

Fatigue Reporting Forms

and the role of the Fatigue Safety Action Group

David Powell

Air New Zealand

2 Sept 2011

FRMS Forum

“The second
day is the
worst”

30 Aug 2011



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and the role of the Fatigue Safety Action Group

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Approach

1. Reporting

2. FSAG roles,
working
examples

Some slides
important



Disclosures

- Employed Air NZ
- Employed University of Otago
- Consult to various airlines
- Consult to FRMSc. No financial stake in any company or any fatigue model
- Travel – Air New Zealand, Delta Airlines
- Significant bias...

Flying



**Real
Flying**



FRMS Elements – ICAO Implementation Guide

1. FRMS policy and documentation
2. Fatigue risk management processes
 - Identify fatigue hazards
 - Reactive, Proactive, Predictive
 - Assess fatigue risks
 - Interventions to control fatigue risks
3. FRMS safety assurance processes
 - including measures of effectiveness
4. FRMS promotion processes – training, education



Fatigue Reporting

The tricky part

What's required for a report?

- Knowledge of how/whether to report
- A means – paper vs electronic; availability
- Ease – too much info can be bad
- Meaningful info – too little can be bad, so can too much
- A mechanism – ASR/MOR/separate

*Willingness to report

- Trust – consequences, jeopardy, confidentiality, purpose of collection
- Motivation – action, communication
= “effective reporting culture”
- Fatigue observed
vs Duty not completed due fatigue
vs Incident occurred with fatigue

“If your crews are
intimidated by
reporting fatigue,
then you don’t
have an FRMS”

30 Aug 2011



One example

Simple

Roster attached

To Ops integrity first

De-identified if requested

To managers for early
action

FSAG review trends
monthly



Fatigue Report Form

If Confidentiality required tick here

Name	<input type="text"/>	Employee No.	<input type="text"/>	Pilot / CCM	<input type="checkbox"/>	(Circle)
When did it happen?		Local Report Date	<input type="text"/>	Local Report Time	<input type="text"/>	
Duty Description (e.g. "LAX1287" or "AKL - CHC - ZQN - AKL") <input type="text"/>						
Sector on which fatigue occurred: FROM <input type="text"/> TO <input type="text"/>						
Hours from report time to when fatigue occurred <input type="text"/>						Disrupt? Yes / No
Aircraft Type	<input type="text"/>	Number of Crew	<input type="text"/>	Pilot / CCM (Circle)	<input type="checkbox"/>	No.:
What happened?						
Describe how you felt (or what you observed) <input type="text"/>						
Please circle how you felt						
1.	Fully alert, wide awake	5.	Moderately tired, let down			
2.	Very lively, somewhat responsive, but not at peak	6.	Extremely tired, very difficult to concentrate			
3.	OK, somewhat fresh	7.	Completely exhausted			
4.	A little tired, less than fresh					
Please mark the line below with an "X" at the point that indicates how you felt:						
ALERT	<input type="text"/>					DROWSY
Why did it happen?						
Fatigued prior to Duty	Yes / No					
Hotel	Yes / No					
Home	Yes / No					
Duty itself	Yes / No					
In-Flight Rest	Yes / No					
Disrupt	Yes / No					
Personal	Yes / No					
Other / Comments	<input type="text"/>					
What did you do?						
Actions taken to manage or reduce fatigue (e.g. cockpit nap)						
<input type="text"/>						
<input type="text"/>						
<input type="text"/>						
What could be done?						
Suggested Corrective Actions						
<input type="text"/>						
<input type="text"/>						
<input type="text"/>						



A STAR ALLIANCE MEMBER

Fatigue Report Form

If Confidentiality required tick here

Name Employee No. Pilot / CCM (Circle)

When did it happen?

Local Report Date Local Report Time

Duty Description (e.g. "LAX1287" or "AKL-CHC-ZQN-AKL")

Sector on which fatigue occurred: FROM TO

Hours from report time to when fatigue occurred Disrupt? Yes / No

Aircraft Type Number of Crew Pilot / CCM (Circle) No.:

What happened?

Describe how you felt (or what you observed)

- Please circle how you felt
- | | |
|--|---|
| 1. Fully alert, wide awake | 5. Moderately tired, let down |
| 2. Very lively, somewhat responsive, but not at peak | 6. Extremely tired, very difficult to concentrate |
| 3. OK, somewhat fresh | 7. Completely exhausted |
| 4. A little tired, less than fresh | |

Please mark the line below with an "X" at the point that indicates how you felt:

ALERT DROWSY

Why did it happen?

Fatigued prior to Duty

Yes / No

Hotel

Yes / No

Home

Yes / No

Duty Itself

Yes / No

In-Flight Rest

Yes / No

Disrupt

Yes / No

Personal

Yes / No

Other / Comments

What did you do?

Actions taken to manage or reduce fatigue (e.g. cockpit nap)

What could be done?

Suggested Corrective Actions

Another example

Fatigue Report Form 1		If you wish the contents of this form to remain confidential please tick here <input type="checkbox"/>					
NAME:		RANK:	ID NUMBER:	DATE OF BIRTH:	HOME BASE:		
THIS FORM IS BEING COMPLETED IN RELATION TO FATIGUE ASSOCIATED WITH (TICK ONE):							
<input type="checkbox"/> A lodged ASR / CSR		<input type="checkbox"/> An FDM event		<input type="checkbox"/> A non-reported safety event		<input type="checkbox"/> A general concern regarding fatigue	
WHEN DID THE EVENT OCCUR?	Date (DD/MM/YY): ___/___/___		Time (LOCAL OR UTC): ___:___		How long had you been on duty? HOURS _____ MINS _____		
WHAT WERE YOU DOING AT THE TIME OF THE EVENT?	<input type="checkbox"/> At home	<input type="checkbox"/> Driving to work	<input type="checkbox"/> In flight	<input type="checkbox"/> Driving home	<input type="checkbox"/> Positioning	<input type="checkbox"/> Other _____	
IF RELEVANT, ON WHAT FLIGHT DID THE EVENT OCCUR?	Flight No: _____		Route: _____		A/C type _____	Event sector _____	
FATIGUE DETAILS (PTO IF REQUIRED)							
WHAT HAPPENED:							
CAUSE:							
ACTION & RESULTS:							
SUGGESTIONS:							
CONTRIBUTORY FACTORS Tick all factors that you feel contributed to the event/your general concern			COMMUTE		SLEEP HISTORY		
<input type="checkbox"/> Hotel rest	<input type="checkbox"/> Long duty day	Duration of commute from home to home base: ____ HRS ____ MIN		In the 24 and 48 hours leading up to the reported incident please indicate the times that you fell asleep and woke up (main rest periods): The time you fell asleep: 24 hrs: 48hrs: The time you woke up: 24 hrs: 48hrs:			
<input type="checkbox"/> Home rest	<input type="checkbox"/> Delay(s)	Duration of commute on days off to home base (if living in alternative accommodation during the duty block): ____ HRS ____ MIN					
<input type="checkbox"/> Insufficient rostered rest time	<input type="checkbox"/> Positioning						
<input type="checkbox"/> Roster disruption	<input type="checkbox"/> Commute						
<input type="checkbox"/> Early to late transition	<input type="checkbox"/> Health						
<input type="checkbox"/> Late to early transition	<input type="checkbox"/> Long-term fatigue						
<input type="checkbox"/> Early start time	<input type="checkbox"/> Home issues						
<input type="checkbox"/> Late finish time	<input type="checkbox"/> Don't know						
<input type="checkbox"/> Deep night	<input type="checkbox"/> Other (please add details above)						
<input type="checkbox"/> Level 2 variation							
Tick all physical and cognitive signs of fatigue that were apparent in the 2 hours leading up to the event and any counter-measures used. If ticking signs or countermeasures, please provide examples in narrative above.							
PHYSICAL SIGNS		COGNITIVE SIGNS			COUNTERMEASURES		
<input type="checkbox"/> No PHYSICAL SIGNS WERE NOTED	<input type="checkbox"/> No COGNITIVE SIGNS WERE NOTED	<input type="checkbox"/> Advised colleague of fatigue risk					
<input type="checkbox"/> Fidgeting	<input type="checkbox"/> Impaired attention	<input type="checkbox"/> Coordinated workload					
<input type="checkbox"/> Rubbing eyes	<input type="checkbox"/> Impaired memory	<input type="checkbox"/> Increased communication					
<input type="checkbox"/> Yawning	<input type="checkbox"/> Negative mood	<input type="checkbox"/> Caffeine					
<input type="checkbox"/> Frequent blinking	<input type="checkbox"/> Reduced communication	<input type="checkbox"/> Food & Drink					
<input type="checkbox"/> Staring blankly	<input type="checkbox"/> Impaired problem solving	<input type="checkbox"/> In-flight rest/cockpit napping					
<input type="checkbox"/> Long blinks	<input type="checkbox"/> Increased risk taking	<input type="checkbox"/> OTHER: _____					
<input type="checkbox"/> Difficulty keeping eyes open	<input type="checkbox"/> Impaired situational awareness						
<input type="checkbox"/> Head nodding	<input type="checkbox"/> OTHER: _____						
<input type="checkbox"/> OTHER: _____							
How alert did you feel immediately prior to the event (tick one):	<input type="checkbox"/> 1 Fully alert, wide awake	<input type="checkbox"/> 2 Very lively, somewhat responsive, but not at peak	<input type="checkbox"/> 3 OK, somewhat fresh	<input type="checkbox"/> 4 A little tired, less than fresh	<input type="checkbox"/> 5 Moderately tired, let down	<input type="checkbox"/> 6 Extremely tired, very difficult to concentrate	<input type="checkbox"/> 7 Completely exhausted
TICK HERE IF ATTACHING SHEETS _____ NUMBER OF SHEETS _____							
FILING INSTRUCTIONS: Form: QF500 Rev.07		MAIL: By red/white envelopes in the crew room to the Ops Risk Group or E-MAIL: A scan of this form to the FRMS Team: FRMS@easv.net or FAX: +44 1582 525425 PLUS ORIGINAL FORM IN RED/WHITE ENVELOPE FOR OPS RISK GROUP.					

Fatigue Report Form 1

If you wish the contents of this form to remain confidential please tick here

NAME:	RANK:	ID NUMBER:	DATE OF BIRTH:	HOME BASE:
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THIS FORM IS BEING COMPLETED IN RELATION TO FATIGUE ASSOCIATED WITH (TICK ONE):

<input type="checkbox"/> A lodged ASR / CSR	<input type="checkbox"/> An FDM event	<input type="checkbox"/> A non-reported safety event	<input type="checkbox"/> A general concern regarding fatigue
---	---------------------------------------	--	--

WHEN DID THE EVENT OCCUR?	Date (DD/MM/YY): ___/___/___	Time (LOCAL OR UTC): ___:___	How long had you been on duty? ____ HOURS ____ MINS
---------------------------	------------------------------	------------------------------	--

WHAT WERE YOU DOING AT THE TIME OF THE EVENT?	<input type="checkbox"/> At home	<input type="checkbox"/> Driving to work	<input type="checkbox"/> In flight	<input type="checkbox"/> Driving home	<input type="checkbox"/> Positioning	<input type="checkbox"/> Other _____
---	----------------------------------	--	------------------------------------	---------------------------------------	--------------------------------------	--------------------------------------

IF RELEVANT, ON WHAT FLIGHT DID THE EVENT OCCUR?	Flight No: _____	Route: _____	A/C type _____	Event sector _____
--	------------------	--------------	----------------	--------------------

FATIGUE DETAILS (PTO IF REQUIRED)

WHAT HAPPENED:

CAUSE:

ACTION & RESULTS:

SUGGESTIONS:

CONTRIBUTORY FACTORS

Tick all factors that you feel contributed to the event/your general concern

CONTRIBUTORY FACTORS		COMMUTE	SLEEP HISTORY
<input type="checkbox"/> Hotel rest	<input type="checkbox"/> Long duty day	Duration of commute from home to home base: ____ HRS ____ MIN	In the 24 and 48 hours leading up to the reported incident please indicate the times that you fell asleep and woke up (main rest periods):
<input type="checkbox"/> Home rest	<input type="checkbox"/> Delay(s)		
<input type="checkbox"/> Insufficient rostered rest time	<input type="checkbox"/> Positioning	Duration of commute on days off to home base (if living in alternative accommodation during the duty block): ____ HRS ____ MIN	The time you fell asleep: 24 hrs: 48hrs:
<input type="checkbox"/> Roster disruption	<input type="checkbox"/> Commute		
<input type="checkbox"/> Early to late transition	<input type="checkbox"/> Health		The time you woke up: 24 hrs: 48hrs:
<input type="checkbox"/> Late to early transition	<input type="checkbox"/> Long-term fatigue		
<input type="checkbox"/> Early start time	<input type="checkbox"/> Home issues		
<input type="checkbox"/> Late finish time	<input type="checkbox"/> Don't know		
<input type="checkbox"/> Deep night	<input type="checkbox"/> Other (please add details above)		
<input type="checkbox"/> Level 2 variation			

Level 2 variation			48hrs.
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Tick all physical and cognitive signs of fatigue that were apparent in the 2 hours leading up to the event and any counter-measures used.
If ticking signs or countermeasures, please provide examples in narrative above.

PHYSICAL SIGNS	COGNITIVE SIGNS	COUNTERMEASURES
<input type="checkbox"/> No PHYSICAL SIGNS WERE NOTED <input type="checkbox"/> Fidgeting <input type="checkbox"/> Rubbing eyes <input type="checkbox"/> Yawning <input type="checkbox"/> Frequent blinking <input type="checkbox"/> Staring blankly <input type="checkbox"/> Long blinks <input type="checkbox"/> Difficulty keeping eyes open <input type="checkbox"/> Head nodding <input type="checkbox"/> OTHER: _____	<input type="checkbox"/> No COGNITIVE SIGNS WERE NOTED <input type="checkbox"/> Impaired attention <input type="checkbox"/> Impaired memory <input type="checkbox"/> Negative mood <input type="checkbox"/> Reduced communication <input type="checkbox"/> Impaired problem solving <input type="checkbox"/> Increased risk taking <input type="checkbox"/> Impaired situational awareness <input type="checkbox"/> OTHER: _____	<input type="checkbox"/> Advised colleague of fatigue risk <input type="checkbox"/> Coordinated workload <input type="checkbox"/> Increased communication <input type="checkbox"/> Caffeine <input type="checkbox"/> Food & Drink <input type="checkbox"/> In-flight rest/cockpit napping <input type="checkbox"/> OTHER: _____

How alert did you feel immediately prior to the event (tick one):	<input type="checkbox"/> 1 Fully alert, wide awake	<input type="checkbox"/> 2 Very lively, somewhat responsive, but not at peak	<input type="checkbox"/> 3 OK, somewhat fresh	<input type="checkbox"/> 4 A little tired, less than fresh	<input type="checkbox"/> 5 Moderately tired, let down	<input type="checkbox"/> 6 Extremely tired, very difficult to concentrate	<input type="checkbox"/> 7 Completely exhausted
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TICK HERE IF ATTACHING SHEETS NUMBER OF SHEETS _____

FILING INSTRUCTIONS: Form: QF500 Rev:07	MAIL: By red/white envelopes in the crew room to the Ops Risk Group or E-MAIL: A scan of this form to the FRMS Team: FRMS@easyjet.com or FAX: +44 1582 525425 PLUS ORIGINAL FORM IN RED/WHITE ENVELOPE FOR OPS RISK GROUP.
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ASR-F Fields

Identifier Block



Duty and Rest Details



Fatigue Contributors



Fatigue Indicators



Fatigue Index
(industry accepted Samn-Perelli Scale)



CATHAY PACIFIC		AIR SAFETY REPORT (FATIGUE)		Reference Number	
Title of Fatigue Report					
Flight No.		Registration		A/C Type	
Flight Deck Crew		Name		Rank	
Mail Box No.					
Route		Date and Time			
From To		dd mm yy time (UTC)			
Duty Accepted?		Home base			
Yes No					
Pilot Flying		How long had you been on duty		Flight Phase	
<input type="checkbox"/> Captain <input type="checkbox"/> RPIC		<input type="checkbox"/> First Officer <input type="checkbox"/> Second Officer		<input type="checkbox"/> Prior to Report <input type="checkbox"/> Parked <input type="checkbox"/> Pushback <input type="checkbox"/> Take-off	
		_____ hours _____ mins		<input type="checkbox"/> Climb <input type="checkbox"/> Cruise <input type="checkbox"/> Descent <input type="checkbox"/> Approach	
				<input type="checkbox"/> Go-around <input type="checkbox"/> Landing <input type="checkbox"/> Taxi in <input type="checkbox"/> After duty finish	
No. of crew for sector		Duty day in cycle		Number of sectors this duty	
2 3 4		1 2 3 4 5 6 7 8 9 10+		1 2 3 4	
Actual start time (UTC)		Actual finish time (UTC)		Body clock time at sign-on (if different from base or sign-on location)	
How well adjusted you are to LOCAL time at reporting for duty (tick one)					
<input type="checkbox"/> Not adjusted at all <input type="checkbox"/> Slightly adjusted <input type="checkbox"/> Partially adjusted <input type="checkbox"/> Reasonably adjusted <input type="checkbox"/> Well adjusted <input type="checkbox"/> Almost fully adjusted <input type="checkbox"/> Fully adjusted					
How much sleep you had:		How many hours awake since your last sleep prior to duty		Did you sleep during the sector?	
In the preceding 24 hours _____		_____		Controlled rest Bunk Seat	
In the preceding 48 hours _____		_____		hh:mm	
Tick all the factors that you feel contributed to the event					
<input type="checkbox"/> Hotel rest <input type="checkbox"/> Home rest <input type="checkbox"/> Insufficient rostered rest time <input type="checkbox"/> Roster disruption / change <input type="checkbox"/> Early to late transition <input type="checkbox"/> Late to early transition <input type="checkbox"/> Scheduling Issue		<input type="checkbox"/> Early start time <input type="checkbox"/> Late finish time <input type="checkbox"/> Long duty day <input type="checkbox"/> Delays <input type="checkbox"/> Positioning <input type="checkbox"/> Commute <input type="checkbox"/> Health		<input type="checkbox"/> Problems sleeping <input type="checkbox"/> Long term / chronic fatigue <input type="checkbox"/> Personal issues <input type="checkbox"/> Other (pls add details in the space provided on the reverse side)	
If you are reporting a specific event rather than a general concern please tick all the signs of fatigue that were apparent in the 2 hours leading up to the event					
Cognitive signs		Physical signs		Emotional signs	
<input type="checkbox"/> No cognitive signs noted <input type="checkbox"/> Impaired attention <input type="checkbox"/> Difficulty concentrating <input type="checkbox"/> Impaired memory <input type="checkbox"/> Reduced communication <input type="checkbox"/> Impaired problem solving <input type="checkbox"/> Increased risk taking <input type="checkbox"/> Impaired situational awareness <input type="checkbox"/> Accidentally doing the wrong thing (error) <input type="checkbox"/> Accidentally not doing the right thing (omission) <input type="checkbox"/> Failure to anticipate the event or action <input type="checkbox"/> Other		<input type="checkbox"/> No physical signs noted <input type="checkbox"/> Fidgeting <input type="checkbox"/> Rubbing eyes <input type="checkbox"/> Heavy eyelids <input type="checkbox"/> Yawning <input type="checkbox"/> Frequent blinking <input type="checkbox"/> Staring blankly <input type="checkbox"/> Long blinks <input type="checkbox"/> Difficulty keeping eyes open <input type="checkbox"/> Head nodding <input type="checkbox"/> Micro-sleeps <input type="checkbox"/> Unintentional sleeps <input type="checkbox"/> Other		<input type="checkbox"/> No emotional signs noted <input type="checkbox"/> More quiet or withdrawn than usual <input type="checkbox"/> Lacking in energy <input type="checkbox"/> Lacking in motivation to do the task well <input type="checkbox"/> Negative mood <input type="checkbox"/> Irritable or grumpy behaviour <input type="checkbox"/> Other	
How did you feel at the top of descent or immediately prior to the event (tick one)		<input type="checkbox"/> 1) Fully alert; wide awake <input type="checkbox"/> 2) Very lively; responsive, but not at peak <input type="checkbox"/> 3) OK; somewhat fresh <input type="checkbox"/> 4) A little tired; less than fresh		<input type="checkbox"/> 5) Moderately tired; let down <input type="checkbox"/> 6) Extremely tired; very difficult to concentrate <input type="checkbox"/> 7) Completely exhausted; unable to function	
Signature		Date		MOR If you consider this event should be filed as an MOR please tick here <input type="checkbox"/>	
Name				Please complete the reverse	

*Fatigue report handling

- Simple form
- Anonymity – important in early stages
- Roster info; info for database
- Manager response
- Look collectively more than individually
- Non-punitive
- Not FSAG role to “rule out” fatigue
- Large op – choose fields with care
- “Play the ball and not the player”

Role of the FSAG

FRMS Elements – ICAO Implementation Guide

1. FRMS policy and **documentation**
2. Fatigue risk management **processes**
 - Identify fatigue hazards
 - Reactive, Proactive, Predictive
 - Assess fatigue risks
 - Interventions to control fatigue risks
3. FRMS safety **assurance** processes
 - including measures of effectiveness
4. FRMS **promotion** processes – training, education

Roles of FSAG (ICAO):

- develop and maintain the FRMS **documentation**;
- manage the FRM **processes** (Ch 4);
- contribute to the FRMS safety **assurance** processes (Ch 5);
- be responsible for the FRMS **promotion** processes (Ch 6).

Roles of FSAG (ICAO):

- develop and maintain the FRMS **documentation**;
- manage the FRM **processes** (Ch 4);
- contribute to the FRMS safety **assurance** processes (Ch 5);
- be responsible for the FRMS **promotion** processes (Ch 6).

i.e. manage hazards, check performance, communicate

Manage Fatigue Hazards
Check Performance
Communicate

Composition of FSAG:

- should reflect the **shared responsibility** of individuals and management...
- including **representatives of all stakeholder groups** (management, scheduling staff, and crewmember representatives) and other individuals...
- ensure that it has **appropriate access to scientific and medical expertise.**

Composition of Air NZ CASG:

- Pilots – 4
- Pilot management – 3
- Cabin Crew – 4
- Cabin crew management – 3
- Rostering – 1
- Medical – 1 (Chair)
- Scientific – 1 + 1
- Safety – 1

Monthly meeting

Manage Fatigue Hazards

Hazard ID - Reactive
- Proactive
- Predictive

Risk Assessment

Risk Control and Mitigation

Reactive Hazard ID



Fatigue Report Form

If Confidentiality required tick here

Name	<input type="text"/>	Employee No.	<input type="text"/>	Pilot / CCM	<input type="checkbox"/>	(Circle)
When did it happen?		Local Report Date	<input type="text"/>	Local Report Time	<input type="text"/>	
Duty Description (e.g. "LAX1287" or "AKL - CHC - ZQN - AKL") <input type="text"/>						
Sector on which fatigue occurred: FROM <input type="text"/> TO <input type="text"/>						
Hours from report time to when fatigue occurred <input type="text"/>						Disrupt? Yes / No
Aircraft Type	<input type="text"/>	Number of Crew	<input type="text"/>	Pilot / CCM (Circle)	<input type="checkbox"/>	No.: <input type="text"/>
What happened?						
Describe how you felt (or what you observed) <input type="text"/>						
Please circle how you felt						
1.	Fully alert, wide awake	5.	Moderately tired, let down			
2.	Very lively, somewhat responsive, but not at peak	6.	Extremely tired, very difficult to concentrate			
3.	OK, somewhat fresh	7.	Completely exhausted			
4.	A little tired, less than fresh					
Please mark the line below with an "X" at the point that indicates how you felt:						
ALERT	_____					DROWSY
Why did it happen?						
Fatigued prior to Duty	<input type="checkbox"/>	Yes / No				
Hotel	<input type="checkbox"/>	Yes / No				
Home	<input type="checkbox"/>	Yes / No				
Duty itself	<input type="checkbox"/>	Yes / No				
In-Flight Rest	<input type="checkbox"/>	Yes / No				
Disrupt	<input type="checkbox"/>	Yes / No				
Personal	<input type="checkbox"/>	Yes / No				
Other / Comments	<input type="text"/>					
What did you do?						
Actions taken to manage or reduce fatigue (e.g. cockpit nap)						
<input type="text"/>						
<input type="text"/>						
<input type="text"/>						
What could be done?						
Suggested Corrective Actions						
<input type="text"/>						
<input type="text"/>						
<input type="text"/>						

Fatigue Reporting

Simple

Roster attached

To Ops integrity first

De-identified if requested

To managers for early action

FSAG review trends monthly

Proactive Hazard ID

Top of Descent Survey

Last descent of day

Self rated fatigue

>9000 responses



AIR NEW ZEALAND

PILOT ALERTNESS REPORT FORM

Forms to be completed immediately prior to Top of Descent on last leg of duty period.

Report Time (UTC)

Time (UTC) at Top of Descent

Name the Sectors operated this duty period.

Please circle "How you feel" at Top of Descent

1. Fully alert, wide awake
2. Very lively, responsive, but not at peak
3. OK, somewhat fresh
4. A little tired, less than fresh
5. Moderately tired, let down
6. Extremely tired, very difficult to concentrate
7. Completed exhausted

Please mark on the line below

Alert

Drowsy

Please place in brown envelope

Proactive

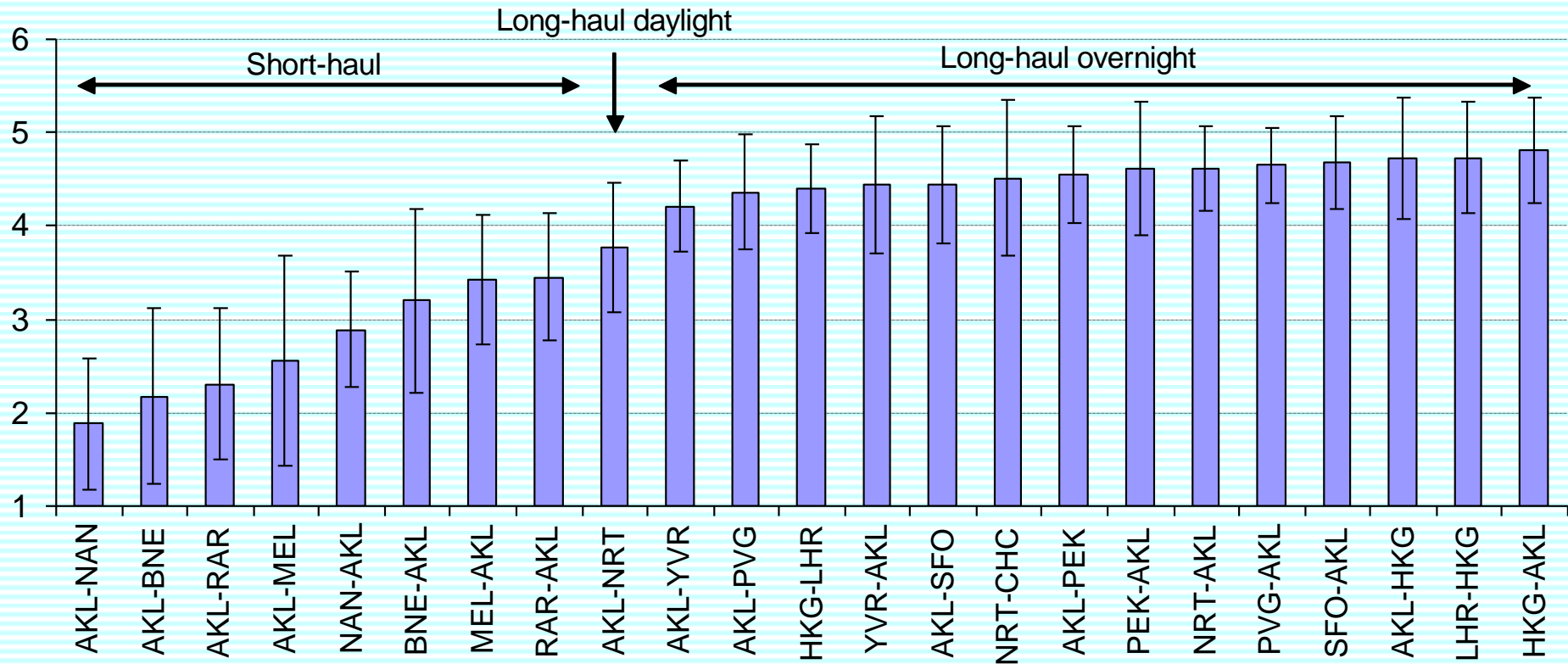
Automated
TOD Study

Input
Screen

B777-200

ATC	FLIGHT INFORMATION	COMPANY
REVIEW	MANAGER	NEW MESSAGES
hhmmZ	TOP OF DESCENT ALERTNESS EVALUATION	XXXXXXXXXX
1. Fully Alert, wide awake		
2. Very lively, responsive, but not at peak		
3. OK, somewhat fresh		
4. A little tired, less than fresh		
5. Moderately tired, let down		
6. Extremely tired, very difficult to concentrate		
7. Completely exhausted, unable to function effectively		
0. Not Applicable		
Pilot A <input type="checkbox"/>	B <input type="checkbox"/>	C <input type="checkbox"/>
	D <input type="checkbox"/>	
RESET		RETURN
EXIT		

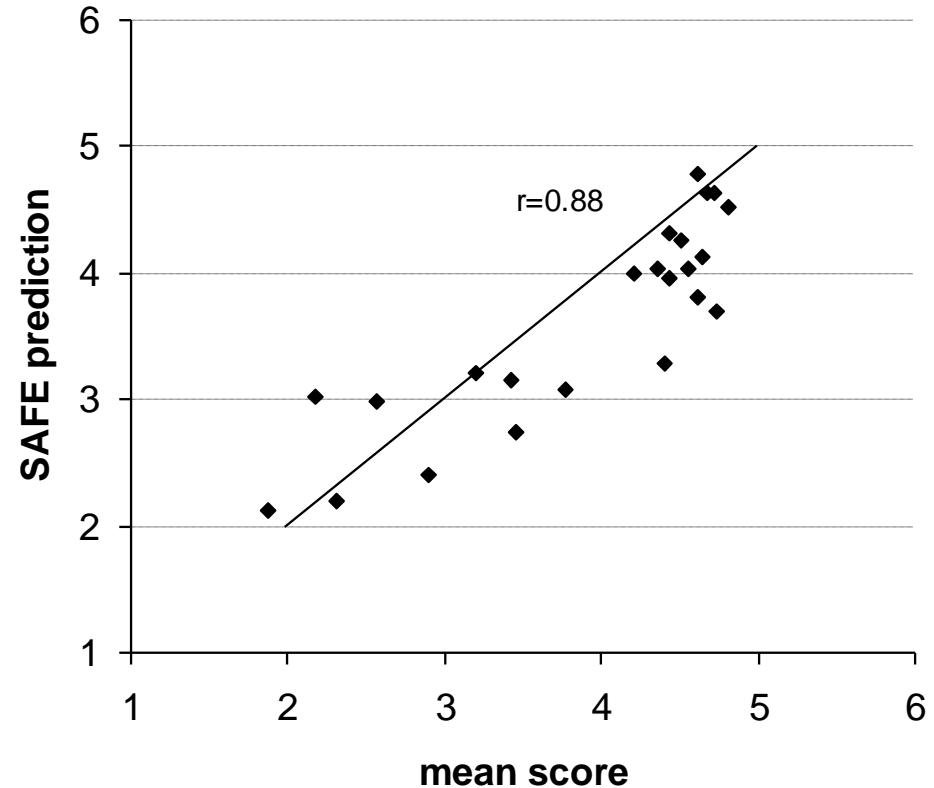
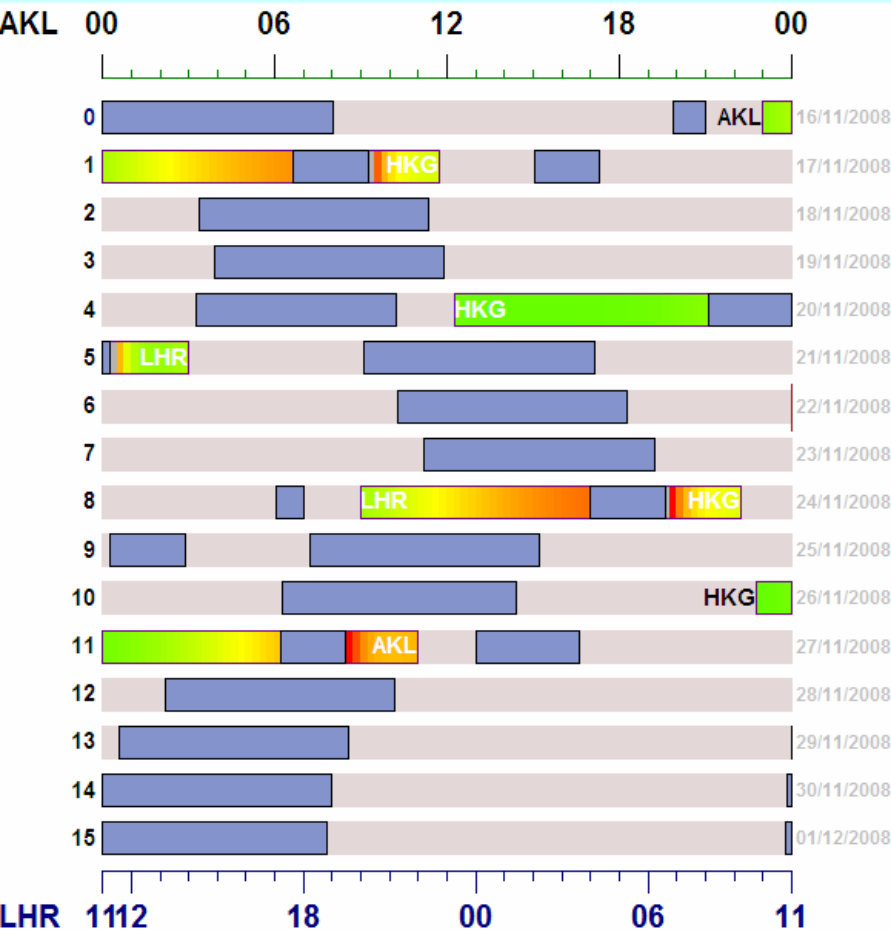
Automated ToD study: Samn-Perelli scores



Short < Long (p < 0.001)

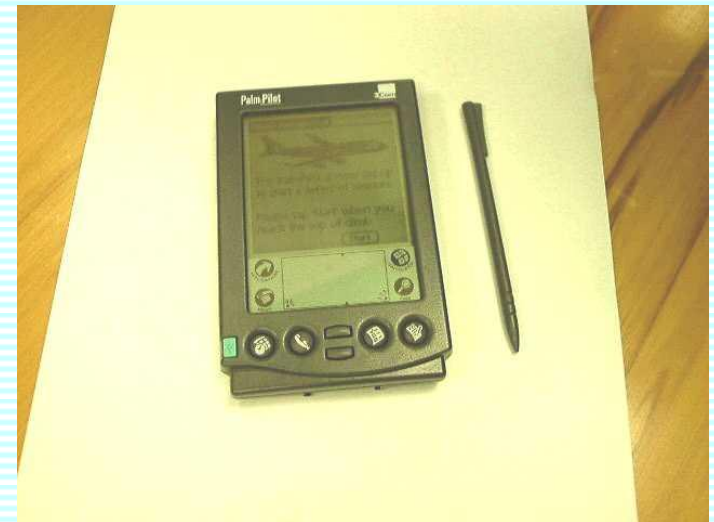
4629 ratings (50% of flights, 38% of pilots)

Predictive – biomathematical models



Risk assessment – scientific studies

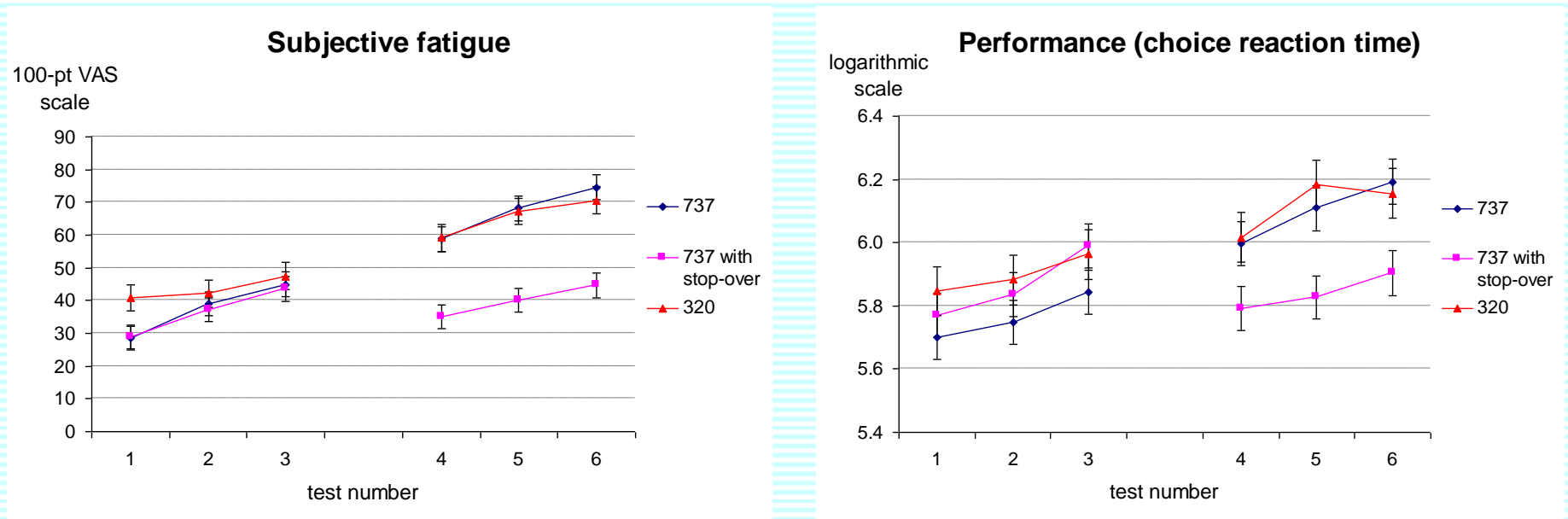
- Typically 20-30 pilots over six weeks
- Studies conducted without an experimenter on board
 - crews are briefed prior to the first departure
- Participants wear a wrist actigraph throughout the study
 - provides an indication of the timing of their sleep periods
- In-flight information obtained using a Palm Pilot computer
 - subjective assessments of fatigue, sleepiness and mood
 - a choice reaction time test



Risk assessment - scientific studies

Christchurch-Brisbane-Christchurch

2-pilot overnight



Powell DMC, Spencer MB, Petrie KJ. *Fatigue in airline pilots after an additional day's layover period*. Aviat Space Environ Med 2010; 81:1-5

Control and mitigation

- AKL-LAX-AKL: Extra pilot for 1-night
- TPE-BNE-AKL: Slip crew
- CHC-BNE-CHC: Layover
- AKL-IUE-AKL: Extra Captain

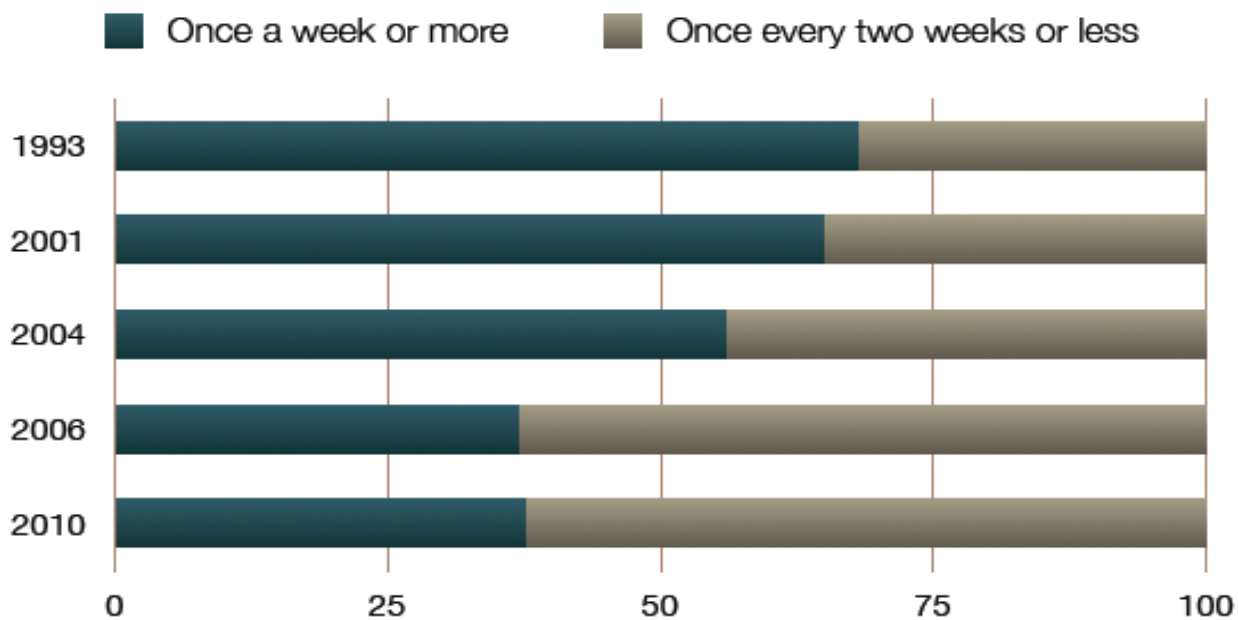
- AKL-PPT-AKL: Re-timed service
- NRT-CHC-AKL: Fresh crew
- Many: No change

Check Performance

FRMS Assurance

Surveys

Significant fatigue from the job - changes since 1993



Communicate

FRMS Documentation

FRMS Promotion

*Key Points

- Balanced group membership
- Collaborative - Trust
- Opportunity to de-identify
- Not every report is an investigation
- Use science to set you free from disputes
- It can be done

**

Flying



david@flyingmedicine.com
david.powell@airnz.co.nz

Real
Flying

