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Fatigue Factors in European Business Aviation Operations: Preliminary EBAA Survey Results

Introduction

- Fatigue acknowledged transportation safety issue
- Extensive scientific literature on fatigue in aviation
 - surveys, field studies, simulators, laboratory
- Aviation technology continues to evolve (increased capabilities/global reach)
- Ongoing activities worldwide (regulations, FRMS, ULR, research, ops evaluations)

Project Objectives

- Conduct survey to explore fatigue factors in European business aviation operations
- Compare results to NASA survey “Fatigue Factors in Corporate/Executive Operations” (2000)

Methods



- Alertness Solutions revised and updated NASA survey
- EBAA provided operational and technical input
- 70-item web-based survey; ~20 mins to complete
- Implemented/hosted by Alertness Solutions
 - Anonymous and confidential information
 - User name and password

Methods

- Participant recruitment
 - EBAA on-site visits and presentations
 - EBAA web site, leaflet
 - E-mail, phone calls
- EBAA collected validation form to ensure non-duplicate submissions
- Data collection initiated November 2009
- Preliminary results available: 530 responses

Preliminary Results: General Information



- Avg age ~41 (range: 21-70); 97% male
 - 15% are 30 or younger; 4% are 60 or older
- Operations based in 27 different countries (21 EU + 6 others)
 - Italy, Portugal, Germany, Belgium, Austria, Norway, France, UK, Switzerland
- 57% live in Central European Time Zone
- 16% reported holding another job

Preliminary Results: Home Sleep Information



- Avg total sleep time ~7.5 hr (range: 5-10 hr)
 - 38% reported getting 8 hr
 - 10% report getting more than 8 hr
- 89% “very good” or “good” sleepers
- 47% reported no sleep problem
 - Most common problem: wake too early and have trouble getting back to sleep

Preliminary Results: Flying Information



- Avg total flight time ~5610 hr (range: 40-22,800)
 - 87% with 10K hr or less
 - 4% with 15K hr or more
- Avg yrs flying business aviation: ~9.2
- 93% fly turbojets
- 57% are Captains
 - 32% are FO's
 - 11% reported both Capt and FO

Preliminary Results: Flying Information



Duty and flight info reported for past month

	Avg	Range	
Duty days	10.9	1-30	6% w/ 20 or more
Actual flight hrs	27.3	2-80	22% w/ 40 or more
Typical daily duty duration	8.9 hr	1-24	20% w/ 12 hr or more
Typical segments flown	2.4	1-16	2% w/ 8 or more

Preliminary Results: Duty/Flight/Rest Policies

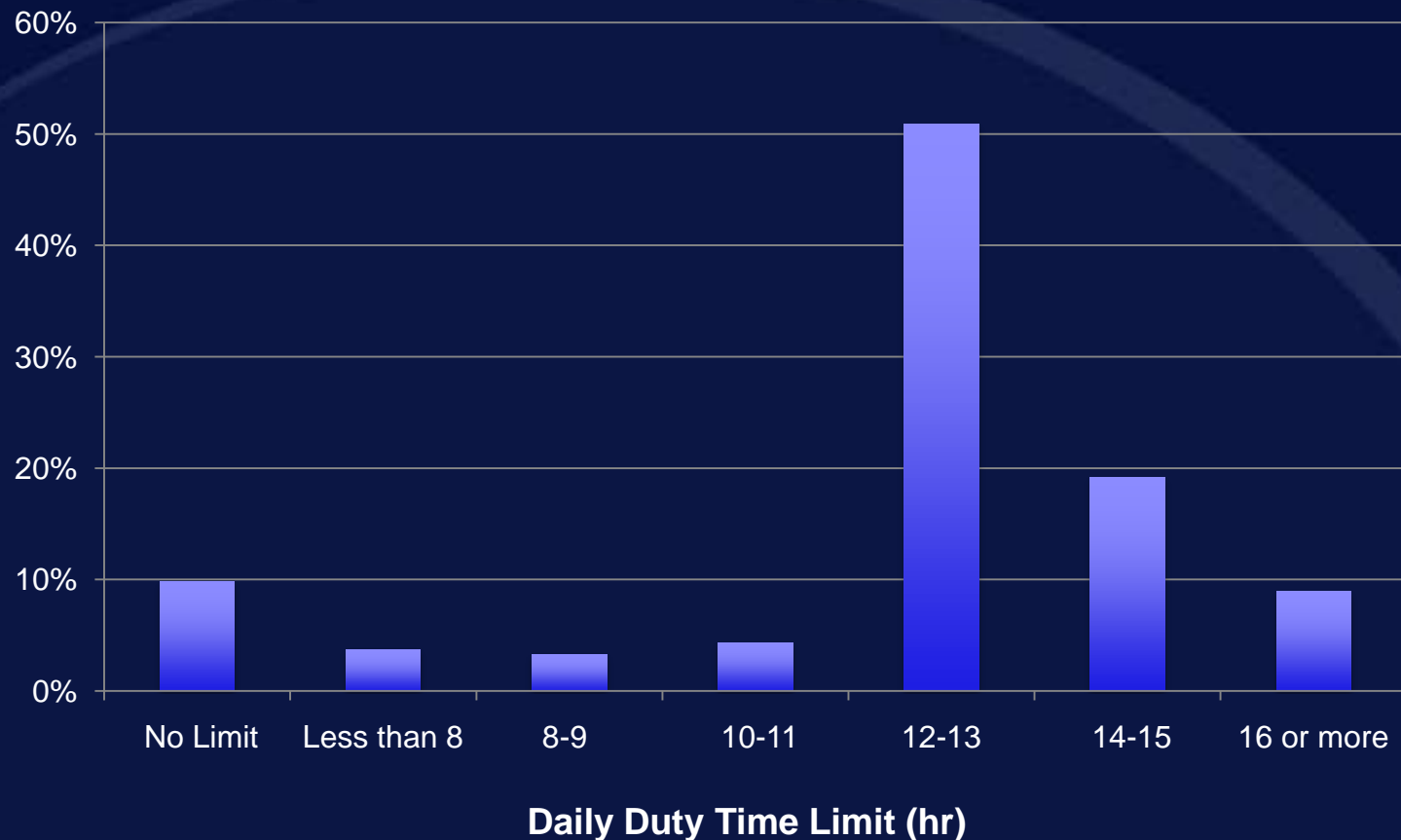


- 85% reported monthly duty time limit
 - < 80 hr and > 180 hr most common
- 85% reported annual duty time limit
 - <1000 hr most common
- 87% reported monthly flight time limit
 - 80-99 hr most common
- 91% reported annual flight time limit
 - <800 hr most common

Preliminary Results: Duty/Flight/Rest Policies



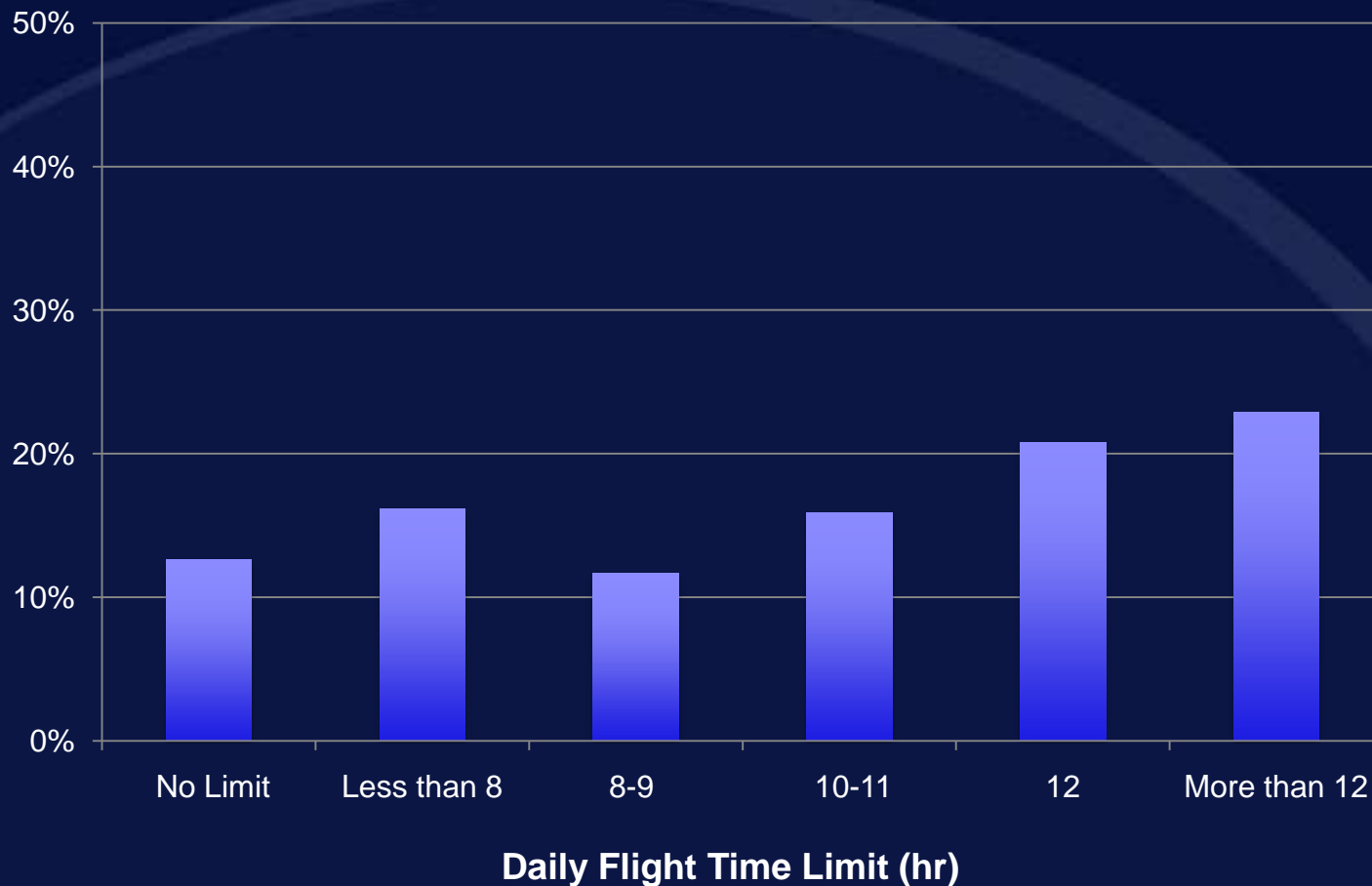
Daily Duty Time Limit



Preliminary Results: Duty/Flight/Rest Policies



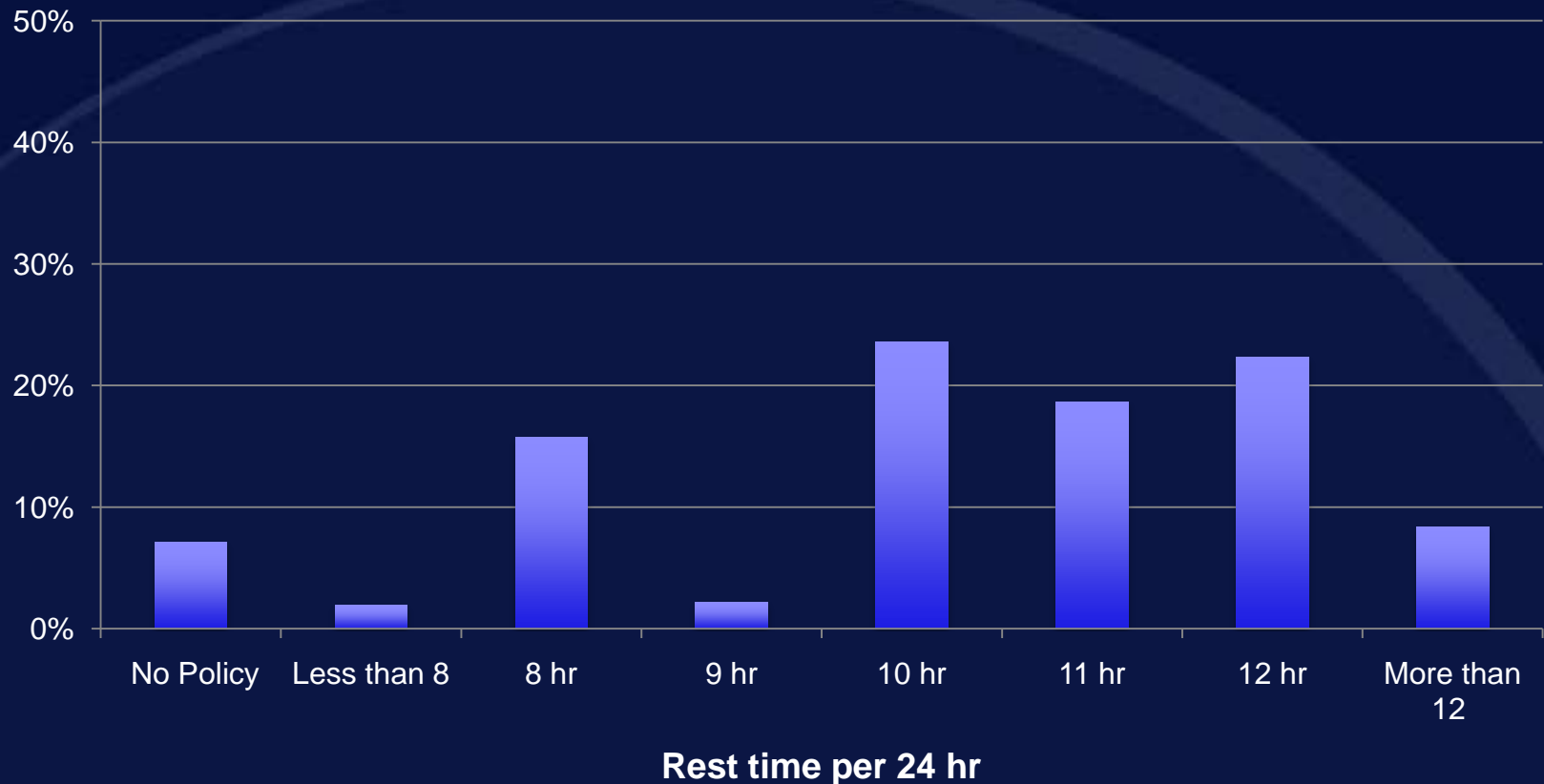
Daily Flight Time Limit



Preliminary Results: Duty/Flight/Rest Policies



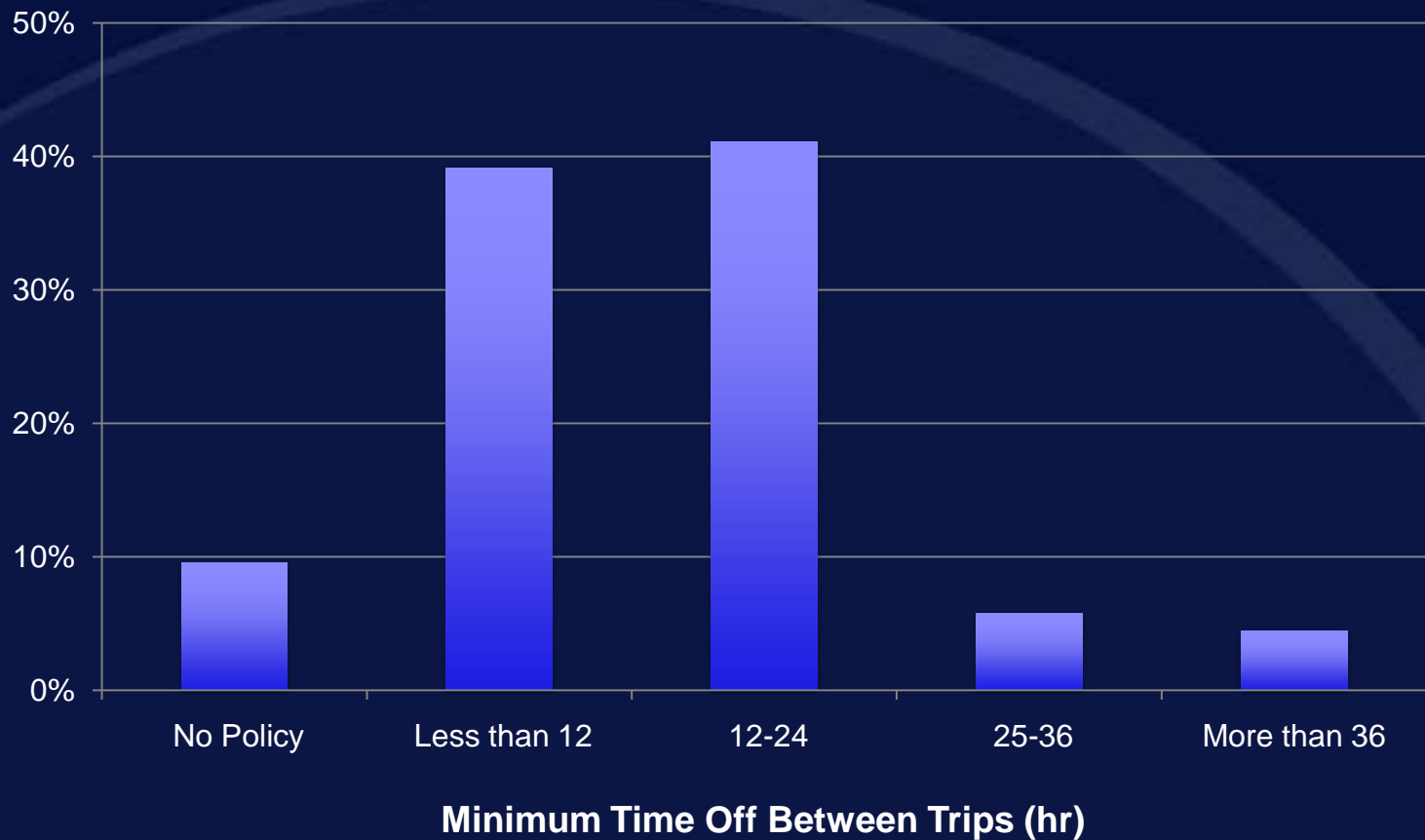
Daily Rest Periods



Preliminary Results: Duty/Flight/Rest Policies



Minimum Time Off Between Trips



Preliminary Results: Duty/Flight/Rest Policies



- 91% reported consecutive day limit
 - 7 days most common
- 68% reported pre-positioning of crews
- 56% reported augment crews

Preliminary Results: Sleep During Trips



- Avg total sleep time: ~7.2 hr (range: 3-12 hr)
 - 38% reported getting 8 or more hr
 - 5% report getting less than 6 hr
- 81% “very good” or “good” sleepers on trip
- 19% reported having problems sleeping “frequently” or “most of the time”
- 19% reported never having problems sleeping

Preliminary Results: Fatigue Perceptions



- 64% reported fatigue a concern in flight ops (“moderately” or “very much”)
- 65% reported fatigue as significant safety issue (“moderately” or “very much”)
- 51% reported enroute flight phase most affected (36% report approach/landing)
- 44% reported having ‘nodded off’ in cockpit
- 15% reported fatigue prevented them from flying a trip

Preliminary Results: Work Environment



- 79% pilots reported their operation in top tiers of safety
- 34% reported fatigue training available
 - Mostly written materials, live presentations
- 56% respond that their company flight department had 30 or fewer pilots

Summary

- Pilots reported 7+ hr of sleep at home and on trip
- Pilots generally reported good sleep quality
- >80% reported flight, duty, rest time policies
- 65% reported fatigue as a significant safety concern
- Almost half report having 'nodded off'

Summary

- Surveys provide valuable initial step to explore issues and obtain data from diverse and dispersed groups
 - Limitations of subjective data
 - NASA approach: follow-up with smaller, more focused efforts

Next Steps

- Data collection is ongoing
 - Target: 1000 total participants
 - Respondents from all EU countries
- Comparison to NASA survey data
- Final report planned for Summer 2010
- Incorporate data into FTL discussions
- Survey results can focus subsequent efforts on relevant findings



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