Berry can't be there due to Apollo XII. Current status is go for 11: AM tomorrow.
No slides or text there.

Lessons in Prevention from Aerospace Medicine.

Charles A. Berry M.D.

My remarks today really only space medicine but many of the Points things outlined apply equally to other areas in the broad field of aerospace medicine.

ASM is truly the practice of preventive med.
Our job is to keep people flying contrary to what some pilots think. In the process some are kept from flying for the overall preventive good.
In a sense look at a grounding for an illness as a preventive med. failure.

Let me describe our activities & their preventive nature so we can draw some lessons from them.
You may think of some I have not.
Apollo XI was the ultimate test of our preventive med & its successful completion a monument to " ".
Not only were we preventing trying to prevent adverse effects upon ~~detrimental to~~ including the crew, but a new unique requirement was to prevent contamination of the earth's biosphere by possible lunar organisms.

1. Consider the environment - get all info possible & plan protection necessary - natural & man made
   Vacuum
   temperature

Radiation - team - solar flare example.

weightless. - 1/6 g - walk.
?
- ground based research & analogs -
water immersion
bed rest.

From mode

acceleration - vibration - testing.
noise

Thus 2. Spacecraft design inputs.
early - continual in Apollo - attention to detail
changes
now extended LON.
space station - shuttle.
lunar bases.
atmosphere
again temp - etc..
Habitability -
Food -
water -
waste -
hygiene -
sleep provisions.

3. Selection of crew
initial – evaluate jobs done by
guest selected – apply to future.

4. Training – briefing – education
necessity to understand so can cooperate.
even input in each item carried – food, med kit –
thermometer etc: (?)

5. Monitoring inflight –
need light, reliable, instruments – no bother
to crew –
Get info. engineers – computer people –
Anta of data – analytic help – computers.
XI EVA – H.R. calc.
H2O temp. } Computer program.
O2.
RBC – O2 – N2 – WBC –
other changes –

6. Prev. Med. Plan –
Compromise ~~arbitrary~~ 21 days
Cts environ control
Immun. & contacts.
Prev. Med. can be exciting & in public eye Req. Courage.
Drugs – testing –

7. Quarantine
   lunar surface to recovery to LRL.
   Detail planning.
   Large interdisciplinary team.

Lessons:

1. Imagination + background required to envision hazards of environ - plan protection.
   But - wisdom to be realistic.
   Omit overkill hazards - medicine does generally.
   straw men - early misfit.

2. Slow changes in man - C.V. decon., anemia, Ca., fluid loss, 48 hr normal.
   Planned exposure increments - look at adaptation 0 g - 1/6 g + then 1 g.
   Longer flts. OK.

3. All joint bilateral programs require education - understanding + cooperation.

Change our views

4. Monitoring - data handling etc. -
apply to many ground based situations.
ambulance L.A.
spin offs —
use EKG etc. BP. while man at work - sight.

5. Need to predict - develop predictive medicine
which we practice —
need to know about disease & symptoms.
major effort today - found it.

6. Multidisciplinary team approach - spin off.
necessary for medical - psychosocial problems.
engr + M.Ds. etc. - organs, modeling - etc.

7. Must revamp med. care to prev med - early Dx
& prevention - Rx. P.H. get involved -
screening impt.
Use space technol to get care to people +
more M.D. time & pt - meaningfully.

8. Resuscitators lesson —

ASM is truly preventive field. Selection to flt. necessary.

Must try prediction to do prev.

Inability to do task due to illness - env. etc. - a failure in prev.

our job to keep people flying.

Ult. in Prev. Apollo XI - accomplish mission.

no illness ENVIRONMENT.

surface activity ...

Prevent Contam Biosphere.

Prev. can be exciting.

outline task - env protection

selection - vehicle design

Train

monitor

- prev med

Care

future missions.

Much same in a/c.

learned re man in space

changes -

planned

for future

Requires understanding - education - cooperation.

Imagination to envision beyond ... protection.

but wisdom to be realistic.

Don't oversell - straw men - now in space flt.

Even drugs preventive - test ā they are used.

Vaccines.

- Prev med program - env. etc. -

Rest - - people - etc.

→ Goal Dx ā disease evident. - lab -

Instrumentation - to prevent -

need to make good med prev. try

multidisciplinary team lessons. - spin off.

approach to problem -

... - ... etc., engineer ...

New approaches to care impt.

Prev & P.H. people must get involved in taking care to help ... - prevention.

Directions in Prevention -

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Spin off - lessons -

Car drivers -

Pilots - better shoes - control -

preflt. Instrumentation during flying etc.

active EKGs etc.

Baselines.

Resuscitators.

Call Craig - re immunity patterns.