

Women's Health Issues in Aviation ♀



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ALPA Pilot Assistance Forum
May 24, 2017

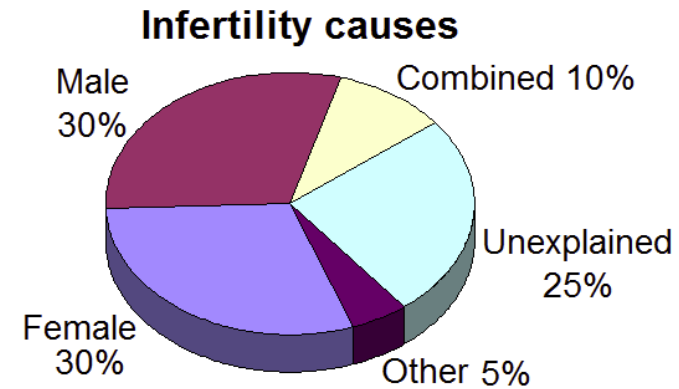
Flight Plan

- Fertility and Contraception
- Pregnancy
- Peripartum Problems
- Cancers
- Menopause
- Other Challenges
- Q & A



*1 in 8 couples
have trouble
getting pregnant*

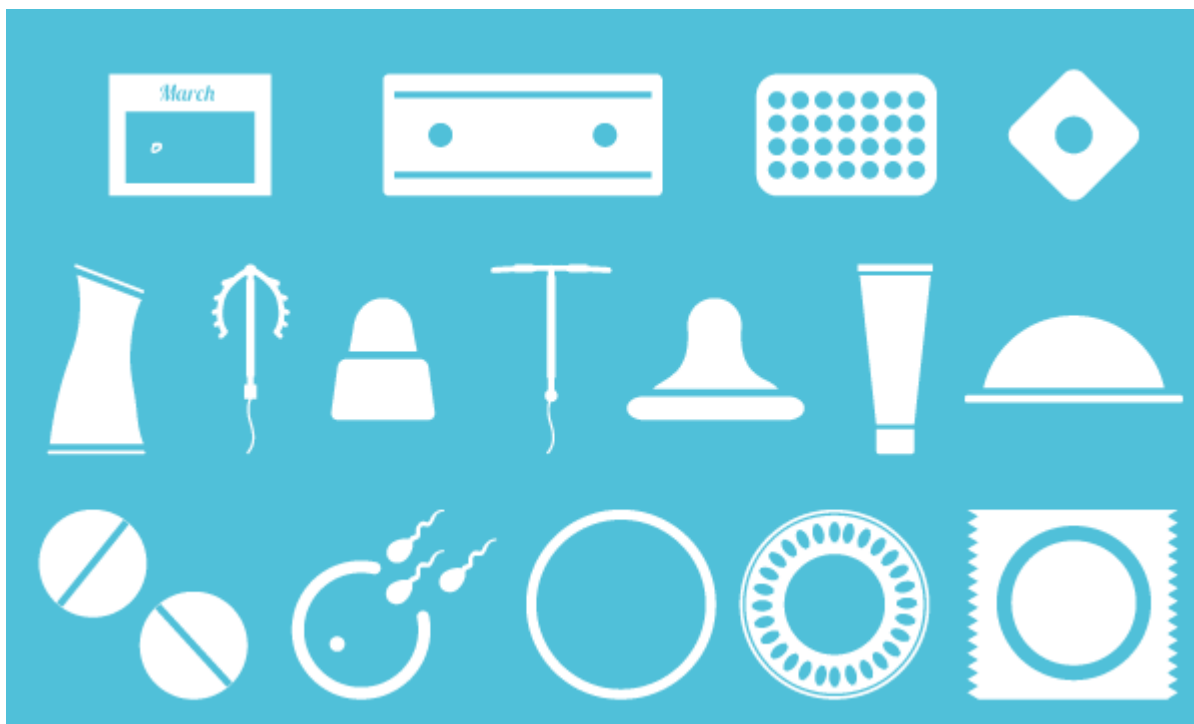
Infertility



- 10 – 18% of couples (1/3 ♀)
- Risks – Age, Alcohol, Weight, Smoking, STD's
- Age < 35 → 12 mo, 35 – 40 → 6 mo, > 40 → now
- Infertility Medications – Allowed
 - Clomiphene, FSH, GRH, Progesterone, Lupron, etc.
 - Ground Trial before flying
- Timing of Evaluations/Sex –Schedule Bidding
 - Related to menstrual cycle, temperature Δ 's

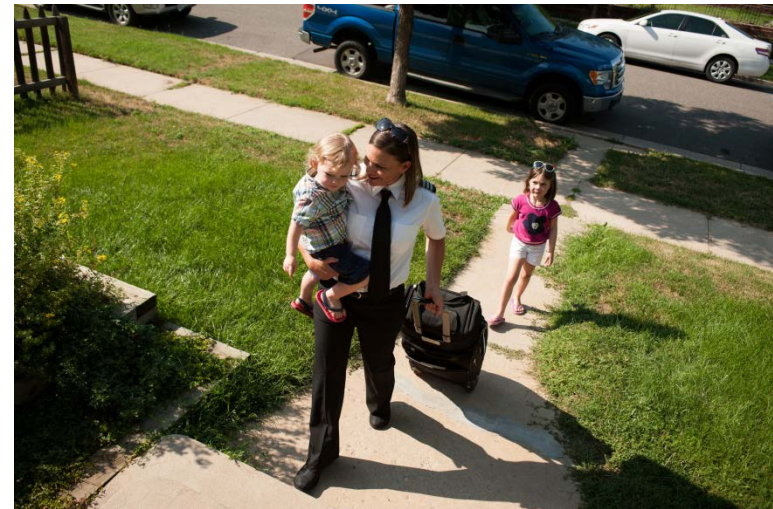
Contraception

- All forms allowed
- Medications listed # 17 on MedXPress
- Visits to HCP's listed on #19



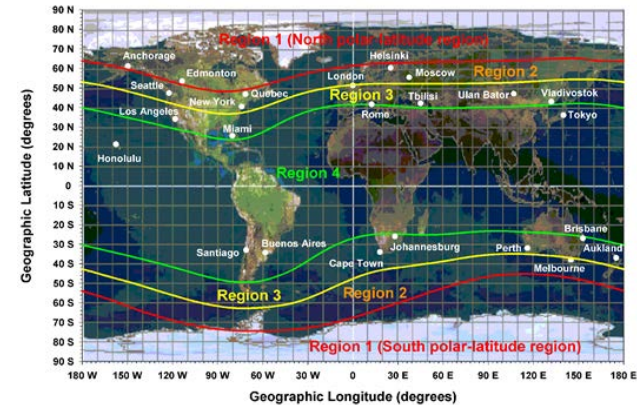
Pregnancy

- Not Disqualifying at Any Stage
 - Pilot & MD comfortable
 - Operate Controls
 - Bladder Compression
- Medical Complications may be DQ/hazardous
 - Pre-term Labor / Bleeding
 - Anemia
 - Hypertension / Pre-eclampsia
 - Thrombosis
 - Gestational Diabetes
- Fetus not at risk for Hypoxia



Pregnancy Radiation Risks

- Radiation
 - Galactic, Cosmic, Terrestrial, Cargo, Medical
 - TSA Screening OK – Millimeter Wave, Magnetometer
- Int'l Commission on Radiological Protection – FAA
 - Aircrew - 50 mSv/yr & 5 year average 20 mSv/yr
 - Pregnant – 1 mSv during pregnancy, 0.5 mSv/mo
 - Short Haul < 3 hrs ~ 1-3 μ Sv/hr, > 3 hrs ~ 4-5 μ Sv/hr
- Relative Risks – Exposure Levels
 - Chest X-Ray: 0.1 mSv (100 μ Sv)
 - Body CT Scan: 10.0 mSv (10,000 μ Sv)
 - Chest CT Scan: 8.0 mSv (8,000 μ Sv)
 - Mammogram: 0.7 mSv (700 μ Sv)₂
 - Denver: 11.4 mSv/yr – 10.4 due to Radon



Pregnancy Trip Scheduling

- Best – Low Altitude, Low Latitude, Short Flights
- NASA CARI-6 In-Flight Radiation Calculator
 - www.faa.gov/data_research/research/med_humanfacs/aero_medical/radiobiology/cari6/download
 - Valid up to FL600
 - Accounts for month, year, sun cycles, altitude, geo
 - Enter origin, destination, altitude, duration, climb, descent

FAA CARI-6 is a computer program that allow precise calculations of cosmic radiation dose.
This program can be downloaded using this [link](#).
To calculate cosmic radiation dose for Leon flights export flights from this page and use it as CARI-6 input file.
Be aware that for precise calculation CARI-6 needs actual heliocentric potential that can be obtained [here](#).

Export to FAA CARI-6

Flight No.	Registration	Date	Start time	Adep	Ades	End time	End date	Climb time	FI	FI time	Descent time
TEST	G-LEON	05-01-2016	01:00	EPWA	EPWR	03:00	05-01-2016	13	250	94	13
123	D-LEON	05-01-2016	10:15	EPPO	UUWW	12:15	05-01-2016	28	550	64	28
124	D-LEON	05-01-2016	13:00	UUWW	EGGW	17:00	05-01-2016	28	550	184	28
123456	B-ARTI	05-01-2016	16:00	EPWA	EPWR	17:30	05-01-2016	17	340	56	17
TEST	G-LEON	05-01-2016	21:00	EPWR	EPWA	22:00	05-01-2016	13	250	34	13
ABC01	D-LEON	11-01-2016	08:50	EGGW	LOWI	10:30	11-01-2016	28	550	44	28

Hide filter

« Earlier

Now

Later »

From

01-01-2016

To

31-01-2016

Month

January

Year

2016

Aircraft

--Select--

Persons

Show

Post Partum Issues

- Return to Fly Decision - Medical
 - Anemia
 - Breast Feeding
 - Maternal-Child Bonding
 - Post – Partum Depression vs. “Baby Blues”
- Return to Fly Decision - Practical
 - Benefits
 - Child Care
 - Commute



Postpartum Depression

- Incidence 6.5 -12.9% 1st year, 6% major
- Risk Factors
 - PD with previous pregnancy
 - Antenatal depressive symptoms
 - History of Depression or Substance Abuse
 - Poor Social Support – Family & Friends
 - Life stressors during pregnancy (marital, \$\$, family)
 - Family History of Depression
 - Young Maternal Age



PD Consequences

- Poor Mother – Infant Bonding
- Delays in Infant Growth & Development
- Childhood Depression
- Psychosis
- Suicide
- Child Abuse & Neglect
- $\leq 60\%$ Obsessive thoughts of aggression to child



PD vs. “Baby Blues*” Sx

- Depressed Mood
- Lost of Interest or Pleasure
- Sleep Disturbances*
- Unintended Weight Loss*
- Lack of Energy*
- Diminished Concentration / Indecisiveness*
- Agitation
- Feelings of Worthlessness or Guilt
- Recurrent Thoughts of Suicide or Death



PD vs. “Baby Blues”



- “Baby Blues”
 - Begin first few days , Resolve by 10 days PP
 - Mild symptoms, minimal impact on functioning
- Postpartum Depression
 - Same diagnostic criteria as Major Depression
 - USPSTF recommends Screening
 - Edinburgh Postpartum Depression Scale, 10 ???
 - Mild to Moderate → Rx w/ psychotherapy *or* SSRI’s
 - Severe → RX w/ psychotherapy *AND* SSRI’s

Female Cancers



- Breast
 - 440,000 case, 40,000 deaths annually, Men 1/100th
 - Risk w/ Age ↑ - 40 ~ 1.44%, 50 ~ 2.28%, 60 ~ 3.46%
 - 2nd Leading cause of cancer deaths in women
- Uterine – 50,560 cases, 9,325 deaths in 2013
- Ovarian – 20, 927 cases, 14,276 deaths – 2013
- Cervical – 11,955 cases, 4, 217 deaths – 2013
- NB – Heart disease 289,758 – 2013 ¼ of total

FAA Cancer Policy



- Required Observation Periods
 - Local Disease – Fly after Recovery
 - Local Lymph nodes – one year* after treatment
 - Regional Metastases - 3 years after RX
 - Brain Metastases - 5 years after RX
- Maintenance hormonal therapy allowed
- All surgical, chemotherapy and radiation Rx OK
- Usual 5 year Special Issuance*



Menopause

- Mean age 51 (45 – 55)
- Estrogen most effective in relieving:
 - Hot flashes
 - Vaginal dryness
 - Urinary symptoms
 - Mood lability
- Conjugated Estrogens 0.3mg, Estrodiol 0.5 mg
- Goal is taper in 2-3 years, no more than 5



Estrogen Risk Factors

- Relative contraindications
 - Heart disease
 - Breast cancer
 - Strokes
 - Venous Blood Clots
 - Active Liver Disease
- Vaginal Estrogen “Safe” except breast cancer
- Isoflavones – Soy, red clover, black cohosh, Vit E



Others / Questions



Radiation References

- <http://goflightmedicine.com/cosmic-radiation/>
- Health Physics Society <http://hps.org/>
- Friedberg, Wallace & Kyle Copeland. *What Aircrews Should Know about their Occupational Exposure to Ionizing Radiation*. DOT/FAA/AM-03/16. Oct 2003.
- Bagshaw, Michael. Cosmic Radiation in Commercial Aviation. Aviation Medicine, King's College London, UK. IAASM. 23 Nov 2007.

