DEPARTMENT OF THE NAVY
CHIEF OF NAVAL AIR TRAINING
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CNATRAINST 6410.2B
00X2
3 Jul 2018

CNATRA INSTRUCTION 6410.2B

Subj: AIRSICKNESS MANAGEMENT PROGRAM

Ref: (a) CNATRAINST 1542.61L
(b) CNATRAINST 1542.140D
(c) CNATRAINST 1542.154A
(d) CNATRAINST 1542.155C
(e) CNATRAINST 1542.165A
(f) CNATRAINST 1542.166A
(g) OPNAVINST 1542.4D

Encl: (1) Airsickness Notification Form
(2) Airsickness Tracking Form
(3) SF-600; Medical Evaluation of Motion Sickness
(4) Aircrew Rotational Training (ART) Procedures
(5) Airsickness Review Board (ARB)
(6) Airsickness Episode Reporting Process
(7) Airsickness Flow Charts
(8) Airsickness Handout

1. Purpose. To provide the airsickness (AS) policy, procedures, and documentation for all CNATRA Flight Training Squadrons in order to manage students who experience AS, per references (a) and (f). This instruction has been administratively revised and should be reviewed in its entirety.

2. Cancellation. CNATRAINST 6410.2A

3. Background. AS is a common problem for students upon entry into flight training. AS is a normal physiological response to abnormal motion and is generally considered to be a mismatch of vestibular, proprioceptive and visual sensations. AS may interfere with safety of flight and progression through flight training. Symptoms may recur after long periods of non-flying, transition to more challenging flight maneuvers or aircraft with enhanced flight characteristics. Most students adapt to the flying environment quickly while others may require additional assistance to allow them to overcome symptoms of AS. Recommendations to help students prevent and manage AS include early intervention with education, training, and physiologic therapies. There are primarily two types of AS. Passive AS is associated with nausea and other discomforting symptoms but without vomiting or dry heaving. Active AS is characterized by vomiting or dry heaving. Significant AS, for the purpose of this instruction, is defined as any episode of active AS or an episode of passive AS where the student's discomfort or nausea

affects flight safety, results in deviation from mission profile, or affects the student's ability to complete tasks. All significant AS episodes shall be documented by checking the AS box on the student's Aviation Training Form (ATF). The comments section of the ATF shall be utilized to document whether the episode was active or passive and provide additional details concerning the onset of the AS episode. Mild nausea that does not affect the student's ability to safely and satisfactorily complete the sortie should still be documented in the comments section of the ATF but the AS box on the ATF shall not be checked. The event shall not be considered significant and does not warrant treatment.

4. Discussion. The following procedures are designed to provide individual attention and a reasonable opportunity for students who experience AS to adapt to the flying environment. Students who experience recurrent symptoms of AS, as outlined by this instruction shall be placed in the Airsickness Management Program (AMP). Instructor Pilots (IPs), Squadron AS Representatives (AR), and Aeromedical Safety Officers (AMSOs) shall actively assist students in avoiding AS during the earliest phases of flight training. Students shall be graded against the course training standards, regardless of the impact of AS, and must still meet Maneuver Item File (MIF) standards in order to continue flight training.

5. Action. The following areas of responsibility are assigned:

a. Chief of Naval Air Training (CNATRA) shall implement policy in consonance with the intent of this instruction, to ensure maximum training safety and effectiveness through standardized procedures regarding the management of AS in the flight-training environment.

b. Training Air Wing Commanders shall:

(1) Implement the AMP under the cognizance and oversight of assigned AMSO and FS within Training Air Wings.

(2) Through the use of the AS Review Board (ARB), make the final determination when a student should be removed from training for reasons of persistent or recurrent AS.

c. Squadron Commanding Officers shall:

(1) Refer students for participation in the AMP when appropriate and as outlined in this instruction.

(2) Prohibit the scheduling of a student for a solo flight when airsickness was documented on the preceding training mission.

(3) Ensure students assigned to the AMP have priority scheduling to fly and actively participate in the AMP.

(4) Convene an ARB as outlined in this instruction or when deemed appropriate.

(5) Designate at least one experienced IP to serve as a squadron AS representative. This IP shall receive training from the Airsickness Management Program Manager (AMPM), and should be scheduled with AS students following the students' completion of ART.

d. Instructor Pilots shall:

(1) Provide at risk students assistance in overcoming AS. Early in training, the IP may assist the student by momentarily taking control of the aircraft, relinquishing control of the aircraft, obtaining a straight and level attitude, or if necessary, terminating the mission. During adaptation flights the IP shall not perform any flight maneuvers beyond the student's current syllabus flight. In the case where adaptation flights are performed in aircraft other than the student's current training aircraft, every attempt should be made to ensure these flights do not contain flight maneuvers that are beyond the capability of the student. Aggressive or more advanced maneuvers may actually contribute to the student's AS, rather than help alleviate AS. As the student progresses in training, IP assistance should be decreased.

(2) Follow reporting process outlined in enclosure (6). Check the AS box in the ATF for all significant AS episodes. Utilize the comments section of the ATF to comment on all episodes of AS as either passive or active AS and provide additional details concerning the onset of the AS episode. The sortie shall be graded "complete" or "incomplete" per Multi-Service Pilot Training System (MPTS) or Undergraduate Military Flight Officer (UFMO) Training System guidelines. An episode of significant AS during a safe for solo event in any phase/stage of pipeline training shall be assessed as not safe for solo and immediately directed to the Squadron AR. Student shall not solo until successful completion of follow-on safe for solo check flight. A student assessed as not safe for solo due to AS does not automatically necessitate an overall grade of UNSAT.

(3) Notify Student Control after any episode of significant AS.

e. Student Control Shall:

(1) Complete enclosures (1) and (2).

(2) Direct student as required per the pipeline flow charts in enclosure (7).

f. Students Shall:

(1) Disclose all episodes of AS to the Instructor for documentation purposes.

(2) Report for all scheduled training components of the AMP. Participation in Phases II through IV of the AMP is voluntary. However, failure to participate may call into question the student's motivation to succeed and may contribute to the student's attrition due to intractable AS.

g. The AMSO shall:

(1) Serve as the AMPM and oversee ART. Coordinate, along with the Squadron AR, the implementation of all phases of the AMP.

(2) Execute Phase 0 training and provide airsickness mitigation techniques. Identify and counsel those students who experienced AS during Instrument Flight School training or have a previous history of motion sickness.

(3) Ensure all Instructors are familiar with the AMP.

(4) Participate in ARBs.

(5) When operationally feasible and if qualified in the student's aircraft, in accordance with reference (g), perform the first post-ART flight.

h. The Squadron AR shall:

(1) Enter all AS students formally into the AMP and track progress of AS students. Notify the AMPM of all significant AS events involving students who have completed ART.

(2) Coordinate with the AMSO to assist in the implementation of all phases of the AMP. In the absence of the AMSO, act at the AMPM for the squadron.

(3) Send a weekly update to the AMPM utilizing enclosure (2) for all students in primary flight training.

(4) Conduct Phase I Consult.

(5) Participate in ARBs.

(6) When operationally feasible, perform post-ART flight instruction.

(7) Provide feedback and AS management recommendations to the student and the student's squadron utilizing Sections B and C of enclosure (1).

i. Flight Surgeons shall:

(1) Provide medical evaluations if required.

(2) Make appropriate Health Record (HR) entries on enclosure (3) when required.

(3) Participate in ARBs.

(4) Perform grounding physicals, when appropriate, on students determined to be Not Physically Qualified (NPQ) for aviation duty for reason of intractable AS.

(5) When operationally feasible and if qualified in the student's aircraft, in accordance with reference (g), perform the first post-ART flight.

6. AS Management Procedures for Students.

a. PHASE 0: Prior to initial flight training, all students shall receive an AS awareness brief that includes the causes, prevention, management, safety implications, and potential training impact of AS on flight training. The AS Handout, enclosure (8) shall be provided to assist students in the prevention and mitigation of AS.

b. PHASE I: Squadron AR Consult

(1) The AS Consult is required in accordance with enclosure (7) and shall be conducted by a designated Squadron AR. Students who receive the initial consult shall be formally entered into the AMP. While participating in the AMP, students will continue normal syllabus flow to include flying unless otherwise prohibited by this instruction. Students in intermediate/advanced training will be managed per enclosure (7).

(2) The AS consult shall be conducted prior to their next flight. The intent of the consult is to ascertain if the AS preventative measures presented in Phase 0 were followed and review the AS Handout in a low threat environment. The Squadron AR should assess the student's motivation to fly, special circumstances such as anxiety, stress, and other predisposing factors. The discussion should also include considerations for proper diet/food, stress management, in-flight aids, breathing techniques, slow, deliberate head movements and relaxation techniques.

(3) Upon completion of the consult, the Squadron AR shall determine if normal syllabus flow should continue or if the student should be referred to Phase II prior to recommencing syllabus flights.

c. PHASE II: Life Skills Consult

(1) Phase II treatment of AS is identical to Phase I, however, it also involves Fleet and Family Support Services (FFSC). The Squadron AR is responsible for referring the student to FFSC via enclosure (1). Referral to FFSC is not required but highly recommended to evaluate manifestation of apprehension, review stress management, progressive relaxation techniques, and conduct biofeedback training when applicable. Anxiety/Stress is a major contributor in airsickness cases. Reducing anxiety and managing stress is the basis of the AMP. Life Skills counseling typically takes two days and students shall not be scheduled for flights during this time. Upon completion, students will resume flight training and may still see the FFSC counselors as necessary for follow-up care.

(2) Following Life Skills, the student shall report back to the AMPM to be interviewed. This interview is important as it allows the student to speak in a low threat environment and allows the AMPM to thoroughly explain alternative therapies and how they work to counteract AS symptoms.

(3) Two flights should be allotted following Life Skills treatment to enable the student to perfect the techniques provided. If the student continues to experience significant AS episodes, the Squadron AR should refer them to the AMSO for Phase III ART.

d. PHASE III: Aircrew Rotation Training (ART)

(1) Students who demonstrate persistent or recurrent AS symptoms after PHASE II shall be referred to the AMSO for ART. The intent of this training is to provide physiological adaptation and airsickness desensitization utilizing the Barany Chair. ART consists of three to five training days consisting of 2-3 sessions per day at the AMPMs discretion.

(2) Students may continue training flights at the discretion of the Squadron AS Representative while assigned to ART. If flights are conducted during this period they shall be conducted in the morning and prior to ART. Students involved with simulator training may participate in ART following a simulator event.

e. PHASE IV: Adaptation Training

((1) Adaptation Training consists of an intense consecutive three-day program involving adaptation flights along with ART. It's imperative that ART be conducted in conjunction with flight training to accelerate acclimation and ensure program success.

(2) An adaptation flight and ART session should be conducted on the same day for three consecutive days. Adaptation training should be scheduled to ensure completion prior to the weekend or any subsequent days off. The adaptation flight must be conducted in the morning with the ART session in the afternoon, 1-2 hours after consuming lunch. Students shall not fly on the same day following ART. They are highly encouraged to fly the following morning.

(3) Adaptation flights should be conducted by the Squadron AR, or Aeromedical Dual Designated (AMDD) AMSO/FS when available, and consist of daily scheduling of syllabus events on consecutive training days. If a student is unable to fly on consecutive days due to unforeseen circumstances, ART shall be used to supplement the adaptation flights. No more than five adaptation flights should be completed, and can be as few as two for students increasing in adaptation. A favorable response to adaptation training is considered to be a decrease in the frequency and severity of AS symptoms. Students demonstrating a favorable response should continue normal syllabus flow.

(4) Commanders should utilize any available resource to accomplish this phase of adaptation to include rear cockpit flight time. Adaptation flights involving non-syllabus events

shall not be utilized as an opportunity for students to improve proficiency in flight-related skills, but rather to provide the student with additional exposure to the flight environment. Adaptation flights shall be documented on the ATF and be used by the AMPM to track their physiological response to the flight environment.

(5) The fundamental rationale for this phase of adaptation is that actual flying is the most effective remedy for AS. It is important that adaptation flights, if they result in AS, not be utilized to the extent that an aversion to the flight environment is created. The use of adaptation flights should not adversely diminish training resources or degrade the unit's overall training mission.

(6) After completing Adaptation Training, it is imperative to overcoming AS that students have priority scheduling and fly daily until flight environment adaptation has been achieved. Completion of precision aerobatics without significant AS symptoms is a good indicator that the student has adapted to the flight environment. Students in advanced training will be managed per enclosure (7).

(7) Students who experience a break in flying of more than three to five days are encouraged to return for refresher ART. Refresher ART sessions should be tailored to meet the individual's needs and scheduled with ASPM consent.

7. AS Review Board.

a. An ARB may be convened at any time by the Commanding Officer. The conduct and composition of the board is described in enclosure (5). Enclosure (7) outlines when an ARB shall be convened based on pipeline phase. If the student is returned to training and again experiences AS, the board shall be reconvened not later than the third episode of AS post previous ARB. Returning a student to training after a second ARB requires the Wing Commander's concurrence.

8. Intermediate/Advanced Pipeline AS. Students in this phase of flight training shall be enrolled in the AMP in accordance with the enclosures (7). Use of AS medication is prohibited in intermediate and advanced flight training

9. Disqualification for AS. Students who cannot overcome AS shall be processed for attrition according to parent service or country directives. Students who experience intractable AS are Not Physically Qualified (NPQ) for aviation duty. In no case will students be granted an AS medical waiver.

S. B. STARKEY
Chief of Staff

Distribution:
CNATRA Website

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AIRSICKNESS NOTIFICATION FORM	
SECTION A. Student Control Report	Date
Syllabus Event	
Previous Airsickness (Review Airsickness Tracking Sheet):	
Symptoms during flight:	
IP's name, phone:	
Flight Leader's name, phone:	
SECTION B. Squadron AS Representative	Date
( ) Life Skills referral.	
( ) Adaptation Training (3-5 consecutive training days) within syllabus if possible. Note: schedule early a.m. if possible.	
( ) Referred to Aeromedical Safety Officer for ART consideration.	
( ) Refer to Airsickness Review Board	
( ) Other	
SECTION C. AMPM (when applicable):	
Comments/Recommendations:	
Student's Name/Squadron:	
Flight Surgeon's Name/stamp:	

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STUDENT AIRSICKNESS TRACKING FORM				
Student Name	Date Enrolled	Date of Last Significant AS Episode	Current Phase of AMP	Comments

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MEDICAL RECORD	CHRONOLOGICAL RECORD OF MEDICAL CARE
DATE	SYMPTOMS, DIAGNOSIS, TREATMENT, TREATING ORGANIZATION *(Sign each entry)*

Airsickness Questionnaire
Must be filed in the Medical Record

Status: Student

Rank/Rate: _____ Squadron: _____ Flight hours: _____

History of present illness

1. Date(s) of airsickness and flight code number(s):_____
2. Type of aircraft: _____
3. On how many training flights have you experienced airsickness? _____
4. How many total flights have you had to date in flight training? _____
5. How many hours prior to the flight had you eaten?_____
6. How many hours did you sleep on the night prior to the flight? _____
7. How many hours did your symptoms of AS persist after landing?_____
8. When during your flight did you experience AS? (circle one) early mid late
9. Did you complete the mission(s) satisfactorily? Y / N
10. Have you used AS medication in the past? Y / N
11. Did you actively vomit during the flight? Y / N
12. Was your flight unusually hot or turbulent? Y / N
13. Have you had any recent illness or injury? Y / N
14. Were you particularly apprehensive prior to your flight? Y / N
15. Have you experienced any unusual stresses? Y / N
16. Have you recently been experiencing academic problems? Y / N

Past medical history

1. Have you ever had a head injury? Y / N
2. Have you ever lost consciousness? Y / N
3. Have you ever experienced motion sickness previously in cars, boats, or planes? Y / N
4. Have you ever had ear surgery (including PE tubes)? Y / N

Social history

1. Are you married? Y / N
2. Do you use tobacco products? Y / N
3. Do you drink beverages containing caffeine? Y / N
4. Do you drink alcoholic beverages? Y / N
5. Do you have a family history of motion sickness? Y / N

(Your clinic or MTF name)
Must be filed in the Medical Record

HOSPITAL OR MEDICAL FACILITY	STATUS	DEPART./SERVICE	RECORDS MAINTAINED AT
SPONSOR'S NAME	SSN/ID NO.	RELATIONSHIP TO SPONSOR	
PATIENT'S IDENTIFICATION: *(For typed or written entries, give: Name - last, first, middle; ID No or SSN; Sex; ;Date of Birth; Rank/Grade.)*		REGISTER NO.	WARD NO.

CHRONOLOGICAL RECORD OF MEDICAL CARE
Medical Record
STANDARD FORM 600 (REV. 6-97)
Prescribed by GSA/ICMR
FIRMR (41 CFR) 201-9.202-1

MEDICAL RECORD	CHRONOLOGICAL RECORD OF MEDICAL CARE
DATE	SYMPTOMS, DIAGNOSIS, TREATMENT, TREATING ORGANIZATION *(Sign each entry)*

Subjective:
Vital Signs, PMHx, Meds, and AS tracking sheet (If applicable) reviewed Y / N
Physical exam
HEENT:

TM:

- ☐ Adaptation flights:
- ☐ Aircrew Rotational Training; INITIAL REMEDIAL
- ☐ Referral to AS Review Board
- ☐ Other:

HOSPITAL OR MEDICAL FACILITY	STATUS	DEPART./SERVICE	RECORDS MAINTAINED AT
SPONSOR'S NAME	SSN/ID NO.	RELATIONSHIP TO SPONSOR	

PATIENT'S IDENTIFICATION: *(For typed or written entries, give: Name - last, first, middle; ID No or SSN; Sex; ;Date of Birth; Rank/Grade.)*	REGISTER NO.	WARD NO.

CHRONOLOGICAL RECORD OF MEDICAL CARE
Medical Record
STANDARD FORM 600 (REV. 6-97)
Prescribed by GSA/ICMR
FIRMR (41 CFR) 201-9.202-1

Enclosure (3)

AIRCREW ROTATIONAL TRAINING (ART) PROCEDURES

1. Program Overview:

Aircrew Rotational Training (ART) is a program designed to help students overcome susceptibility to AS. Each day of training, the student identifies AS symptoms and develops control measures while building confidence in ability to overcome AS. Students can be referred to ART by the FS or the AMSO per this instruction.

2. ART:

a. Introduction. This is a multi-day program with training sessions lasting 30 minutes to an hour. Students participating in this program shall not fly after spinning. All scheduled syllabus flight events for any given crew day shall be completed prior to spinning. Simulator events may be conducted after an ART event as long as the student is free from AS symptoms. This enclosure contains several tables to be used as follows:

Table 1, Physiology Questionnaire. Student completes during Check-in with the squadron FS.
Table 2, Subjective AS Rating Chart. Used to record student's response to duration and stimulus from ART.
Table 3, ART Checklist. Used for standardization in completing all aspects of ART.

b. ART Instructors. When trained by the AMPM, Flight Surgeons, Aviation Medicine Technicians, Aeromedical Civilians, and Aeromedical Safety Officers, may perform the duties of ART instructors. The ART instructor should always try to place the student at ease when involved with the ART. The goal is to return students to the squadron with the skills needed to overcome AS.

Table 1

PHYSIOLOGY QUESTIONNAIRE

(Intended for AMSO records only. Do not file in NATOPS or Training Jacket.)

Name/Rank: _____ Date: _____
Squadron: _____ Phone #: _____
On Wing's Name:_____ Phase of Training: _____
Flight# (e.g. C4001) _____
Days per week flying: _____
Airsickness During IFS: Active Passive None. If airsick were meds used: Yes No

INTERVIEW

1. Number of AS episodes: Active_____ Passive_____
2. Circumstances under which AS occurs:
   - High G's Negative G's Release from G's
   - Turbulence Yes No
   - Fumes Yes No
   - Aerobatics (Spins, Unusual Attitudes, Inverted, etc.) _____
   - Time sortie began: _____
   - Duration of flight until symptoms occurred: _____
   - IP at controls or you at controls? _____
3. Time last ate: _____ Food eaten: _____
4. Recent illness? _____
5. What do you normally do to keep from getting airsick? How effective? _____
   _____
6. Any problems with IP's? _____
7. Childhood history of motion sickness? _____
8. Problems with:
   - Academics _____
   - Flying skills (Other than AS) _____
   - Simulators _____
   - Briefs _____
   - Other _____

9. Physical Health/Fitness (for all questions answer how much and any recent changes)
   - Sleep (hrs/night) _____
   - Appetite: _____
   - Exercise (hrs/wk) _____
   - Tobacco (type) _____
   - Alcohol (drinks/wk) _____

10. Current status of the following
    Mood: Great Moderate Low
    Confidence: High Medium Low
    Attention/Concentration: High Medium Low
    Interests/Pleasure/How do you relax? _____
    _____
    Energy: High Medium Low
    Motivation to fly: High Medium Low
    Anxiety as a contributor? _____

How do you handle stress? _____
_____

SYMPTOMS OF YOUR AS

1. Body Temperature: Hot Cold
2. Dizziness (spinning) versus lightheadedness _____
3. Drowsiness / yawning _____
4. Headache _____
5. Pallor/Paleness _____
6. Nausea _____
7. Salivation or dry mouth _____
8. Sweating: Hot Cold
9. Weakness _____
10. Efforts to cope, so far: _____
    Effective Partially Effective Ineffective
11. Time needed to recover from AS: Hours:_____ Minutes:_____
12. Vomiting: Yes No
13. Change in severity over time: Better:____ Worse:_____ Unchanged:_____
14. Variation in susceptibility without apparent cause: Yes No
    If yes, how: _____
    _____
15. Other symptoms or comments:_____
    _____
    _____

Enclosure (4)

Table 2

SUBJECTIVE AIRSICKNESS RATING CHART

Name/Rank:	Service:	Date:	Spin Day:
Squadron:	Gum/Mints: Y / N	Ginger: Y / N	Meds: Y / N

(Head movements: S= Straight & Level; R=Right Clearing Turn; L=Left Clearing Turn; RA= Right Aileron Roll; LA=Left Aileron Roll; U=Up; D=Down)

Speed:			Dir:		**SPIN ONE**														Notes
5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	
4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	
3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
0:30	1:00	1:30	2:00	2:30	3:00	3:30	4:00	4:30	5:00	5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	Time
																			Head Mov.

Speed:			Dir:		**SPIN TWO**														Notes
5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	
4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	
3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
0:30	1:00	1:30	2:00	2:30	3:00	3:30	4:00	4:30	5:00	5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	Time
																			Head Mov.

Date:	Spin Day:

Speed:			Dir:		**SPIN ONE**														Notes
5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	
4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	
3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
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1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
0:30	1:00	1:30	2:00	2:30	3:00	3:30	4:00	4:30	5:00	5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	Time
																			Head Mov.

Speed:			Dir:		**SPIN TWO**														Notes
5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	
4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	
3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
0:30	1:00	1:30	2:00	2:30	3:00	3:30	4:00	4:30	5:00	5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	Time
																			Head Mov.

Enclosure (4)

Table 3
ART CHECKLIST

1. Program Introduction. ART is a multi-day program with each session lasting about 30 minutes (with the exception of the first which is about 1.5 hours). Day 1 and subsequent days allow the student to determine different factors influencing their susceptibility to AS. It also gives them the opportunity to practice methods of reducing AS and techniques used to relax the body. ART training will create confidence that students can and will overcome the challenges of AS. Emphasize that we want them to succeed and that statistically, they will.

1.1 Interview. Review the Physiology Questionnaire (Table 1). Discuss the student's history and the following topics:

- Relational stressors (spouse, children, etc.)
- Eating habits
- AS frequency and causal factors
- AS prevention and coping strategies
- Relationship with IPs (coping strategies for conflicts)
- Exercise habits
- Motivation to fly (presence of external pressure)
- Stress management practices

NOTE: If excessive mental anxiety appears to be causal to the AS, recommend they schedule life skills training outlined in Phase II.

1.2. Introduce Prevention of AS.

a. AS Control Demonstration. Teach the student:

(1) Breathing Techniques

(2) Muscle Tensing Exercise

(3) Autogenic and Imagery Skills

(4) Lead Head Movements with Eye Movements

When applicable, student should demonstrate understanding of these discussed techniques.

b. Diet.

- Diet can affect one's susceptibility to AS. Besides adaptation, diet has the greatest impact upon AS. It is advisable not to fly on an empty stomach.

Gastrointestinal variability exists among students and often dietary trial and error will result in success.

- High complex carbohydrate foods such as bagels, whole grain cereals, brown rice and many others are well tolerated by AS prone students. Do not overeat before flying and avoid alcohol the evening prior. Eat 1-2 hours prior to flying.

- A restricted diet can have significant effects on overcoming AS-a short-term sacrifice for a long-term gain. Avoid fatty meats, dairy products, fruits and vegetables with high acid content (e.g., oranges, grapefruit, and tomatoes), and foods that are greasy or spicy the day prior and the day of flying. Maintain good hydration with plenty of water and sports drinks.

- Foods high in protein have recently shown an ability to reduce nausea associated with motion sickness. Natural peppermint oil in hard candies, have also shown an ability to reduce nausea associated with motion sickness.

c. <u>In Flight</u>.

- Lead with the eyes during head movements/clearing turns.
- Slow, deep diaphragmatic breathing; inhale slowly through nose and exhale slowly and fully through mouth such that expansion and contraction is felt in the abdomen wait 1 second and repeat a minimum of 5 times.

- Look outside to avoid a vestibular-ocular mismatch.

- Position cold air vents towards the face. When feasible, allow cold air to blow on wrists and up forearm sleeves.

- Muscle tension/relaxation techniques.

- Imagery ("happy place" or review flight profile and next checklist).

- Incorporate relaxation techniques while chair-flying, especially immediately before a maneuver that commonly makes the student airsick)

- Drinking a little iced water reduces dry mouth and a little poured on the neck stimulates the sympathetic nervous system reducing symptoms of AS. Too much water could activate the LPU inflation.

- Nasally inhaled isopropyl alcohol provides increased nausea relief and may be utilized.

2. Student's Responsibility.

☐ Read and understand the airsickness handout (encl. 6).

☐ Properly prepare for the flying environment by sleeping, hydrating, and eating as directed in the AS handout.

☐ Attend the scheduled ART sessions at the designated training lab.

3. Admin Requirements, Equipment and Supplies.

☐ Barany chair

☐ Timing Device

☐ Individual ART Folder

1) Copy or Original referral by FS
2) Physiology Questionnaire (Table 1)
3) Subjective AS Rating Chart (Table 2)
4) Aircrew Rotational Checklist (Table 3)

☐ AS Prevention Techniques (Table 3)

☐ Subjective AS Rating Chart (Table 2)

☐ AS Emesis Bags

4. Subjective AS Rating Chart (Table 2). This chart is used to track the student's response to duration and stimulus. It allows the student to classify their discomfort level.

- Numbers 1 and 2 indicate low arousal not interfering with flight.
- Number 3 indicates medium arousal that will cause the student to deviate from planned flight, e.g., causing the student to transfer flight control to the IP.
- Number 4 indicates incapacitating passive AS or AS that will inevitably lead to emesis should dynamic maneuvering continue.
- Number 5 is marked if the student becomes actively sick.

5. Day One Protocol (Diagnostic Phase). The primary objective for day one is to get to know the student, the history of their problem, and observe their reaction to ART. ART instructor should be observant for personal behavioral patterns and physiological/psychological symptoms in relation to AS.

IMPORTANT

The following are only guidelines. ART should be tailored to the individual and can be a gradual approach with the end goal of achieving spin profile of 20-30 RPM. Spinning should cease if the student approaches becoming actively airsick.

5.1. Day 1, Spin 1 (eyes closed - recommended). During this spin, the intent is to assess the student's susceptibility to motion without visual inputs and establish a baseline. This will allow the student to experience the symptoms prior to emesis. For example, inform the student that they are pale, sweating, flushed, etc. This allows them to acquiring knowledge of what is happening to their body just prior to emesis. Review subjective scale of AS.

IMPORTANT

Prior to spinning, have student place an AS bag in their flight suit pocket, so the bag can easily be reached and used if needed.

- ☐ Student spins with eyes closed.
- ☐ Gradual spin rate which should not exceed 20 rpm.
- ☐ Spin direction is any direction.
- ☐ Spin for ten (10) minutes. Stop the spin if the student approaches the feeling of becoming actively sick.
- ☐ Make a note of any objective symptoms (sweating, pallor, etc.).
- ☐ At every 30 second interval, record on the Subjective AS Rating Chart (Table 2) the level of discomfort.
- ☐ The student will perform head movements as listed on (Table 2).
- ☐ Practice the AS mitigation techniques described in this instruction (Table 3).
- ☐ Upon completion of the spin, discuss subjective and objective symptoms.
- ☐ Provide a ten-minute break before Spin 2.

5.2. Day 1, Spin 2 (eyes open): Before spinning, review techniques to combat AS. Teach aggressive deep diaphragmatic breathing (see table 4) and have them demonstrate proficiency before spin:

- Inhale slowly through nose for three seconds, pause three seconds after inhaling, slow three second exhalation through mouth in a manner which causes the stomach to protrude.
- A good set is 3-4 breaths; use sparingly; focus on quality of breathing vice quantity
- At levels 1-2, slow deep diaphragmatic breathing
- At levels 2-3: Imagery ("happy place" such as a favorite picture or envision performing next maneuver or checklist), muscle tension/relaxation ("drop-offs")

☐ Student is spun with eyes open in same direction as Spin 1.

☐ Spin rate is one revolution every 2-3 seconds (20-30 rpm).

☐ Spin for ten (10) minutes.

☐ Make a note of any objective symptoms (sweating, pallor, etc.).

☐ Record on the Subjective Airsickness Rating Chart the level of discomfort at every 30 second interval.

☐ Do not allow the student to become "active."

☐ Conduct maneuvers as depicted on (Table 2).

☐ Upon completion of the spin, discuss subjective and objective symptoms.

☐ Discuss proper breathing, eye fixation/leading with eyes to limit motion input, and the drop-off maneuver.

6. Day Two and Subsequent Days Protocol. Sessions consist of two ten-minute spins separated by a 10 minute break.
The primary objective of day two is to reinforce the student's understanding of symptoms that precede uncontrollable AS. As the student progresses, the rotational rate should be increased.

☐ Practice deep diaphragmatic breathing.

☐ Practice “Drop-Off” maneuver technique.

☐ Practice progressive muscle relaxation.

☐ Require the student to control their arousal level.

☐ Spin rate is one revolution every 2-3 seconds (20-30 rpm).

☐ Alternate direction of spins.

☐ Make a note of any objective symptoms.

☐ Upon completion, discuss subjective and objective symptoms.

☐ **Set appointment time for the next training session.**

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AIRSICKNESS REVIEW BOARD (ARB)

1. Definition: An ARB is a special Training Review Board convened to assess a student's potential for successfully completing the flight training syllabus in light of significant AS problems and to make a recommendation to the Commanding Officer regarding attrition or retention for persistent AS.

2. Convening Authority: Commanding Officer

3. When ARB should be convened:

   a. In accordance with enclosure (X).

   b. Whenever the Commanding Officer deems necessary.

4. Composition of the Board:

The board shall consist of two to four instructors of the same training squadron (Operations and Student Control departments should be represented), and should include a FS and AMSO when possible. The senior line officer shall preside as Senior Member of the Board and be senior in rank to the student who is the subject of the board. The Senior Member of the Board shall be responsible for all board proceedings. At least one member of the board shall be of the same military service as the student. In the case of an International Military Student (IMS), the Country Liaison Officer (CLO), if one is assigned, and/or the unit International Military Student Officer (IMSO) should attend as a non-voting board member. Potential members include the student's on-wing, flight/class leader, personal advisor, or other instructor familiar with the case.

5. Charter of the Board: Evaluate the student's potential for successful completion of the program in light of the current AS problem. Issues to consider include:

   a. Presence or absence of physical or psychological impediments

   b. Motivation

   c. Flight proficiency (airwork)

   d. Intellectual ability (headwork)

   e. Special circumstances, such as stress, anxiety, study habits, history of motion sickness, etc.

   f. Human Factors

   g. Safety of flight

   h. Frequency and severity of AS symptoms

i. Were applicable AS guidelines followed in accordance with this instruction?

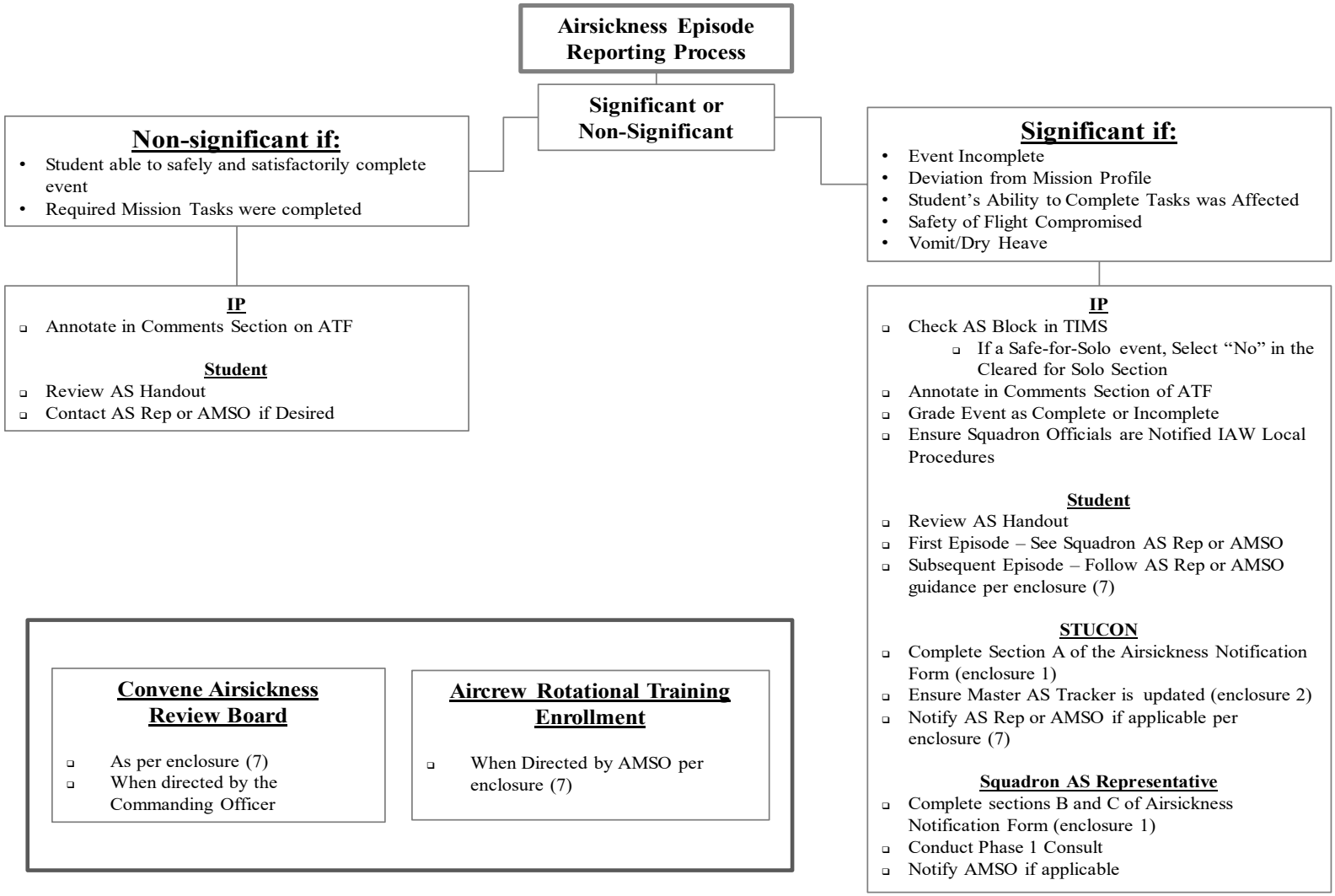
6. Potential Recommendations to unit CO, based on majority vote:

a. Attrition for persistent AS

b. Retention with limitations or specifications

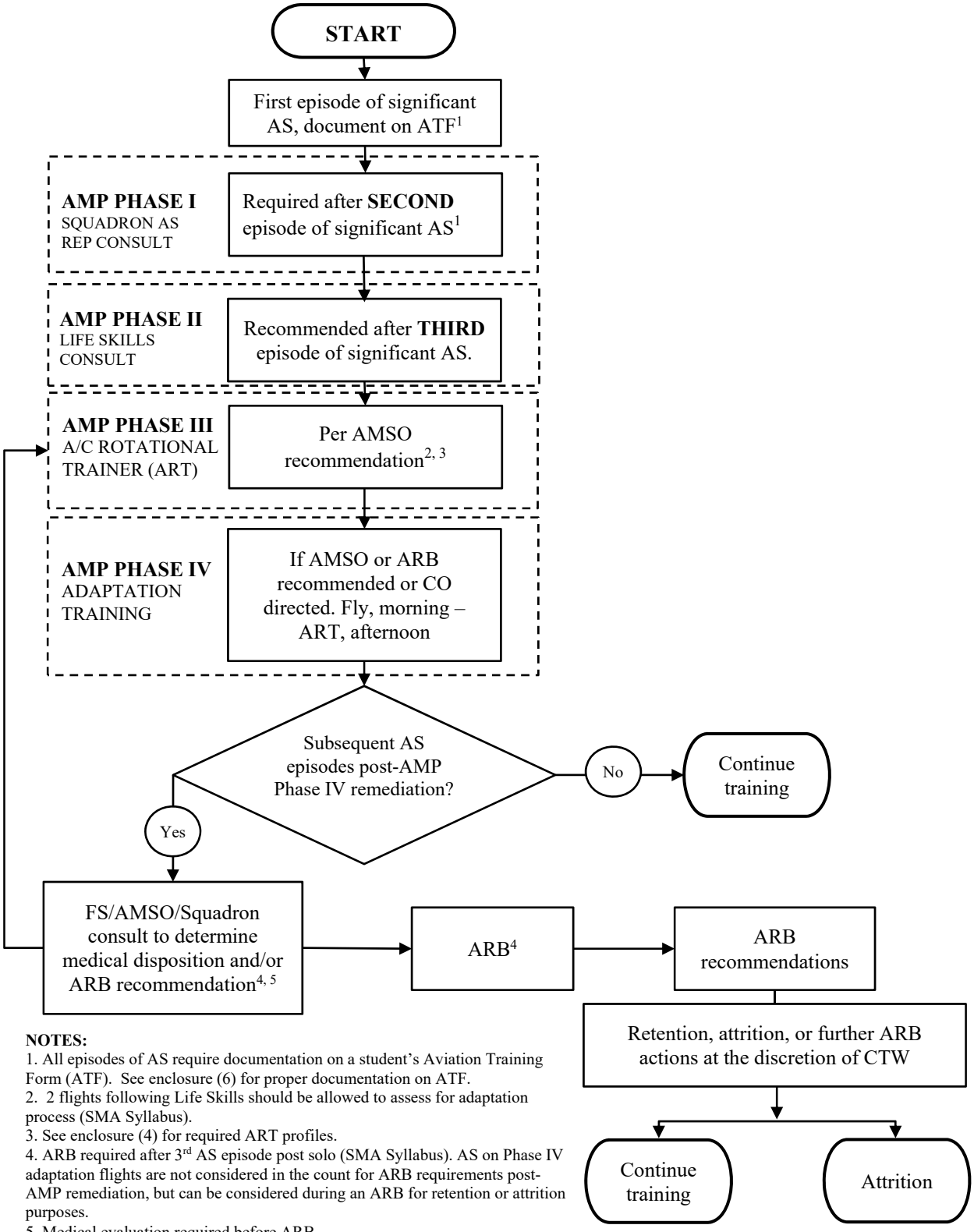
c. Adaptation flights

7. Attrition: Attrition from flight training for reason of AS shall be handled in accordance with the medical or administrative directives of the parent service or country.


Airsickness Episode Reporting Process
Significant or Non-Significant
Non-significant if:
• Student able to safely and satisfactorily complete event
• Required Mission Tasks were completed
IP
Annotate in Comments Section on ATF
Student
Review AS Handout
Contact AS Rep or AMSO if Desired
Significant if:
• Event Incomplete
• Deviation from Mission Profile
• Student's Ability to Complete Tasks was Affected
• Safety of Flight Compromised
• Vomit/Dry Heave
IP
Check AS Block in TIMS
If a Safe-for-Solo event, Select "No" in the Cleared for Solo Section
Annotate in Comments Section of ATF
Grade Event as Complete or Incomplete
Ensure Squadron Officials are Notified IAW Local Procedures
Student
Review AS Handout
First Episode – See Squadron AS Rep or AMSO
Subsequent Episode – Follow AS Rep or AMSO guidance per enclosure (7)
STUCON
Complete Section A of the Airsickness Notification Form (enclosure 1)
Ensure Master AS Tracker is updated (enclosure 2)
Notify AS Rep or AMSO if applicable per enclosure (7)
Squadron AS Representative
Complete sections B and C of Airsickness Notification Form (enclosure 1)
Conduct Phase 1 Consult
Notify AMSO if applicable
Convene Airsickness Review Board
As per enclosure (7)
When directed by the Commanding Officer
Aircrew Rotational Training Enrollment
When Directed by AMSO per enclosure (7)

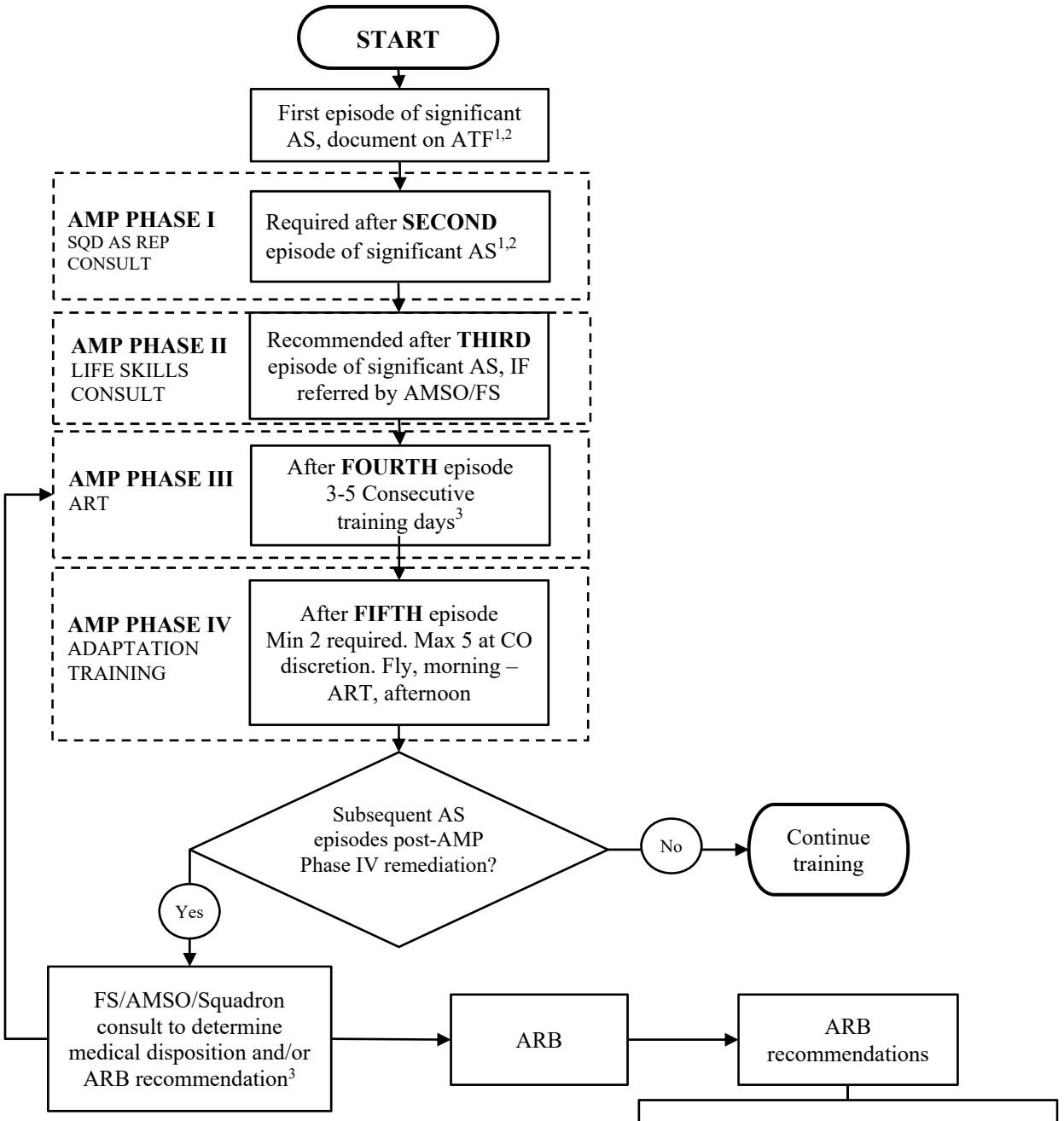
AIRSICKNESS FLOW CHARTS

Primary T-6A UMFO/ T-6B SMA Syllabus



NOTES:
1. All episodes of AS require documentation on a student's Aviation Training Form (ATF). See enclosure (6) for proper documentation on ATF.
2. 2 flights following Life Skills should be allowed to assess for adaptation process (SMA Syllabus).
3. See enclosure (4) for required ART profiles.
4. ARB required after 3rd AS episode post solo (SMA Syllabus). AS on Phase IV adaptation flights are not considered in the count for ARB requirements post-AMP remediation, but can be considered during an ARB for retention or attrition purposes.
5. Medical evaluation required before ARB.

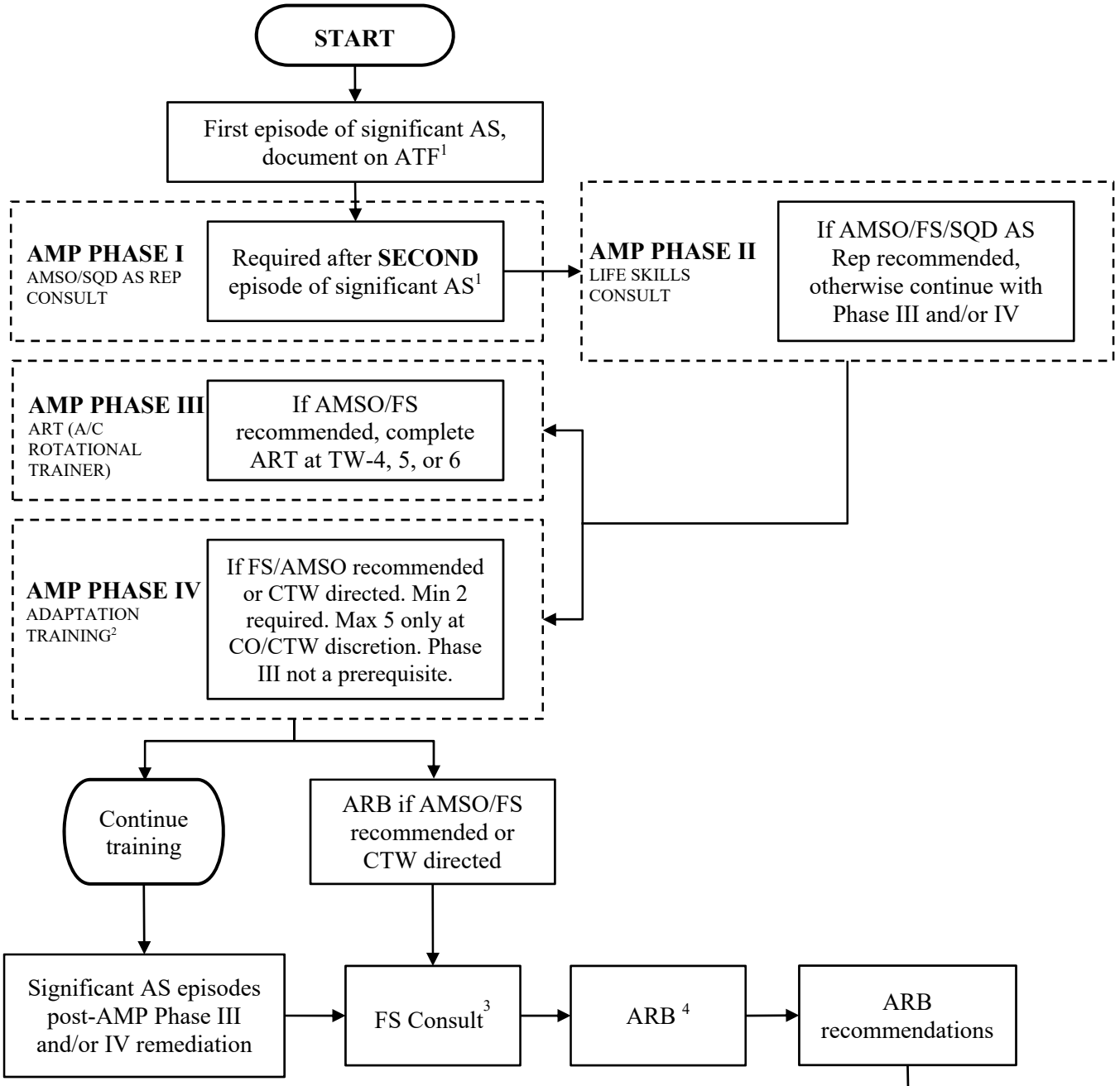
T-44C SMA Syllabus



NOTES:
1. All episodes of AS require documentation on a student's Aviation Training Form (ATF). See enclosure (6) for proper documentation on ATF.
2. A student is only considered airsick if they are at a flight station when symptoms arise or are too debilitated to safely assume a flight station.
3. See enclosure (4) for required ART profiles.
4. ARB required after 2nd AS episode post solo. AS on Phase IV adaptation flights are not considered in the count for ARB requirements post-AMP remediation, but can be considered during an ARB for retention or attrition purposes.

Enclosure (7)

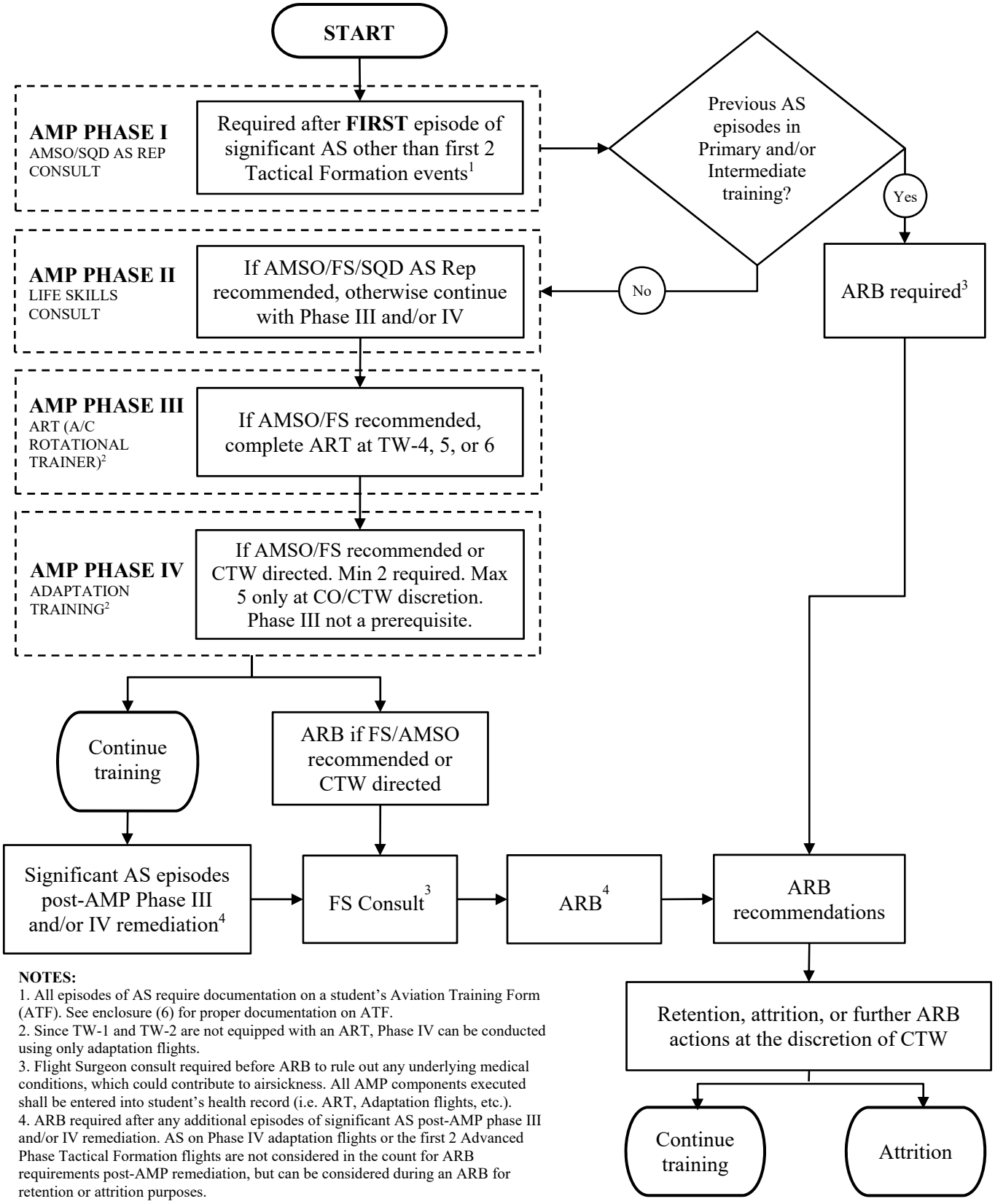
Intermediate T-45C SMA / Advanced T-45C UMFO Syllabus



NOTES:
1. All episodes of AS require documentation on a student's Aviation Training Form (ATF). See enclosure (6) for proper documentation on ATF.
2. Since TW-1 and TW-2 are not equipped with an ART, Phase IV can be conducted using only adaptation flights.
3. Flight Surgeon consult required before ARB to rule out any underlying medical conditions, which could contribute to airsickness. All AMP components executed shall be entered into student's health record (i.e. ART, Adaptation flights, etc.).
4. ARB required after any additional episodes of significant AS post-AMP phase III and/or IV remediation. AS on Phase IV adaptation flights or the first 2 Intermediate Phase Tactical Formation flights are not considered in the count for ARB requirements post-AMP remediation, but can be considered during an ARB for retention or attrition purposes.

Enclosure (7)

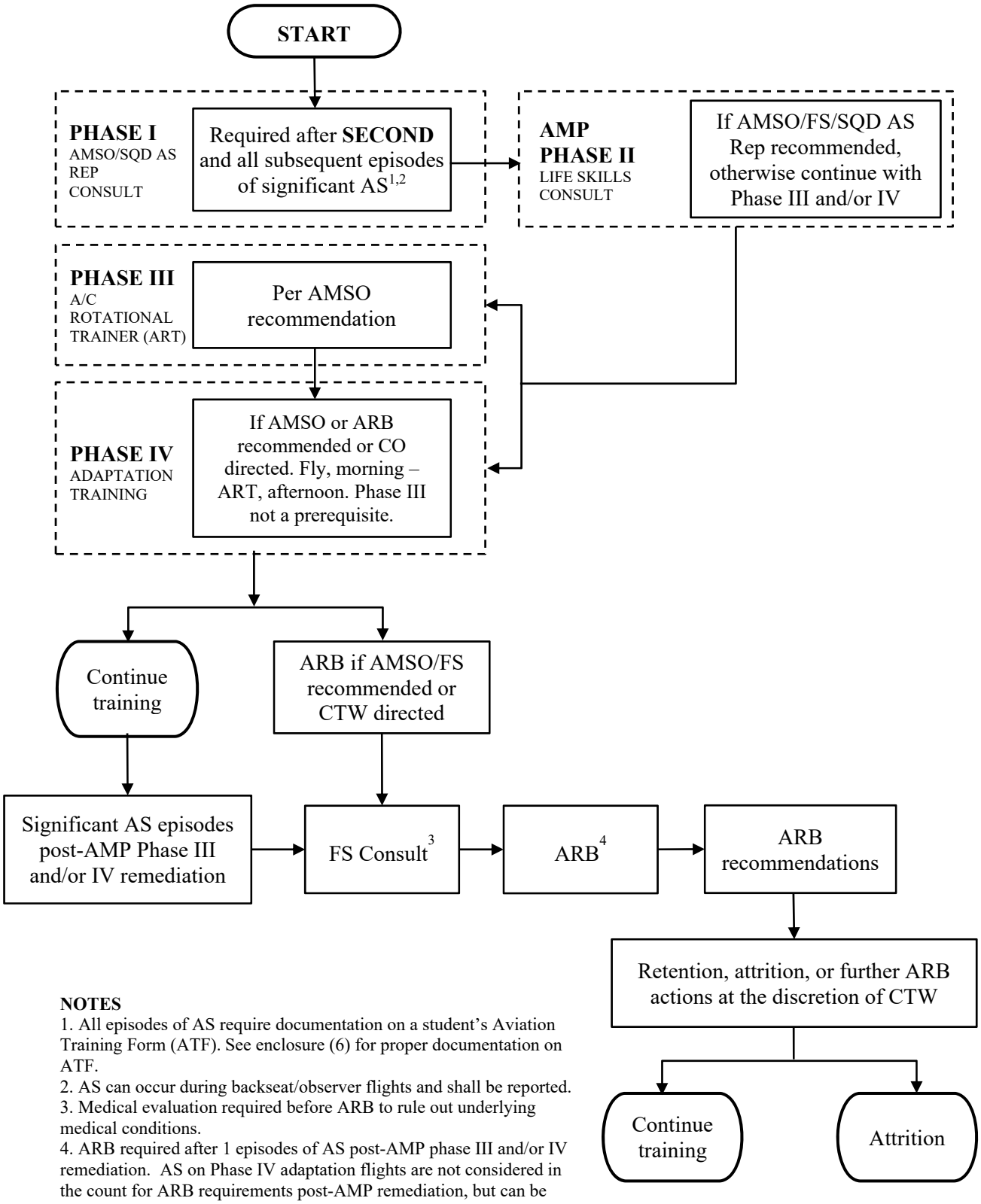
Advanced T-45C SMA Syllabus



NOTES:
1. All episodes of AS require documentation on a student's Aviation Training Form (ATF). See enclosure (6) for proper documentation on ATF.
2. Since TW-1 and TW-2 are not equipped with an ART, Phase IV can be conducted using only adaptation flights.
3. Flight Surgeon consult required before ARB to rule out any underlying medical conditions, which could contribute to airsickness. All AMP components executed shall be entered into student's health record (i.e. ART, Adaptation flights, etc.).
4. ARB required after any additional episodes of significant AS post-AMP phase III and/or IV remediation. AS on Phase IV adaptation flights or the first 2 Advanced Phase Tactical Formation flights are not considered in the count for ARB requirements post-AMP remediation, but can be considered during an ARB for retention or attrition purposes.

Enclosure (7)

Advanced TH-57 SMA Syllabus



NOTES

1. All episodes of AS require documentation on a student's Aviation Training Form (ATF). See enclosure (6) for proper documentation on ATF.
2. AS can occur during backseat/observer flights and shall be reported.
3. Medical evaluation required before ARB to rule out underlying medical conditions.
4. ARB required after 1 episodes of AS post-AMP phase III and/or IV remediation. AS on Phase IV adaptation flights are not considered in the count for ARB requirements post-AMP remediation, but can be considered during an ARB for retention or attrition purposes.

Enclosure (7)

AIRSICKNESS HANDOUT

AIRSICKNESS

1. Airsickness is the result of conflicting sensory input between the visual and vestibular systems. Common signs and symptoms usually progress from stomach awareness, lethargy, apathy, sweating, salivation, drowsiness, and headache to vomiting. Airsickness is a common problem encountered in aviation training that historically has affected 60% of student pilots to some degree. Airsickness will usually abate with continued and consistent flying.

2. Prevention and treatment of airsickness.

a. Pre-flight Prevention.

(1) Diet and Hydration. Maintaining a balanced diet is essential for overall wellness. Eating bland food with adequate carbohydrates and protein an hour before flying is advisable. Until you determine what works (or does not work) for you, **avoid**: greasy, spicy, fatty foods, acidic foods (oranges, tomatoes or lemons), and dairy products. Avoiding dairy products means not only milk on your cereal, but also no cheese or mayo on your sandwich. Maintain proper hydration with juice, water or a sports drink. Take and consume water on training flights.

(a) Dairy Products. **Do NOT use milk** on your cereal. Milk and other dairy products are high in fat which take longer to digest. Milk has the tendency to exacerbate "stomach awareness" symptoms potentially aggravating airsickness arousal level. Also, stay away from any food or drink that has a high acidic content. Additional acid is not needed in your stomach. The primary purpose of this particular diet, one to two hours prior to flight, is to reduce/minimize the amount of stomach acid. Use your better judgment when adding new/additional foods to your "*before flight*" menu.

(b) Sources of Complex Carbohydrates. This is a *suggested* list; there are many other foods high in complex carbohydrates.

1. Grits, oat cereals with no milk, whole grain cereals, pancakes, waffles, French toast, muffins, bagels.

2. Pasta, without sauces (tomato sauce is high in citric acid).

3. Crackers, popcorn, pretzels.

4. All vegetables, especially peas, beans, lentils, corn, lima beans, potatoes, sweet potatoes, and squash; unless they cause excess gas**.**

5. Juices, non-acidic only (like apple). No lemonade, orange or tomato juices.

6. Any sandwich combination is good; however, do not use mayonnaise, spicy pepper, spicy mustard, or cheese.

(2) Rest. Eight hours of uninterrupted sleep is recommended the night prior to flying.

(3) Ginger. Ginger root tablets can create a gastrointestinal relaxation effect that helps prevent airsickness and have no adverse medical side effects. Also, they have been approved by the flight surgeons. Recommended minimum dosage is one 250 mg tablet with dinner, one tablet with breakfast, and one tablet prior to walking to the aircraft. Since ginger taken alone can be harsh, tablets should always be taken with food. Total daily intake of ginger is limited to 4 grams per day.

(4) Peppermint. Natural peppermint oil also creates a gastrointestinal relaxation effect. Eating peppermint candy before flight can help settle the stomach.

(5) Anxiety**.** Proper preflight preparation with studying and chair flying will help decrease anxiety. Moderate physical training (PT), both anaerobic (e.g. weight lifting, plyometrics) and aerobic (e.g. running, swimming) will help the body "learn" to regulate the release of the stress hormone called cortisol (even during non-exercise/stressful events like check-rides and tests). Cortisol is naturally released during stressful events ("fight or flight") and exercise. This hormone is normal and controllable, but can cause adverse effects at excessively high levels. Moderate exercise will also enhance the release of beneficial hormones that aid in improved sleep, recovery, and mood. Excessive exercise bouts (e.g. extending past 45 minutes in duration and/or too frequently at high intensities) may lead to dehydration, higher levels of cortisol in the bloodstream, injury, compromised immune system (cold/flu), and general fatigue. Remember to re-hydrate following all exercise. Along with a healthy diet and regular exercise, meditation has proven beneficial for reducing stress and anxiety.

b. In-Flight Management.

(1) The complex instrument package of the T-6 draws attention to the flight instruments during flight. To become a better pilot and avoid the vestibular-ocular mismatch that causes airsickness, students should employ an outside scan by placing the center of the HUD (blue line that occurs at the overlap of the two HUD panes) on the horizon. Keeping the head steady when possible while scanning only with the eyes can be a helpful technique to minimize coriolis forces and nausea. Make smooth control and head movements, since abrupt movements can incite sensory mismatch. The following T-6 maneuvers should be planned to be conducted in a manner that can be performed to provide maximum recovery time.

(a) Power-on Stall. With nothing above the glare shield to stimulate vision, a natural tendency is to look solely at cockpit instruments. To avoid airsickness, students should momentarily look outside with eyes only to verify attitude while slowing through 100 knots.

(b) G-Awareness Maneuver. The sensitivity of the instruments during high performance maneuvers can cause students to chase the proper attitude. The resulting erratic up and down nose movements above and below the horizon not only causes poor performance but airsickness, as well. Find a point on the aircraft (the point where the upper exhaust stack meets the airframe) to drag across the horizon.

(c) ELP series Stalls. Initial recovery will have the nose of the aircraft searching for a stable attitude. Until the aircraft entirely stabilizes, students should use the prop arc on the horizon as a visual reference. Only after the prop arc is stable on the horizon should the 8-10 degrees nose down be verified on the attitude indicator.

(d) Spin. Unlike all the other maneuvers, keep an inside scan as much as possible while conducting spin training. Looking outside too quickly during spin recovery will induce airsickness-wait about two seconds to look outside. The abnormal, abrupt motion of a spin can render the stomach queasy. If altitude and airspeed permits, avoid excessive G-loading during recovery pull-out.

(e) Unusual Attitudes. Negative G-loading unsettles the stomach. Proper FTI procedures for nose high recovery are to maintain positive G's on the aircraft, which is particularly important to avoid airsickness.

(f) Landing Pattern. Coupled with additional turbulence, the dynamic nature of the landing pattern causes a lot of head and aircraft movements that incite airsickness. Airsickness recovery is difficult because flying wings level is not possible. For instance, when the aircraft is #1 upwind it has to turn and at the abeam position it must also turn. If time and fuel permit, depart the pattern to recover and reenter when airsickness subsides.

(2) When airsickness is recognized, students should be proactive and not reactive with trying to correct the problem; don't just endure it.

(3) Cockpit management and maintaining controls of the aircraft as much as possible are imperative to avoiding airsickness. Storing gear in the right pocket causes students to fly with the left hand, with which they are not proficient. Placing the barf bag in the storage compartment will necessitate head movement and an inside scan when an outside scan is needed the most. Put the barf bag in the left G-suit pocket or under the knee board. When the IP demonstrates a maneuver, lightly ride the controls so as to not be surprised by unanticipated aircraft movements.

(4) If you start to experience airsickness, inform your instructor the degree of airsickness using the airsickness scale (1 feeling normal, 10 vomiting). When experiencing airsickness students should tell instructors their levels after each ops-check or checklist.

(5) Reduce airspeed and fly aircraft wings level. Slowing down saves fuel, reduce turbulence, and permit more straight and level flight needed to recover. Resuming maneuvers too quickly increases the chance of a relapse.

(6) Diaphragmatic Breathing. Perform deep diaphragmatic breathing when airsickness symptoms begin. Close your mouth and inhale slowly through your nose so that your abdomen expands. This helps to prevent air swallowing and hyperventilation. Slowly exhale through your mouth. Continue at a slow, comfortable pace. Resume normal breathing once your airsickness symptoms have dissipated.

(7) Water bottle. Most right-handed people will instinctively use their right hand to hydrate- forcing them to fly rough left-handed flight. Take a sip of iced water to break up the thick spit that develops during airsickness. Water fountain water will warm to a temperature that will provide little relief when it is needed. The water bottle should be small enough to be stored in the left G-suit pocket and have a top that permits one-hand operation, so that normal control can be maintained. The student should also be proficient connecting the left bayonet fitting of the oxygen mask.

(8) Cool down. While continuing to fly with your right hand, undo the left sleeve and put your hand above the air conditioning vent on the glare shield, so that cool air flows up the sleeve. For added relief pour some water on the back of the neck- this distracts the affected and also cools them down. Caution: an extreme amount of improperly poured water could cause inadvertent LPU activation.

c. Post-Flight Management.

(1) A visit to the Squadron Airsickness Representative (AR) or AMSO is required after the second episode of airsickness and on any occasion thereafter. Relaxation techniques, adaptation flights, Life Skills consults, and the Barany chair may be prescribed by the Squadron AR, or AMSO.

(2) Call the AMSO if you require additional assistance pertaining to airsickness.

EXAMPLE OF DAILY ROUTINE

Breakfast

- No dairy products
- Bagel with peanut butter only or including honey/grape or apple jelly
- One Ginger tablet (250mg)
- Drink water, apple juice, or a sports drink (no orange, lemonade or tomato juices)

Flight Brief: know briefing info thoroughly (helps reduce stress)

- Following brief, eat a peanut butter sandwich
- One Ginger tablet (250mg)
- Drink water or sports beverage…no more than 20 oz.
- While walking to paraloft, eat a peppermint candy

In-flight

- Minimize head movements/lead with eyes - helps reduce dizziness/nausea
- Exercise deep breathing technique if nauseous
- Ride the controls when IP is demonstrating– helps provide better SA

Lunch

- Refrain from eating greasy, spicy or fried foods
- No dairy products

Dinner/Supper

- Avoid greasy, fried, and spicy foods like Italian red sauce for pastas, cheese, pepperoni pizza
- Grilled chicken or fish, salads
- One Ginger tablet (250mg)
- Drink water, tea, or sports beverage
- No dairy products
- Complex carbohydrates (rice, bread, pasta, etc.)