Freight Flight Fatigue

Cargo Pilots' perspective on FRM during COVID-19 time
About

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Domestic Night Cargo

- Multiple sectors
- Shorter duty periods
- High workload during circadian low
- Circadian disruption (due to night work)
- Multiple consecutive nights
- Shorter sleep periods at wrong times in the circadian cycle (daytime sleep)
- Split sleep patterns and short sleep episodes on layovers (more than 1 sleep period in 24hrs)
Domestic Night and Long Haul Cargo Particularities

Long Haul Cargo

• Long duty days
• Long rotations
• Extended wakefulness on duty days
• Circadian disruption
• Shorter sleep periods at wrong times in the circadian cycle
• Split sleep patterns and short sleep episodes on layovers
• Circadian disruption (due to crossing multiple time zones)
• Circadian drift (changes in circadian pattern) following extended patterns
ASL Airlines Belgium Operations

- Cargo operator based at LGG (Belgium)
  - Entity of the ASL Aviation Holdings
- Short Haul (25 B737 - 2 B757):
  - Domestic night cargo on integrators' market
  - Take off from hub between 03:00 and 04:30
    - Some additional early rotations around midnight
  - Sleep during the day
    - 10h15 to 14h of rest time
  - Back to LGG between 23:30 and 02:00
    - Back to home or continue duty after a break
- Long Haul (5 B747):
  - East China
  - East USA
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Main Fatigue Factors

Domestic Night Cargo

- High workload during WOCL
- Difficulty to rest before duty
- Cumulative sleep debt
- Instability of rosters
- Personal social constraints (children, long commuting)
Main Fatigue Factors - Standby

How to prepare your rest at home for a standby 18:00 to 06:00?

- Nap the afternoon?
- Forward your bedtime?
- Respect of the 18hrs awake time?

- Importance to adapt CS FTL.1.225 in your IFTSS!
- A crew on standby is always a less well-prepared crew.
Main fatigue factors

**Long Haul Cargo**

- Length of duties
- Flights encroaching WOCL
- Delays
- Schedule changes
- Jet lag during long rotations
- East-West transitions
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ASLB FRM Structure

- FRM Policy + FSAG created in June 2015
- FSAG ToR:
  - 1 meeting per month (steering + full session)
  - Safety/Ops/Crewing/Rostering/Training/Pilot/H&S/Occupational Health
    - No Ops manager
  - Data-driven (Fatigue reports, Statistics, Survey, ...)
  - **Publish recommendations** to FOSAG ⇔ Approval ⇒ Binding procedures for operations
  - Communication & Education
  - No industrial issue allowed!!
- Implementation of FRM principles for all our operations
ASLB FRM Achievements

- Initial training to all staff members
- Continuous **learning** (presentation of scientific studies during FSAG)
- Development of **tools** (fatigue report, crewing statistics, annual survey, bio-mathematical models, ...) and **communication** channels (emails, blog, safety screen)
- Several operational **recommendations** (city pairings, standby design, individual duty pattern preference, ...)
- Development of additional training:
  - Sleep science (external expert)
  - Management of unexpected fatigue – CRM
- Implementation of **sleep facilities**
ASLB FRM achievements

- Sleep pattern changes with age and experience
- Younger pilots prefer duty periods with multiple nights in a row

Rostering tries to adapt duty with pilots' preferences
- Not efficient to assign 4 nights in row to a pilot who cannot cope with it! (higher risk of unfit report)
Bio-Mathematical Model

- Just a tool among other tools.
- Need to validate the results with other data (reports, operational experience, ...)
- Models for domestic night flights are still **immature**!
  - Too many difference between the genotypes (younger vs older pilots)
- Very accurate to compare duties between them.
- **Don't start an FRM with just a bio-mathematical model!**
- **A bio-mathematical model is not an FRM.**
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Question yourself and your organization:

- Did you ever reply to a fatigue report "Yes, but it's legal"?
- "A pilot should always be ready for a max duty at reporting time"
- "This duty is not fatiguing; I've done it myself and I was not fatigued" or,
- "This duty is not fatiguing; they had enough rest before."
FRM Culture

• Changing a culture takes time!
• Try to find a "fatigue champion" in the organization.
• Regularly assess your Safety Culture.

I feel encouraged to fill a fatigue report, if necessary

ASLB ensures that the fatigue risks are commensurate with our operations

• Ongoing effort to educate all staff members about fatigue and sleep.
• Never stop developing your expertise.
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A year with COVID-19
Daily operational changes !!! 😱

- **Sanitary measures:**
  - New measures everyday...
  - Last spring, where to find masks?
  - Crews put in quarantine for 14 days after high-risk contacts
  - Puzzles in the organisation of crew movements in Europe!

- **Imposed room lock-down**
  - China, Spain, Israel, Hungary, Malta, ...

- **Hotel's closures**
  - Quality standard for a daytime sleep? (noise, airco, ...)
  - In China, "Medical centres" iso standard hotels

- **Restaurant's closures**
  - Difficulty or impossibility to find food at some places
  - In China, food served at fix hours (sleep disruptions)
A year with COVID-19

FTL Temporary exemptions under Article 71(1) of Regulation (EU) 2018/1139 (the Basic Regulation)

Guidelines in relation to the COVID-19 pandemic

• Most of the cargo operators did not use the Article 71(1)
A year with COVID-19

Mitigation measures implemented
- Supply of masks, gel and gloves
- Keeping the same crew pairing for the whole week
- Daily disinfection of the cockpits
- Maximum 2 crew members by taxi in layover
- Quarantine stretching up to 5 days in case of a high-risk contacts
- ...

Long Haul Cargo
- Stop layovers in high-risk areas
  - Augmented crews to cover the additional sector ⇒ Much longer FDP !
  - Intermediate stops (ex: OVB with rotations to China)
    - Initially 3 pilots. Recurrent delays imposed double crews.
Consequences on Fatigue Management:

• Quarantines, increasing instability of rosters, back-lock in training from September negatively affected the number of crew available for duty.
  o Extra flexibility works only for a while!
• End of summer, FSAG analysed first signs of unusual fatigue reports.
• In the following months, continuous increase in:
  1) Number of fatigue reports,
  2) Number of unfit,
  3) Number of sickness days linked to chronic fatigue
A year with COVID-19

- For half ASLB pilots, COVID-19 had an impact on their fatigue management.
- Feeling of impact was more severe on LH.
- Repetitive room confinements:
  - Call for volunteering on LH.

How would you rate the impact of COVID-19 on your fatigue management?

How would you rate the impact of COVID-19 on your fatigue management?
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Resilience of FRM/SMS Tools

The system has held up well!

- Daily **reporting** of problems by the crews  [Reporting culture]
- Countless **meetings** to bring (or try to bring) **solutions** [Flexible culture]
- Fatigue Management remained **high in priority** (despite the other operational imperatives)
  - Some failures need to be analysed [Learning culture]
- Daily communication

We are now in a "new normal" mode... 😞
Resilience of FRM/SMS Tools - Conclusions

- FRM is a **very effective tool** to identify an operator’s specific risks and to mitigate them in a **targeted manner**.
- FRM does **not** need to be **costly** to be effective.
  - More a **culture** than a set of complex tools or documents
- A **well-trained staff** applies naturally the FRM principles.
  - Training and education are key!
  - Management, ground & crews staff
- FRM is valid for **all types of operations**.
  - Cargo & Pax, day & night, long-/medium-/short-haul
  - Also think about the ground staff (shift workers)
- No effective FRM without **support from top management**.
Questions