

# WHAT IS TODAY'S OBJECTIVE?

**TO UNDERSTAND  
THE ROLL OF THE  
PATHOLOGIST IN A  
PLANE CRASH/  
MASS DISASTER**



**NERVOUS PASSENGER: "HOW  
OFTEN DO PLANES CRASH?"**

**STEWARDESS: "JUST ONCE!"**

# ESTIMATING CRASH FORCES

- Vertebral body compression 20-30 G
- Fracture/dislocation 20-40G
- Aorta intimal tear 50G
- Aorta transection 80-100G
- Pelvic fractures 100-200G
- Vertebral body transection 200-300G
- Body fragmentation > 350G

*The “Big Shot” @ the Stratosphere is 4Gs*

- Aircraft travel @ high velocities & may crash to earth w/ extremely rapid deceleration forces
  - Not surprising to find body in several pieces
  - Challenge: Body ID



Date:	August 22, 2006
Location:	Near Donetsk, Ukraine
Aircraft:	Tupolev Tu-154M
Reg:	RA-851857
Airline:	Pulkovo Airlines
Flight No:	612
Fatalities:	171 : 171



# ID OF VICTIMS

- **Visual ID?** *Too severe of damage to ID*
- **Dental exam** most useful in positive ID of body
  - When moving bodies, be sure to preserve dental remains
- **FPs** useful in noncharred bodies
- **Other means of ID**: X-ray comparison of bones, characteristic tattoos, any unique physical features... & of course **DNA**





## DETERMINE MANNER OF DEATH

- Although uncommon, the pilot may have been **killed**
- Homicide & insurance fraud may be attempted w/crash intended to hide the evid

*Ex. A twin-engine personal plane rolled just after takeoff. Nose dived into the ground. The pilot was killed instantly.*

*Extensive damage to the front of the plane.*

# FALLS TO EARTH

## STOWAWAYS:

discovery of body  
w/severe BFT  
from where they  
fell/were stowed  
in the wheel-well  
region



# HOW THE STOWAWAY

# MADE IT TO HAWAII



**1** Stowaway scales perimeter fence at Mineta San Jose Airport and climbs into the wheel compartment of a Boeing 767 standing on the tarmac



**2** After take-off he positions himself to avoid being crushed as the wheels fold into the compartment. At 38,000 feet, the temperature drops as low as -62C. The stowaway loses consciousness



**3** As the wheels extend for landing, the stowaway remains unconscious. He wakes up one hour later, jumps down and wanders around until discovered by airport staff



# FALLS TO EARTH

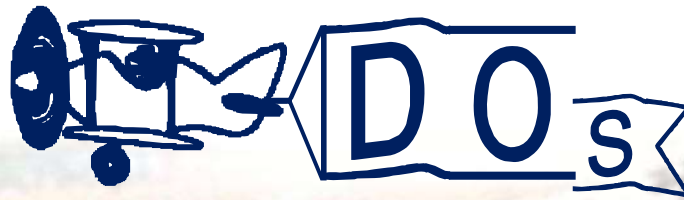
- **PARACHUTE DEATHS**: factors that lead to death include bad equipment, hazardous environmental conditions, inexperience, entanglement, power lines, & other objects





# **INVESTIGATION OF MASS DISASTERS**

- **Search & rescue** to find all survivors
  - Searchers must be protected against potential hazards of scene
- **Decontamination** procedures enforced when return to staging area from scene
- **ID remains** & treat in a dignified fashion (regardless of size of body part) and placed in a regular-size coffin to send to the family



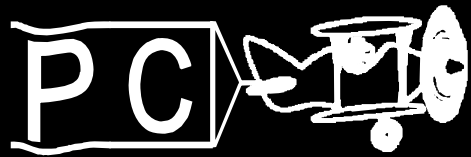
- Collect complete tox samples from pilot (TOXBOX)
- Be aware of many different ways to ID vics
- Seek help when disaster is more than your department can handle
- Consider crash may have been caused by natural disease of the pilot
- Collect pertinent info from the investigation performed by outside agencies

# DON'Ts



- Forget to x-ray hands & feet of pilot
- Exclude suicide or homicide until investigation is complete
- Panic in mass disasters
- Forget to consider the safety of all personnel involved in the investigation
- Ever fly or go skydiving again





## **YOUR 1<sup>st</sup> TASK FOR TODAY:**

- Find out how many students voted for each person
- At the TOP of your LEFT side, write a 1 paragraph 'essay':
  - How did this 'chaos' relate to a plane crash?
  - Melissa took charge... critique her "managerial" skills

**YOU HAVE 10 MINUTES:**

🕒 Find out how many  
students voted for each  
person

<b>SURVIVOR</b>	<b># of TOTAL votes</b>	<b>% voted for</b>
Amorette, The Girl	1	
Joe, The Army Soldier	26	
Phil, The Pilot	29	
Sara, The Young Mother	6	
John, The University Student	21	
Bill, The Rich Businessman	1	
Oscar, The Famous Politician	4	
Sharon, The Nurse	11	
Steve, The Boy	5	
Yao Ming, The Basketball Player	20	
<b>TOTAL NUMBER OF VOTES</b>		



<b>SURVIVOR</b>	<b># of TOTAL votes</b>	<b>% voted for</b>
Amorette, The Girl	5	
Joe, The Army Soldier	21	
Phil, The Pilot	21	
Sara, The Young Mother	6	
John, The University Student	8	
Bill, The Rich Businessman	0	
Oscar, The Famous Politician	1	
Sharon, The Nurse	9	
Steve, The Boy	12	
Yao Ming, The Basketball Player	9	
<b>TOTAL NUMBER OF VOTES</b>		