Aspectos de incapacitación del piloto en vuelo

Paulo M. Alves
Global Medical Director,
Aviation Health
Declaración de conflicto de interés

- Paulo M. Alves es un empleado de MedAire, empresa proveedora de servicios de apoyo médico en suelo
- Opiniones expresadas son personales y no necesariamente reflejan la opinión de MedAire o International SOS
Introduction

- 5.4% of MedLink (In-flight) cases concerned operating crewmembers
- Percentages vary from airline to airline to a maximum of 13.8%
- 2.1% were pilots and 97.9% were cabin crew
The Spectrum of Pilot Incapacitation

Fit for duty  Impaired  Incapacitated
What is the nature of the in-flight events?
What is the operational impact?
What is the best approach from overall safety standpoint?
  ▪ Medicate?
    ▪ Any additional concerns?
  ▪ Divert?
Gender and Age

- Cabin Female (n=5769)
  - 16.16%
- Cabin Male (n=1514)
  - 5.17%
- Cockpit Female (n=13)
  - 26.15%
- Cockpit Male (n=133)
  - 23.15%

Bar chart showing the percentage of male and female in Cabin and Cockpit.

Graph showing the distribution of age groups for Cabin Female, Cockpit Female, Cabin Male, and Cockpit Male.
Diagnostic categories – Crews versus Pax

- All other
- Ears, Nose And Throat
- Cardiovascular
- Allergy
- Respiratory
- Injury/External
- General
- Dermatological
- Neurological
- Musculo-Skeletal
- Gastrointestinal
Symptoms all
Symptoms Pilots

- abdominal pain
- vomiting
- nausea
- fever
- diarrhoea
- cramps
- oxygen
- first aid
- captain
- co-pilot
- food
- cold
- dizzy
- clammy
- tingling
- pressure reaction
- 1st aid
- fell
- back
- himself
- 30
- 48
- 4
- lower
- swollen
- diverted
- cramping
- blood
- fever
- swelling
- administered
- upon
- system
- severe
- head
- requested
- rest
- fainted
- reaction
- started
- side
- food
- officer
## Diversions:
All crews versus passengers

<table>
<thead>
<tr>
<th></th>
<th>Diverted</th>
<th>Not-diverted</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crew</td>
<td>109</td>
<td>7329</td>
<td>7438</td>
</tr>
<tr>
<td>Row%</td>
<td>1.47%</td>
<td>98.53%</td>
<td>100.00%</td>
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<tr>
<td>Pax</td>
<td>1943</td>
<td>129,144</td>
<td>131,087</td>
</tr>
<tr>
<td>Row%</td>
<td>1.48%</td>
<td>98.52%</td>
<td>100%</td>
</tr>
<tr>
<td>Total</td>
<td>2052</td>
<td>136,473</td>
<td>138,525</td>
</tr>
<tr>
<td>Row%</td>
<td>1.48%</td>
<td>98.52%</td>
<td>100.00%</td>
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</tbody>
</table>

- OR: $0.81 < 0.99 < 1.20$
- Fisher exact: $p=0.8$
## Diversions:
### Cockpit versus Cabin Crew

<table>
<thead>
<tr>
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<th>Diverted</th>
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<th>Total</th>
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<tbody>
<tr>
<td><strong>Cockpit</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Row%</td>
<td>11.9%</td>
<td>88.10%</td>
<td>100.00%</td>
</tr>
<tr>
<td><strong>Cabin</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Row%</td>
<td>1.31%</td>
<td>98.69%</td>
<td>100.00%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
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</tr>
<tr>
<td>Row%</td>
<td>1.53%</td>
<td>98.47%</td>
<td>100.00%</td>
</tr>
</tbody>
</table>

- OR: $6.16 < 10.22 < 16.95$
- Fisher exact: $p < 0.001$
<table>
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<th>Medicated</th>
<th>Not-Medicated</th>
<th>Total</th>
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<tbody>
<tr>
<td>Short</td>
<td>1</td>
<td>3</td>
<td>4</td>
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<tr>
<td>Row%</td>
<td>25%</td>
<td>75%</td>
<td>100.00%</td>
</tr>
<tr>
<td>Medium</td>
<td>14</td>
<td>23</td>
<td>37</td>
</tr>
<tr>
<td>Row%</td>
<td>37.8%</td>
<td>62.16%</td>
<td>100.00%</td>
</tr>
<tr>
<td>Long</td>
<td>104</td>
<td>64</td>
<td>168</td>
</tr>
<tr>
<td>Row%</td>
<td>61.9%</td>
<td>38.1%</td>
<td>100.00%</td>
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- $X^2 p=0.0007$
## Diversions versus Medication

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<th>Not-diverted</th>
<th>Total</th>
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</thead>
<tbody>
<tr>
<td><strong>Medicated</strong></td>
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<td></td>
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</tr>
<tr>
<td>Row%</td>
<td>7.69%</td>
<td>92.31%</td>
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<td></td>
<td>8</td>
<td>96</td>
<td>104</td>
</tr>
<tr>
<td><strong>Not-medicated</strong></td>
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<td></td>
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</tr>
<tr>
<td>Row%</td>
<td>18.75%</td>
<td>81.25%</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>12</td>
<td>52</td>
<td>64</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Row%</td>
<td>11.90%</td>
<td>88.10%</td>
<td>100.00%</td>
</tr>
<tr>
<td></td>
<td>20</td>
<td>148</td>
<td>168</td>
</tr>
</tbody>
</table>

- OR: $1.06 < 2.77 < 7.02$
- Fisher exact: $p=0.047$
Diversions and Crew Age

P<0.001

Cabin Not-diverted  Cabin-Diverted  Cockpit Not-diverted  Cockpit diverted

P<0.068
Medication Recommended (Taken)

Cabin Crew

panadol
ondansetron
stugeron
tramal
aspirin
temgesic
buccastem
tramadol
burn gel
stemetil
navidoxine
bucopan
paracetamol
Medication Recommended (Taken)

Pilots

loperamide  temgesic  imodium
tramadol  buccastem  telfast
claritin  panadol  buscopan
immodium  ativan  aspirin
stugeron  ondansetron
navidoxine  stemetil  oxygen
paracetamol
Operational Profile – All Crew

- **International**
  - 7,247
  - 91%
- **Domestic**
  - 635
  - 8%
- **Not identified**
  - 101
  - 1%

- **OutBound**
  - 3,296
  - 45%
- **InBound**
  - 3,951
  - 55%
Flight Duration Quartile
Pilot cases 2017/2018 – Long-Haul Only

1st: 14%
2nd: 25%
3rd: 27%
4th: 34%
Case Study – Slightly adapted from a real case

- East coast US to Southeast Asia – 14.5 hours
- 55 years old male pilot
- Past Hx of kidney stones – thinks it is different now
- Took Panadol – Tramadol recommended
- PA for medical personnel
Elements of a fit to operate decision

- Fit for duty
- Impaired
- Incapacitated

Medical situation

Treatment
CRM Perspective

Aviate (Fly)  
Navigate

Communicate
Talk to doctor

Aviate
Navigate
Communicate

CRM Perspective – PIC Impairment
Conclusions

- IFMEs affecting crews are not infrequent
- GI issues are number 1 for crews
- Suspected stroke were the leading cause for diversions for crew cases and are also a frequent one for pax
- Crews had significantly more injury-related cases and less neurological cases
- Diversion rates are not different for cases affecting crews and pax overall
Most cases were acute in nature, not amenable to be capture during routine medicals.

- Very complex CRM scenario
- Altered dynamics
- Loft scenarios?
- Should MedLink actively engage the pilot flying?
Gracias!!