Ground-based Medical Support (GBMS) for Airlines.
An additional link in the system.

Michael Braid, MD, PhD

www.medaire.com
Disclosure

• Michael Braida is a full-time MedAire/International SOS employee

• MedAire is a medical solution provider for commercial airlines and business aviation
  – Ground-based medical advice, training and medical equipment

• International SOS is a global health and security assistance company

• Opinions expressed are personal, not necessarily reflecting MedAire / International SOS positions
Touching points in commercial aviation
A CRM Perspective

- Technical assessment
- Operational factors
- Personal values
- Airline culture

Decision
Current scenario

- Ground-based medical support (GBMS): 30+ years
- 58%-68% of top 50 airlines in the world(*) utilize GBMS
- GBMS is a recommended practice by ICAO - IATA
- Four types of GBMS:

<table>
<thead>
<tr>
<th>Fully dedicated solutions</th>
<th>Public services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Partially dedicated solutions</td>
<td>In-house medical departments</td>
</tr>
</tbody>
</table>

(*) Excluding Chinese carriers and depending whether pax carried or RPKs is considered
Historical Background

- Mayo Clinic
- Royal Flying Doctors
- Airline medical departments
- SAMU France
- MedAire – 1986
  - Need for a structured approach to in-flight medical events
How could GBMS help?

- **Assisting** airlines (crewmembers/gate agents) in identifying cases to be reported to health authorities
- **Orienting** crewmembers in handling suspect cases to minimize exposure/transmission risks
- Providing **statistics** to be matched with actual notification figures received by system (ATC / local health authorities)
- **Educating** crewmembers and traveling public
Experience with international public health concerns

• **SARS** – 2003
• **H1N1** – 2009
  – Deep involvement coordinating with airlines aspects of crew and passenger health
  – Worked closely with the CDC
• **MERS-CoV** – 2013/2014
• **EVD** - 2014

• **GBMS** have at least three touching points during pandemics
  – In-flight cases
  – Pre-flight pax fit-to-fly assessment
  – Crew support cases
Opportunities for Intervention

Origin

Passenger fit-to-fly assessments

Destination
Percentage of CIDs in pre-flight assessments

- 2009: 6.2%
- 2010: 4.1%
- 2011: 4.8%
- 2012: 4.8%
- 2013: 4.6%
- 2014: 3.67%

Categories:
- All other
- Mental
- Medical equip.
- ENT (ear, nose and throat)
- Infectious
- Ob/Gyn
- Respiratory
- Cardiovascular
- Neurological
- Ortho/Trauma
- Gastrointestinal
Overall disposition – Pre-flight assessments

At Gate
- No Recc.: 70%
- Not Clear: 20%
- Clear: 10%

Onboard
- No Recc.: 60%
- Not Clear: 40%
Disposition of Pre-flight Screenings for Infectious / Communicable Diseases (Update 2014)

At gate
- No recc. 20%
- Clear 90%
- Not clear 0%

On board
- No recc. 10%
- Clear 90%
- Not clear 0%
Dispositions and No-go rate per diagnostic category (2013)

- Gastro: 41%
- Med-Equip: 36%
- ENT: 33%
- Respiratory: 33%
- Cardio: 30%
- Neuro: 29%
- Infectious: 28%
- Endocrine: 26%
- Allergy: 23%
- Vascular: 23%
- Mental: 22%
- Ob/Gyn: 20%
- Trauma: 16%
- Uro-Renal: 13%
- Dermato: 8%
- Hem/Onco: 8%
- Ortho/MuscSkel: 7%
- all Other: 21%

No Recc
Not Clear
Clear
No-Go Rate
Dispositions and No-go rate per diagnostic category (2014)
Diagnostic impression

2009 2010 2011 2012 2013

- All other
- Meningitis - Viral
- TB
- Hepatitis
- Zoster
- Malaria
- Malaria
- Varicella (chicken pox)
- Acute febrile illness

Acute febrile illness
The determined traveler
The “index” case: how it all started

- The Ebola virus entered Lagos on 20 July via an infected Liberian air traveler, who died 5 days later.

- At the departure airport, he was visibly very ill, lying on the floor of the waiting room while awaiting the flight.

- At the hospital, he told staff that he had malaria and denied any contact with an Ebola patient.

- As was learned later, his sister was a confirmed case who had died from the disease in Liberia.
In-flight cases

Event

Origin

Contact GMBS

Decision

Diversion

Destination

Onboard plan of care • Optimize medical volunteers
• Continuation or diversion recommendations • Consistent data capture
Nature of flight

- International: 86%
- Domestic: 14%
- Long: 55%
- Medium: 34%
- Short: 6%
- Ultra-long: 5%
Diagnostic impression – In-flight

- Acute febrile illness
- Malaria
- Meningitis - Viral
- Varicella (chicken pox)
- TB
- All other
Time into flight

![Bar chart showing the number of cases over hours of flight for short-haul, medium-haul, and long-haul flights.](chart.png)
In-flight case

Fever (38°C/100°F or greater) plus one or more of the following signs or symptoms:
- Appearing obviously unwell
- Persistent coughing
- Impaired breathing
- Persistent diarrhoea
- Persistent vomiting
- Skin rash
- Bruising or bleeding without previous injury
- Confusion of recent onset

Case evaluation
- Confirm suspected communicable disease
- Epidemiological assessment:
  - Epidemics?
  - Case definition/Exposure Hx
  - Public health concern?

Yes

- Contact airline operation agency
- Recommend ATC notification
- Recommend treatment as required
- Document case

No

- Recommend treatment as required
- Document case
MANAGING AN ON-BOARD CASE

A/C ID
Dep.
Dest.
ETA
POB
No. cases
Nature of risk

Aircraft gen. declaration – Health Part

Air traffic controller

Destination aerodrome tower

Airline OPERATING AGENCY

PHA

Airport OPERATOR

OTHER AGENCY

CAPSCA-Ulaanbaatar April 2012
MANAGING AN ON-BOARD CASE

A/C ID
Dep.
Dest.
ETA
POB
No. cases
Nature of risk

Aircraft gen. declaration – Health Part

GROUND SUPPORT

PHA

AIRPORT OPERATOR

OTHER AGENCY

Air traffic controller

Destination aerodrome tower

AIRLINE OPERATING AGENCY
Interactions during public health concern
Ebola

- 19 cases mentioning Ebola in 2014
  - 15 in October
  - 12 In-flight / 7 Pre-flight

**In-flight**

- United Kingdom: 1
- United States: 1
- Ghana: 3
- Ireland: 1
- Nigeria: 1
- Qatar: 1

**FTF**

- United States: 5
- Ghana: 1
- United Arab Emirates: 1
Conclusions

• GBMS play a significant role in the management of Communicable Diseases

• GBMS data provides good monitoring of disease activity during epidemics

• Enhancing the system
  – Standardization
  – Collaboration
  – Technological advances
Shukran! / Thank you!