team suggests:

- These findings should be interpreted as operational rather than outcome measures (i.e., participants consistently framed the success of a PSP in terms of helping pilots feel better, not low, modest, or high referral rate to other professionals, especially given local needs and support vary).
- Perceptions of the appropriate rate of referral-in and referral-out rates vary widely, presumably due to prevailing expectations and culture.
- The range of referrals-in may be due to different levels of integration among (as well as leaders' personal connections across) related pilot assistance programs.
- The range of referrals-out may be attributed to at least one PSP's emphasis on serving pilots by quickly connecting them "out" of the PSP to other relevant resources, while other PSPs emphasized "in-house" peer support as the norm.

## Correlations between Estimates and PSP Attributes

The relationships described in this section are associative and exploratory and should not be interpreted as causal effects. This section reports correlation findings as “<Average> (<90% Credible Interval>),” which is conceptually similar to the format used above.

Using a Bayesian linear model, proactive PSP outreach and PSP presence in airline training were both positively associated with perceived health benefits. Specifically, PSPs that reported use of proactive outbound calls were associated with a 10% (3.3-17%) increase in perceived positive health outcomes, and PSPs that reported a presence in airline training were associated with an 8.5% (2.7-14%) increase in perceived positive health outcomes.

Based on participants’ input, the Study team suggests that these findings could be attributed to:

- For proactive outbound calls, additional support and alignment with prevailing safety culture in reaching more pilots who may benefit from PSPs.
- For presence at mandatory training, the nexus of awareness, supportive safety culture, and adoption.
- For the effect of stressed business environments, call volume driven by professional concerns and job insecurity, possible distraction effect.

The Study team caveated these findings, noting that while SEE provided estimates at reasonable (90%) confidence levels, the quantitative correlations were based on a small sample size of 7 PSPs. Consequently, the Bayesian linear model and resulting correlations should be viewed as exploratory rather than definitive. The small number of participating PSPs limited the ability to conduct multivariable adjustments; therefore, these findings should be utilized to prioritize features for prospective evaluation rather than absolute predictors of program success. Later sections address related recommendations, including addressing data limitations to support future studies and integration of PSPs into SMS.

## Recommendations

Using consensus decision-making, ASC developed the following recommendations for airlines and unions based on the results of this study. Collectively, ASC intends these to be viewed as considerations and suggestions, not mandates. The recommendations are organized by topic: PSP Governance and Funding, Volunteer Vetting and Training, PSP Promotion, PSP Operations, and PSP Data Collections and SMS Integration. Within each topic, recommendations are presented separately for airlines and unions.

### Governance and Funding

#### For Airlines

To strengthen PSP governance and funding, ASC suggests airlines might:

- Help unions fund their PSPs by providing pay loss for PSP volunteers to attend training and by sharing other PSP-related costs, as appropriate.
- Establish MOUs with unions to document PSP coordination, roles, expectations, resourcing/funding, and consider SMS integration. These MOUs should explicitly clarify that PSPs are confidential, non-punitive, safety-promoting programs that are compatible with SMS.

## For Unions

To strengthen PSP governance and funding, ASC suggests unions might:

- Foster trusting relationships with airline leadership to build buy-in and increase awareness of the PSP, with emphasis on coordination and engagement with Flight Operations, Medical Departments, and Pilot Assistance Programs (e.g., HIMS, CIRT/CIRP/CISM).

## Volunteer Vetting and Training

### For Unions

To strengthen PSP volunteer vetting and training, ASC suggests unions might:

- Conduct robust vetting of volunteer candidates, including having at least two people screen each volunteer and consulting Base Representatives and/or Chief Pilots to assess the volunteer's reputation.
- Vet volunteers for both the right motivation and the right skill set for peer support (e.g., are not "fixers").
- Prioritize in-person training for both initial and recurrent training, as in-person formats can improve training effectiveness, strengthen community among volunteers, and enable direct observation and mentoring of new volunteers.
- Plan for how training may need to evolve as the volunteer base grows. For example, smaller PSPs may combine initial and recurrent training, while larger PSPs may need to separate sessions to avoid taking too many volunteers off the flight schedule at once.
- Require call debriefs for new volunteers to provide structured mentoring and support that helps ensure the quality of calls.
- Establish regular (e.g., monthly) coordination among volunteers to discuss lessons learned and provide mutual support.

## Promotion

### For Airlines

To strengthen PSP promotion, ASC suggests airlines might:

- Allow promotion of the PSP at airlines flight training facilities and other mandatory recurrent training sessions to increase awareness of the program.
- Provide Corporate Communications support for PSP promotion and use of the company intranet to promote the PSP on frequently viewed pages.
- Actively promote a culture of pilot wellness to reinforce the PSP's role.

## For Unions

To strengthen PSP promotion, ASC suggests unions might:

- Frame the PSP as a resource that helps pilots maintain mental health and optimize performance.
- Market the PSP directly to pilots and, where appropriate, to pilots' families so they can encourage pilots to use the program (e.g., through materials such as magnets).
- Maintain regular communication with Chief Pilots and provide promotional items to help sustain visibility and engagement. Volunteers can also use PSP lanyards as informal conversation starters on the flight deck and in common areas.
- Voluntarily elicit testimonials from pilots who have used PSPs and work with Communications to share them in an appropriate way.
- Consider developing a PSP mobile app to make it easy for pilots to find frequently requested information and mental health resources; this can enable self-service for general inquiries and allows volunteers to focus more time on direct peer support.

## Operations

### For Airlines

To strengthen PSP operations, ASC suggests airlines might:

- Provide, or support access to, physical space for PSP outreach and engagement, such as booths during Mental Health Awareness Month or at training centers, in-person salons, and concourse conversations.

### For Unions

To strengthen PSP operations, ASC suggests unions might:

- Consider making outbound check-in calls when there is a potential concern; one PSP that routinely conducts "wellness checks" reported that pilots typically appreciate the outreach.
- Encourage use of the IMSAFE checklist to help pilots assess fitness to fly and reinforce the direct connection between wellness and safety outcomes.
- Develop escalation protocols in a format that can be easily accessed in a crisis situation (e.g., simple checklist).

- Maintain an up-to-date list of aviation-savvy mental health professionals to make it easy for a pilot in crisis to quickly find help and frame it as a list of resources instead of referrals or recommendations.
- Ask volunteers to submit de-identified metrics after all calls to enable improvement and safety.

## Data Collection and SMS Integration

The Study team recognizes that while data collection and SMS are distinct endeavors, SMS requires insight into the nature of the system, risks, and controls – as with other management disciplines, data is imperative to manage safety. As such, ASC recommends that for purposes of both program enhancement and SMS integration, de-identified data collection about PSP awareness, usage, outcomes, operations, and performance is needed. Any data collection efforts should be developed collaboratively with pilot representatives and designed to preserve confidentiality, ensure non-punitive use, and maintain trust in PSPs.

### For Airlines

To strengthen PSP data collection and SMS integration, ASC suggests airlines might:

- Integrate (potentially forthcoming) PSP data into their SMS in a way that preserves confidentiality and supports safety learning. Given airlines’ role in managing their own SMS in context, ASC suggests airlines might consider the following illustration of potential integration points between PSPs and SMS (see *italicized red* annotations in Figure 3).

### Possible Mapping of PSPs to SMS

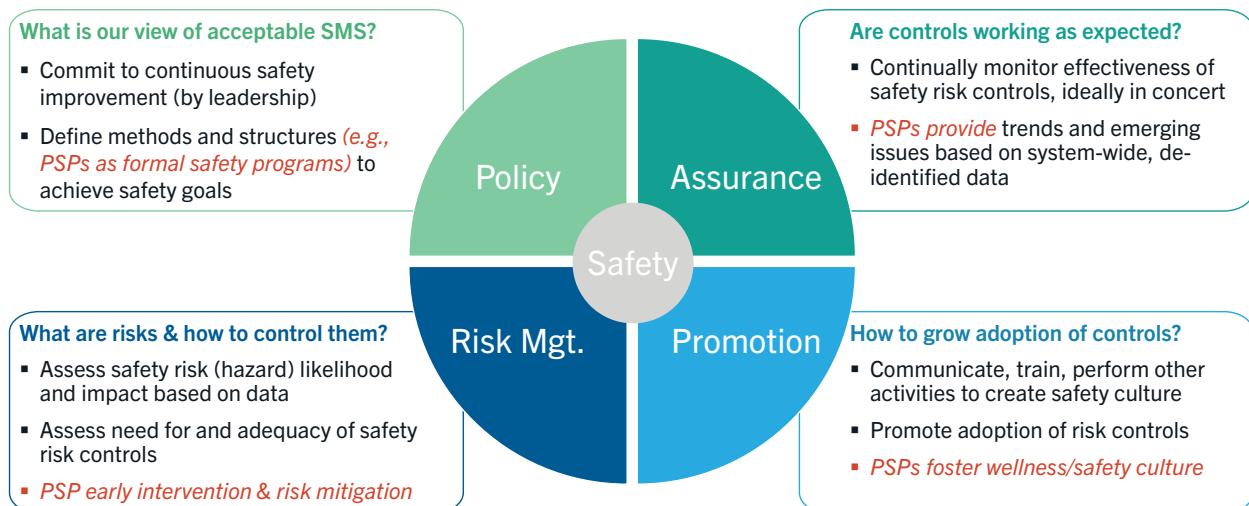


Figure 3. Possible Mapping of PSPs into SMS

- Consider a non-punitive reporting system for health-related contributing factors in safety incidents, possibly through an ASAP-like program.

## For Unions

To strengthen PSP data collection and SMS integration, ASC suggests unions might:

- Track core PSP metrics without storing personally identifiable information (PII) to bridge the gap between data required for better SMS integration and program confidentiality.
- Measure health and safety outcomes by inviting callers to complete an automated end-of-call survey (technology permitting). Assess the extent to which the PSP helped them feel better, helped them fly more safely, they would use the PSP again, and they would recommend the PSP to a colleague.
- Measure call handling by asking volunteers to submit de-identified metrics after each call, such as call severity (e.g., informational, normal, elevated, emergency), call topic(s), IMSAFE indicators, and call outcome (e.g., concluded, follow-up expected, referred to lead/union rep/mental health professional/other, escalation).
- Measure overall program performance by regularly assessing volunteer workload, compassion fatigue, attrition and recruiting needs, and training/support requirements, including ways of addressing emerging call topics.
- Measure operations including total call volume, categorized theme counts (e.g., family stress, fatigue, organizational change), and referral rates, potentially through call-routing software that may also provide additional metrics (e.g., call length, wait time, dropped calls).
- Independently measure PSP awareness, use (and reuse), outcomes and related feedback by incorporating those questions into periodic union-supported surveys of pilots.

## For Others

To promote the formal recognition of PSPs as safety mitigations, airlines and unions could map PSP activities to the four pillars of SMS, for example:

- **Safety Policy:** Establish a Memorandum of Understanding (MOU) between the airline and union.
- **Safety Risk Mitigation (SRM):** Use de-identified PSP data (e.g., aggregate counts of call topics such as stress) to identify systemic hazards.
- **Safety Assurance:** Track core PSP metrics (e.g., awareness, usage, outcomes) to ensure the program is actively functioning as an effective risk control.
- **Safety Promotion:** Provide PSP presence at mandatory pilot training events to foster a culture of wellness and early help-seeking.

ASC suggests that Civil Aviation Authorities (CAAs) may wish to evaluate issuing formalized guidance that explicitly defines PSPs as non-punitive safety-promotion mechanisms and clarifies that utilizing a PSP is not, by itself, reportable, thereby encouraging early help-seeking.

To support national safety management systems without compromising pilot trust, ASC should collaborate with stakeholders to establish a standardized, de-identified set of aggregated metrics for evaluating PSPs such as awareness, utilization, call topics, and safety outcomes.

## Conclusion

This study represents one of the first attempts to systematically characterize major U.S. pilot peer support programs in commercial aviation. It provides exploratory evidence suggesting that these programs may represent a potentially valuable organizational safety control that warrants further evaluation. These findings are based on a limited sample of programs and rely on structured expert elicitation rather than observational outcome data; therefore, they should be interpreted as exploratory and hypothesis-generating.

Based on study findings, ASC's consensus-based recommendations include:

- Airlines could consider additional support for PSPs as part of advancing workforce resiliency and safety, such as providing PSPs with time for promotion at required airline training events.
- Unions could consider making proactive outbound calls as well as prototyping PSP innovations and other potentially beneficial recommendations noted above.
- Aviation leaders could also clarify ways to strengthen PSP integration with SMS by connecting with other leaders at airlines and unions to define desired insights and outcomes, establish reciprocal give-to-get expectations, and discuss needed protections.
- Finally, PSP leaders could make the case for collecting core metrics with necessary pilot protections, such as de-identifying data.

Any future policy, operational, or regulatory decisions related to PSPs should be informed by additional data collection, evaluation, and continued stakeholder engagement, with particular attention to preserving program confidentiality, trust, and non-punitive use of information.

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## Appendix A: Qualitative and Quantitative Instruments

### Qualitative Instrument

The semi-structured interview guide consisted of 26 ASC-designed questions as follows.

1. Who hosts the pilot peer support program (PSP) at your airline?
2. In what ways do the host and other entities (e.g., airline, others) contribute financially or in-kind to the PSP? Please describe the nature of each entity's role and contribution.
3. Which groups at your airline are eligible to utilize its PSP? Please list all eligible groups (e.g., pilots, flight attendants, ground crew, dispatchers, etc.) and an estimate of how many people are in each group.
4. Are pilots from your regional airline partners eligible to participate in your airline's PSP?
5. If regional airline pilots can participate in your airline's PSP, does eligibility differ based on the ownership structure of the regional airline partner (e.g., wholly-owned subsidiaries versus independently owned)?
6. What are the requirements for becoming a peer supporter in your PSP? Please describe any specific experience, skills, or other prerequisites.
7. What topics are covered in the initial training/onboarding provided to new peer supporters?
8. What recurring/ongoing training is required for peer supporters to maintain their roles?
9. How is PSP training provided to peer supporters (e.g., in-person, virtual, computer-based)?
10. What other resources are available to peer supporters?
11. How does your organization promote the PSP to eligible employees? Please share brochures, fliers, or other outreach materials your PSP uses.
12. How does your organization define success for its PSP?
13. How does your organization evaluate the effectiveness of its PSP in achieving that success?
14. What specific quantitative and/or qualitative metrics are tracked to assess your PSP?
15. What are the key success factors for your PSP? Please describe guiding principles/policies, operating practices/tools, or any other factors that are critical to PSP effectiveness.
16. What are the biggest challenges that your PSP has faced?
17. How has your organization tried to address challenges that your PSP has faced?
18. How might PSP effectiveness be better measured as an aviation safety risk mitigation?

19. In what specific ways is your PSP integrated into your airline's broader Safety Management System (SMS)? Please describe any formal processes, reporting mechanisms, or collaborative efforts that link the PSP to your SMS.
20. What are the top five life stresses (e.g., personal or professional problems) that your airline's PSP handles?
21. Please outline the typical procedures your PSP follows from the initial receipt of a call through its handling and resolution. Please share your manual or documentation if available.
22. What are the protocols for documenting PSP calls?
23. How is PSP documentation retained to ensure confidentiality and compliance with relevant regulations and policies?
24. What is your PSP's protocol for situations in which a pilot expresses imminent risk of harm to themselves or others?
25. Please describe your PSP's step-by-step process for referring callers to professional mental health providers. Please include any specific criteria or protocols used to determine when a referral is appropriate.
26. What mental health providers typically get referrals from your PSP?

## Quantitative Instrument

The questionnaire of core questions assessed using SEE follows.

1. How many pilots are at **your airline**? *Please enter whole number estimates.*
2. In the past 12 months, what percentage of pilots at **your airline** used its pilot peer support program (PSP)? *Please enter percentage estimates (0-100%).*
3. In the past 12 months, what percentage of the pilots at **your airline** who used its PSP used it as an ongoing resource? That is, called again later about a new issue. *Please enter percentage estimates (0-100%).*
4. In the past 12 months, how many calls were made to **your airline's** PSP? *Please enter whole number estimates.*
5. In the past 12 months, what percentage of calls to **your airline's** PSP had a positive outcome? For example, the pilot expressing that the call helped them with their issue or they felt better as a result. *Please enter percentage estimates (0-100%).*
6. In the past 12 months, what percentage of calls to **your airline's** PSP resulted in improved safety? That is, helped pilots self-assess and ensure they're fit to fly. *Please enter percentage estimates (0-100%).*
7. In the past 12 months, what percentage of calls to **your airline's** PSP were referred to professional mental health providers? *Please enter percentage estimates (0-100%).*
8. In the past 12 months, what percentage of calls to **your airline's** PSP involved family stress? For example, relationship problems, family health issues. *Please enter percentage estimates (0-100%).*
9. In the past 12 months, what percentage of calls to **your airline's** PSP involved negative life events? For example, divorce, death of loved one. *Please enter percentage estimates (0-100%).*
10. In the past 12 months, what percentage of calls to **your airline's** PSP involved job-related stress? For example, irregular hours, heavy workload. *Please enter percentage estimates (0-100%).*
11. In the past 12 months, by what percentage have calls to **your airline's** PSP increased or decreased? *Please enter a positive percentage for an increase or a negative percentage for a decrease.*
12. In the past 12 months, what percentage of calls to **your airline's** PSP were referrals from associated programs at your airline (e.g., HIMS, CIRT)? *Please enter percentage estimates (0-100%).*
13. How many pilots currently serve as peer supporters for **your airline's** PSP? *Please enter whole number estimates.*

## Appendix B: Equivalent Bets Exercise

Whether searching academic literature or business publications about decision science, one will likely find many types and examples of cognitive biases and challenges in human estimation. One method of mitigating overconfidence and/or underconfidence involves a form of self-assessment. The equivalent bets exercise is a rubric that participants can use to help them determine whether they have provided an estimate at a particular level of confidence (e.g., 90%).

Study participants were asked to consider – for each estimate they provided – two hypothetical bets. For Bet A, they can win \$100 if the true value is in the range they estimated with 90% confidence. For Bet B, they can win \$100 by spinning a truly random prize wheel with a 90% chance of winning. The rubric suggests that if they chose Bet A, their range is too wide, and if they chose Bet B, their range is too narrow. By iteratively adjusting their estimated range accordingly, they are expected to eventually reach the point where they don't prefer Bet A over Bet B (or vice versa). Given that equivalence, they have effectively achieved a 90% level of confidence in their estimate. This exercise comparing two hypothetical bets to help converge on a specified level of confidence is illustrated in Figure 4.

### For your estimate, compare two hypothetical bets—which bet would you take?



**Bet A**  
Win \$100 if the true value is in the range you estimated with 90% confidence



*If Bet A, your range may be too wide!*



**Bet B**  
Win \$100 if you spin a prize wheel and land on any of 9 winning blue wedges (1 red wedge loses)



*If Bet B, your range may be too narrow!*

By iteratively adjusting your range, you'll reach a point where you don't prefer one bet over the other, so you now have a proper 90% confidence estimate

Figure 4. Equivalent Bets Self-Exercise

## Appendix C: Data Analysis Method

### Calculation of Aggregate Estimates

To analyze the quantitative data and produce the topline statistics about estimated output measures of a given PSP, the Study team:

- **Structured the Inputs:** For each question, participants provided their three-point estimate consisting of the lowest plausible, most likely, and highest plausible values. The team reviewed these inputs for logical consistency, ensuring that bounds were correctly ordered and that the most likely value accurately fell within the provided range.
- **Modeled Uncertainty:** The team modeled each participant's three-point estimate as a Triangular distribution.<sup>6</sup> This allowed the Monte Carlo simulation to account for the entire spectrum of a participant's belief, rather than just a single data point. If a participant provided the exact same number for all three values (i.e., as a ground truth, known metric), it was treated as a fixed, factual constant.
- **Applied Calibration Weights:** Based on the SEE protocol, participants were assigned calibration weights reflecting their accuracy on the calibration (seed) questions. These weights were normalized within each question group so that the inputs of more accurately calibrated participants carried proportionally greater influence.
- **Executed the Simulation:** The Monte Carlo simulation generated tens of thousands of randomized draws from each participant's probability distribution. The number of draws allocated to a specific participant was proportional to their calibration weight, ensuring that higher-weighted respondents contributed more data points to the final pool. A minimum threshold of 50 draws per respondent was enforced to guarantee baseline representation.
- **Pooled and Summarized:** The team combined all simulated draws from the respondents into a single, aggregated results dataset. The team calculated the final most likely estimate for the study as the mean of this combined pool. To define the 90% interval reported in the findings, the team extracted the 5<sup>th</sup> and 95<sup>th</sup> percentiles from the pooled simulation data. This provides a robust, mathematically sound range that represents the collective weighted consensus of the participant panel.

### Calculation of Correlations

To explore how PSP program features related to key outcomes, the team conducted exploratory association analyses at the PSP level. Four outcome measures (all expressed as percentages) were derived from the SEE results: Estimated PSP Use (Q2), Estimated PSP Reuse (Q3), Estimated PSP Perceived Health Improvement (Q5), and Estimated PSP Perceived Safety Improvement (Q6). During the qualitative analysis, the team identified several PSP program features of interest. These

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<sup>6</sup> The triangular distribution is a continuous probability distribution with lower limit a, upper limit b, and most common value c.

features served as predictor variables and were coded primarily as binary (Yes/No) indicators of program characteristics.

Example features included whether the PSP: had a memorandum of understanding between the union and the airline, actively mentored new volunteers, had airline support for PSP presence at mandatory training events, was operating in a stressed business environment, was co-funded by the airline, conducted proactive outbound calls, and referred callers to vetted mental health providers.

For each outcome/feature pair, the quantity of interest was the percentage-point difference in the outcome between PSPs that had the feature and those that did not. For example, a value of +10 indicated that PSPs with the feature were estimated to have outcomes ten percentage points higher than PSPs without the feature. The team specified its directional expectations in advance; the feature Stressed Business Environment was hypothesized to reduce outcomes, while all other features were expected to increase outcomes.

This model estimates the average difference in outcomes associated with each program feature while explicitly accounting for uncertainty in the small sample. To stabilize estimates without imposing strong assumptions, the team used weakly informative prior distributions centered on the observed average outcome. These priors allow the data to drive the results while limiting the influence of extreme estimates that can occur when the number of observations is small.

For each relationship, the team summarized three quantities: the estimated effect size (reported as a percentage-point difference), a 90% credible interval<sup>7</sup> describing the plausible range of the effect, and the posterior probability that the effect operates in the hypothesized direction. For features expected to increase outcomes, the team reported the probability that the effect is positive; for the stressed business environment feature, the team reported the probability that the effect is negative.

Because the team evaluated multiple predictors for each outcome, there was a risk of a false discovery (a false positive or spurious correlation). The team controlled the false discovery rate within each outcome-specific family of tests using the Benjamini–Hochberg procedure. One-sided permutation p-values were calculated for each association, and the corresponding q-values were reported at a prespecified false discovery rate threshold of  $q = 0.10$ .

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<sup>7</sup> Credible intervals represent Bayesian probability ranges and can be thought of as similar to frequentist confidence intervals in that they both summarize uncertainty.

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**ASC members' affiliations are for identification only and do not imply organizational endorsement. All content and views herein are solely those of the authors.**

This report is intended for informational purposes only and does not constitute regulatory or policy guidance. Findings should be interpreted in light of the study's exploratory design and methodological limitations.

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