



# Air Medical Guidelines

Prepared by:

The Air Medical Task Force  
And

The California Emergency Medical Services Authority

Draft  
EMSA # XXX

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6 **Air Medical Guidelines**  
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9 Prepared by:

10 The California Emergency Medical Services Authority  
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12  
13 Steve Tharratt, MD, MPVM  
14 Director  
15 California EMS Authority  
16

17 Bonnie Sinz, RN  
18 EMS Systems Division Chief  
19 California EMS Authority  
20

21 Tom McGinnis, EMT-P  
22 Transportation Coordinator  
23 California EMS Authority  
24

25 Tonya Thomas, EMD  
26 Communications Coordinator  
27 California EMS Authority  
28

29 The Air Medical Task Force

30  
31 Kim Belshé  
32 Secretary  
33 California Health and Human Services Agency  
34

35 Arnold Schwarzenegger  
36 Governor  
37

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# Air Medical Guidelines

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# I. Acknowledgements

## Air Medical Task Force constituent membership consists of:

Lisa Abeloe, Calstar	Michael Antonucci, Upland Fire Department
Joe Barger, M.D., Contra Costa EMS	Louise Bell, Calstar
William Brown, LA County Sheriff	Linda Brumfield, LA County Fire
Liz Budek, LA County Fire	Heidi Castle, Kern County Fire
Cathy Chidester, LA County EMS	Neal Cline, Enloe FlightCare
Roy Cox, Mercy Air	Mitch Dattillo, ENA
Kara Davis, San Bernardino Sheriff	Don De Young, LA County Fire
Greg Donnelly, San Diego City Fire	Robert Donovan, M.D., PHI Air Medical Group
Ross Elliott, Kern County EMS	Lisa Epps, Skylife
Tim Ernst, LA City Fire	Perry Esquer, San Diego Fire and Rescue
Brian Fennessy, San Diego City Fire	Eric Fetherston, LA County Fire
Barry Fisher, Ventura County EMS	Joseph Foley, LA City Fire
Mike Giannini, Calif. Fire Chiefs	Steven Giles, Ventura County Sheriff
Christian Giller, Calstar	Erich Goetz, LA County Fire
Jim Goldsworthy, LA City Fire	Rachael Hanks-Saphore, Norcal EMS
Virginia Hastings, ICEMA	Robert Hesse, PHI Air Medical
Tom Hornsby, San Bernardino Sheriff	Doug Jackley, East Bay Regional Park Air
Bill Jones, Mercy Air	Dave Kenney, Ventura County Sheriff
Colleen Kuhn, EMS Commission	Nancy Lapolla, LA County Fire
Mike Layhee, LA County Fire	Kerry MacPherson, LA County Fire
David Magnino, Calif. Highway Patrol	Anthony Marrone, LA County Fire
Gary McCalla, REACH	Berend Meelker, San Bernardino Sheriff
John Michelini, VHS Consulting	Patrick Miles, Depart. Of Aeronautics
Patty Murphy, Tri-State Care Flight	David Nevins, Calif. Ambulance Assoc.
Jan Ogar, ENA	Kevin O'Loughlin, SJ County EMS
Tony Pallitto, Kern County EMS	Bill Payne, Cal Fire
Temple Petty-Fletcher, Care Flight	Graham Pierce, PHI Air Medical Group
Vickie Pinette, SSV EMS	Jane Puckett, Santa Barbara Co Fire
Ray Ramirez, Calif. Fire Chiefs	Lyn Riley, LA County Sheriff
Thomas Ronay, M.D., San Luis Obispo EMS	Eric Rudnick, M.D., Norcal EMS
Sean Russell, REACH Air Medical	Tom Short, LA County Fire
Karin Slate, Orange County Fire	Glenn Smith, LA City Fire
Myron Smith, Hall Ambulance / CAA	Scott Steel, Tri-State Care Flight
Pamela Steen, Mercy Air	Brian Stephens, Orange County Fire
Jacqueline Stocking, Air Methods	Cindi Stoll, Riverside County EMS
Gary Tamkin, M.D., Calif. Highway Patrol	John Telmos, LA County EMS
Eric Thomson, Sonoma County Sheriff	Margaret Tole, Care Flight
Reza Vaezazizi, M.D., ICEMA	Craig Vanderwaag, Santa Barbara Fire
Brian Warner, REACH Air Medical	John Winder, Cal Fire

## Air Medical Task Force EMS Authority Staff :

Steve Tharratt, Director	Dan Smiley, Chief Deputy Director
Steve McGee, Legal Council	Bonnie Sinz, EMS Systems Division Chief
Donna Nicolaus, EMS Systems Manager	Tonya Thomas, Communications Coordinator
Tom McGinnis, Transportation Coordinator	

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## 2 II. Introduction

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4 In 2007, the California EMS Authority held an Aeromedical Summit. The purpose of this  
5 summit was to bring the parties interested in aeromedical services in California together to  
6 discuss the overall EMS air response in our State. This event was attended by representatives  
7 from all aspects of EMS and the aeromedical industries including clinicians, private and public  
8 providers and local EMS agency representatives.

9

10 During the Aeromedical Summit, several areas of concern with respect to aeromedical  
11 services in California were identified that those in attendance felt were of significance to  
12 warrant closer evaluation. The areas listed as being significant by the Aeromedical Summit  
13 attendees included safety, communication, skill and training, fiscal issues including  
14 reimbursement, utilization and quality assurance standards within local EMS Agency (LEMSA),  
15 inter-county and oversight of registered nurses.

16

17 Based on the concerns stated by attendees of the Aeromedical Summit, EMSA decided to  
18 develop a statewide multi-jurisdictional task force to create statewide guidelines for use by  
19 providers and LEMSAs for air medical EMS. As the task force was developed, the issues to  
20 be considered grew in complexity. The task force decided to separate its resources and  
21 develop two working groups to address items that fell into either the medical or operational  
22 component of aeromedical services. Once the group assignments were established, the  
23 groups began meeting independently approximately once a month. The overall task force  
24 would meet approximately every other month to go over the status of the various projects each  
25 group was working on.

26

27 The process of meetings continued over a two year period of time with many documents being  
28 created to cover the areas of concern first brought up during the Aeromedical Summit. In  
29 2009, the two working groups were combined back into a single task force to complete the  
30 process of placing the various individual group work pieces into one single guideline.

31

32 Once the single guideline draft was completed, EMSA administration reviewed it prior to a  
33 public comment period. Upon completion of the public comment period, the Air Medical  
34 Guideline was presented to the Commission on EMS for approval.

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36 The Air Medical Guideline is a great showing of what can be accomplished when the EMS  
37 constituents work together collaboratively to achieve a common goal.

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### III. Definitions

**Air Operations Branch Director:** A position within the ICS system that, when assigned, is designated with responsibility for incident-related air operations. This position may be the designated ground contact. The radio designator would be: ***(Incident name) Air Ops.***

**Authorizing Agency:** Local EMS agency which approves utilization of specific EMS aircraft within its jurisdiction.

**BRN:** Board of Registered Nursing.

**CAMTS:** Commission on Accreditation of Medical Transport Services.

**CEMSIS:** California EMS Information System.

**Classifying Agency:** Entity which categorizes the EMS aircraft into the groups identified in California Code of Regulations Section 100300 (c)(3).

**Cold Load/Fuel:** Loading or fueling of aircraft with rotor blades stopped.

**Emergency Landing Zone (ELZ):** the term used to designate an “emergency landing site” of an EMS helicopter by a public safety official.

**Emergency Landing Zone Coordinator:** A position consistent with ICS protocol, when assigned, is designated with responsibility for securing an emergency landing zone (ELZ), and conducting landing, patient transfer and take-off operations. This position may be the designated ground contact. The radio designator would be: ***(Incident Name) LZ Coordinator.***

**EMD:** Emergency Medical Dispatch

**EMS Helicopter:** A Federal Aviation Administration acronym for an EMS helicopter. Within this document, the terms HEMS applies to the operation of an Emergency Medical Services helicopter (EMS helicopter) as defined in Title 22, Chapter 8, §§ 100279.

**Flight Following:** Monitoring movements of aircraft while in the air.

**FOG :** Firescope Field Operations Guide, ICS 420-1, June 2004

**Helicopter Coordinator:** A position within the ICS system that, when assigned, is designated with responsibility to coordinate tactical or logistical air operations. For the purpose of this policy, the Helicopter Coordinator would typically coordinate with the Incident Medical Branch during a major MCI. The Helicopter Coordinator fulfills the same function as the Ground Ambulance Coordinator. This position may also be the designated ground contact. The radio designator would be: ***(Incident name) Helicopter Coordinator (HLCO).***

**HEMS:** Helicopter Emergency Medical Services.

**Hot Load/Fuel:** Loading or refueling of aircraft with rotor blades turning.

1 **ICS:** Incident Command System.  
2

3 **Incident Commander:** A position within the ICS system that is designated with overall incident  
4 management responsibility. The Incident Commander (or Unified Command in multi-  
5 jurisdiction operations) is responsible for ensuring the assignment of a **designated ground**  
6 **contact** for EMS helicopter operations under this Guideline. In some circumstances, the I/C  
7 position may be the designated ground contact. The radio designator would be: **(Incident**  
8 **name) I/C.**  
9

10 **Jurisdiction of Origin:** “Jurisdiction of Origin” for the M-JASP means the local EMS agency  
11 where the M-JASP headquarters is located in California or if a M-JASP is located outside the  
12 state of California, if possible, the local EMS agency where the initial base of operations was  
13 established.

14 **LEMSA:** Local emergency medical services agency.

15 **Multi-Jurisdictional EMS Air Medical Service Provider (M-JASP):** “Multi-Jurisdictional Air  
16 Service Provider”, as used in this Guideline, means an Air Medical Service Provider that  
17 operates EMS air bases located in more than one local EMS agency (LEMSA) jurisdiction  
18 within California or an Air Service Provider that is based outside of California but transports  
19 patients to or from multiple authorizing EMS agency jurisdictions within California on a routine  
20 basis. This definition is exclusive of mutual aid provider agreements.

21 **NEMIS:** National EMS Information System.  
22

23 **Private Provider:** Entity that is not owned by a public safety agency.  
24

25 **Public Provider:** Entity that is operated by a public safety or other governmental agency.  
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1 IV. Dispatch

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3 **General:**

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5 The utilization of helicopters within EMS systems is widespread. A benefit from  
6 the utilization of EMS helicopters may be the time saved during air transport as  
7 compared to ground transport. Other benefits are achieved when aircraft are  
8 utilized to perform rescue activities or flight crews perform specialized medical  
9 procedures.

10  
11 The helicopter provides a mechanism to potentially reduce the amount of time  
12 that it takes to deliver a patient to an appropriate medical facility. Given that  
13 saving time is a key component of helicopter use, it is imperative that all facets of  
14 the incident be managed in a way that attempts to accomplish this goal.

15  
16 Several time elements are created when a request is placed for a helicopter.  
17 These time elements are similar to those that exist for ground ambulances. The  
18 request for a helicopter from a dispatch center or hospital is not unlike a 9-1-1  
19 call placed by a person in need of medical attention. As soon as the request for  
20 assistance is made, there is an expectation on the part of the caller that every  
21 conceivable effort is being made to deliver the requested response in the most  
22 expeditious manner possible.

23  
24 **Operational Guidelines:**

25  
26 In an effort to accomplish the aforementioned goals, the following  
27 recommendations for helicopter dispatch are made:

- 28  
29 1. For incidents with an expectation that Helicopter EMS (HEMS) will be  
30 necessary (based on information secured by the call taker), it is  
31 acceptable to dispatch the appropriate aircraft as soon as possible.  
32 Known as “simultaneous dispatch”, this practice obviates the need for first  
33 responders to arrive at the scene and initiate the request.  
34  
35 2. For incidents that meet certain EMD criteria and occur in areas where the  
36 expected ground transport time to the appropriate facility would exceed  
37 the total time to deliver the patient to the Emergency Department (ED) via  
38 air, the simultaneous dispatch of aircraft should occur. Simultaneous  
39 dispatch should also occur whenever multiple patients are anticipated to  
40 exceed the capacity of ground resources. In the event air resources are  
41 not dispatched with ground resources, air may be requested by the  
42 responding ground units or incident commander.  
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3. The use of simultaneous dispatch requires a robust continuous quality improvement process (CQI) with the appropriate medical and operational oversight. This oversight should include representation from both providers and the LEMSA. It is imperative that the immediate availability of air resources at the scene does not lead to the overuse of these resources when ground transport is appropriate.
4. Aircraft requests from all entities, including incident commanders, local agencies, primary Public Safety Answering Points (PSAPs) and secondary PSAPs should be directed to a single ordering point within a region / area.
5. The ordering point, communications center or emergency command center, is responsible for requesting the appropriate air resources based upon all available technologies and in coordination with local polices and procedures.
6. If a request for service is refused by a particular provider, (e.g. weather), this information will be conveyed to any subsequent recipient of the request for service.
7. Aircraft should initiate and maintain their status with the communications center or emergency command center until such time that their mission is complete.

## 1 V. Utilization

2  
3 The decision to use an air medical resource is complex and a number of  
4 important geographical, physiological, and operational factors need to be  
5 considered. Utilization is the decision to dispatch air resources and whether to  
6 use those resources to transport. It is important that emergency medical  
7 services (EMS) personnel utilize consistent and appropriate criteria when  
8 requesting an air medical service for assistance with patient care and transport.  
9 Review of appropriate air medical resource emergency medical services  
10 utilization should be a part of EMS training, as well as a component of the  
11 agency and regional level Quality Assurance process.

### 12 **General:**

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14  
15 The purpose of this section is to encourage the EMS community to actively  
16 develop / review air utilization policies using this document as guidance. This  
17 review should include dispatch, utilization and destination policies. Moreover this  
18 document encourages multi-jurisdictional air resource management. Lastly this  
19 document is not intended to cover every circumstance or condition in which air  
20 resources may be utilized.

### 21 **Operational Guidelines:**

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24 The patient should be critically ill and/or injured (life or limb) and time savings to  
25 definitive care must be considered when utilizing HEMS (Helicopter Emergency  
26 Medical Services). At times, special circumstances related to a particular area  
27 will drive decisions related to HEMS utilization. The following is an outline of  
28 suggested appropriate HEMS utilization:

- 29  
30 1. Local policies and procedures should direct the following activities when an  
31 air medical resource may be dispatched to any of the following incident  
32 types:  
33
- 34 A. The patient(s) meets local air medical triage criteria for trauma and  
35 medical incidents. LEMSAs are encouraged to use triage criteria  
36 based upon nationally recognized standards and developed by  
37 organizations such as American College of Surgeons, American  
38 College of Emergency Physicians, Air Medical Physician's Association  
39 and Centers for Disease Control and Prevention. These triage criteria  
40 should encompass specialty care centers based on resources  
41 available in their areas;
  - 42  
43 B. Any agency who responds or any agency who is dispatched to the  
44 scene requests the air medical resource;
  - 45

- 1 C. A dispatch center when following expedited / simultaneous launch  
2 protocols or has information given by the reporting party would indicate  
3 a need; or  
4
- 5 D. Multi-casualty Incidents (MCI).  
6
- 7 2. Utilization of HEMS should be considered in situations where:  
8
- 9 A. The use of the air medical resource will provide a clinically significant  
10 reduction in transport time to a receiving facility capable of providing  
11 definitive care. If the total time for air transport exceeds the ground  
12 ambulance transport time, air transport may not be indicated. Time  
13 savings must be considered when using HEMS. Time frames will be  
14 influenced by a number of factors, including but not limited to, the  
15 patients' condition, the type of aircraft and current environmental  
16 conditions. These must be considered when weighing whether air  
17 medical resource transport is appropriate.  
18
- 19 B. The patient is inaccessible by other means.  
20
- 21 C. Utilization of existing ground transport services threatens to overwhelm  
22 the local EMS system.  
23
- 24 D. Patient whose condition may benefit by a higher level care offered by  
25 the air medical provider.  
26
- 27 3. Type of air resource:  
28
- 29 A. The preferred aircraft should be an ALS level resource (air ambulance  
30 / ALS air rescue) as determined by the LEMSA. LEMSA policy should  
31 be based on the closest / most appropriate level of care.  
32
- 33 B. Auxiliary Rescue Aircraft are primarily utilized for rescue / rendezvous  
34 purposes only and should not be used routinely for transportation to a  
35 medical facility.  
36
- 37 C. ALS or BLS ground providers should not be used routinely for patient  
38 transport in the aircraft. If the need for ground providers to act as flight  
39 crew is anticipated, they should be pre-trained and / or provided a pre-  
40 flight briefing prior to functioning in the aircraft.  
41
- 42 4. Destination / Cancellation:  
43
- 44 A. Aircraft will comply with LEMSA policy transporting patients to the  
45 closest and / or most appropriate facility.  
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- B. The decision to cancel a responding air medical resource is at the discretion of the incident commander. The decision should be made collaboratively with the on scene medical personnel, after assessing the scene location and patient needs.
  
- C. If the air medical resource pilot questions safety, they shall have the final authority in decisions to continue or cancel the response. Air Medical Resource Management / pilot in command may dictate the need to deviate from destination policy based on safety concerns.

## 1 VI. Landing Zone

2  
3 To provide a consistent, efficient and coordinated approach within California for  
4 the setup and security of all HEMS landing zones.

### 5 6 **General:**

7  
8 Nothing in this section is intended to limit the statutory authority of a public safety  
9 aircraft pilot from an “off-site” landing for the purposes of law enforcement, fire,  
10 medical, or rescue operations; “off-site” landings remain under the oversight  
11 authority of the Federal Aviation Administration.

12 This is not intended to apply to designated Helispot or Heliport facilities or EMS  
13 helicopter operations from designated/approved airport facilities.

14 Within the Incident Command System (ICS) management of the incident rests  
15 with the Incident Commander (I/C), unless the Incident Commander designates  
16 subordinate positions.

17  
18 The typical designated ground contact for EMS helicopter operations in the field  
19 will be either the Incident Commander (*incident name* I/C) or Incident Air  
20 Operations (*incident name* Air Ops).

### 21 22 **Operational Guidelines:**

- 23
- 24 1. Emergency Landing Zone Setup: The designated ground contact  
25 (referred to here as the “ELZ Coordinator”) is responsible for the  
26 identification, selection, preparation and security of the EMS helicopter  
27 ELZ to minimize the risk of scene response hazards.
  - 28  
29 2. Preparation for Arrival – ELZ selection should be guided by the following  
30 considerations:
    - 31  
32 A. Size - During both day and night operations select an area of at  
33 least 100 ft x 100 ft or 100 ft in diameter. The bigger the better.
    - 34  
35 B. Hazards – The ELZ area should be walked by the ELZ Coordinator  
36 to identify any obvious and hidden hazards. This will include any  
37 loose debris, large rocks, tree stumps, etc. Many ground hazards  
38 can be covered by tall grass. Ask yourself the following question:  
39 Will the rotor wash cause debris (trash, plywood, garbage cans,  
40 shopping carts, etc.) to be blown around by the high velocity winds?  
41 Some items can be picked up by the rotor wash and be blown into  
42 the rotor system causing damage to the EMS helicopter or could be  
43 blown away from the EMS helicopter potentially causing harm to  
44 onlookers or scene personnel.
- 45

- 1  
2 C. Obstructions - Tall obstructions / hazards can be determined by  
3 standing in the center of the ELZ and with one arm raised to a forty-  
4 five (45)-degree angle anything that is noted to be in the proximity  
5 of the ELZ and above the individuals arm would be identified as a  
6 hazard and should be communicated to the flight crew prior to  
7 landing. Wires and poles are the most common hazards along with  
8 trees. The perimeter of the ELZ should be walked entirely and  
9 searched for overhead wires and or poles that may indicate the  
10 presence of wires. If able, park vehicles under and parallel to the  
11 direction of the wires.  
12
- 13 D. *Surface – The surface should be as firm and level as possible.*  
14 *Sand, loose dirt or snow is acceptable but could cause visibility*  
15 *problems (brown out or white out) during landing. Be aware that*  
16 *tall grass can be okay but the underlying surface may not be flat, or*  
17 *have hidden obstacles (tree stumps, fence posts). A soggy wet*  
18 *field may cause the EMS helicopter wheels or skids to sink beyond*  
19 *a safe point. The practice of wetting down a dusty ELZ is*  
20 *acceptable in most situations and may be requested by the flight*  
21 *crew. Particular attention should be made to wetting down the*  
22 *perimeter of the ELZ and work toward the center. As the EMS*  
23 *helicopter is making its final approach most debris / dust will initially*  
24 *be blown beginning at the leeward perimeter of the ELZ.*  
25
- 26 E. Slope – The slope of the ELZ should be no greater than ten (10)-  
27 degrees. Always approach the EMS helicopter from the downhill  
28 side, never approach from the uphill side.  
29
- 30 F. Location - Proximity and accessibility are two important aspects of  
31 every ELZ. Try to get the ELZ setup as close to the scene as  
32 practical and 100 ft – 200 ft downwind. Avoid having the EMS  
33 helicopter approach over the incident to minimize rotor wash on  
34 scene operations. Be cognizant of areas for physical access from  
35 the scene to the EMS helicopter, i.e. fences, ditches, guard rails  
36 etc. The patient will have to be carried over these obstacles, so  
37 choose a clear path if available.  
38
- 39 G. ELZ operations on roadways and highways – ELZ operations on  
40 roadways and highways, or immediately adjacent thereto, must be  
41 coordinated with on-scene law enforcement. Avoid blocking traffic  
42 if possible, but if landing on a road stop all traffic in both directions  
43 without exception. Where law enforcement is on-scene prior to  
44 designating the ELZ, the designation of the ELZ should be in  
45 conjunction with the on-scene officer in charge.  
46

1  
2 H. Wind Direction – In most cases the EMS helicopter will land ‘*into*  
3 *the wind*’ or with the wind to its nose. All reference to wind direction  
4 should be made with indication of where the winds are coming  
5 from.

6  
7 I. Smoke Signaling Devices - If you have smoke devices available  
8 ask the flight crew if they would like you to use it. Never use smoke  
9 devices unless this action is coordinated with the pilot. When using  
10 smoke, it must be non-flammable location due to the facts that the  
11 canister may put out a great deal of heat and can be blown away by  
12 the EMS Helicopter rotor wash if not properly positioned or  
13 secured.

14  
15 J. Night Time Landing Operations – The following apply to nighttime  
16 operations:

- 17  
18 1) Do not direct any light directly towards the helicopter pilot  
19 position.
- 20 2) Do not use flares to mark an ELZ unless specifically  
21 requested by the pilot.
- 22 3) The EMS helicopter should be directed into the wind for final  
23 approach.

24  
25 K. Night Time ELZ Marking – using colored lights to mark ELZ is a  
26 complex operation. Care should be taken to ensure that the  
27 incoming EMS helicopter is familiar with local practices regarding  
28 the meaning of any colored lights being used. The ELZ  
29 Coordinator should convey the meaning (red for hazard, amber for  
30 perimeter, etc.) of any colored lights to the pilot prior to the EMS  
31 helicopter’s final approach.

- 32  
33 1) If you have an ELZ kit, place the four (4) amber colored lights  
34 around the perimeter of the ELZ. A fifth (5<sup>th</sup>) white light should  
35 be placed along the perimeter of the ELZ to indicate wind  
36 direction as it enters the ELZ. Signaling lights should be  
37 secured as well as possible given the terrain.
  - 38 2) Without an ELZ Kit - If vehicles are available, vehicles may be  
39 positioned at the perimeter of the ELZ with the headlights  
40 shining toward the center of the ELZ to form an “X.”
  - 41 3) NOTE: The use of colored ELZ lighting systems to designate  
42 “hazard” and/or “ELZ” locations must be carefully coordinated;  
43 extreme care must be taken to ensure that lighting systems  
44 designating “hazard” locations and “ELZ boundaries” do not  
45 conflict from jurisdiction to jurisdiction.
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- L. Once the EMS helicopter is in sight – When ready, the flight crew will request ELZ info. The ELZ Coordinator should report current information on wind speed and direction, hazards, obstructions / obstacles, terrain surface conditions and other special landing considerations. Hand-signals are not normally used during ELZ operations; however, within some interagency operations hand signals maybe standard practice.
- M. Information to be provided to the flight crew while inbound - the ELZ Coordinator should provide:
  - 1) Notification of any chemical hazards both in the area and or patient contamination issues.
  - 2) Notification of multiple helicopters overhead and or inbound.
- 3. Arrival / Ground Operations – the following should be considered during the arrival and ground operations:
  - A. Traffic / Crowd Control – All vehicular and pedestrian traffic must be prevented from entering the ELZ. No scene personnel should get closer than 50 ft to the perimeter of the ELZ unless approved and directed by a flight crew member. Vehicular traffic includes all scene response, police and civilian vehicles. Keep all bystanders at least 100 ft – 200 ft from the ELZ perimeter. A fenced in area will be helpful in keeping people away but, on the other hand there may be livestock that could pose a similar problem.
  - B. The ELZ Coordinator should stand at the upwind edge of the ELZ (in proximity of the white wind direction light at night). This will place the ELZ Coordinator at the far edge of the ELZ with the wind at his / her back. This will also place the designated ground contact away from the EMS helicopter as it makes its final approach into the wind.
  - C. All other personnel or bystanders should be kept to the extreme edge of the ELZ to protect them from objects that could be blown by the rotor wash or downdraft.
  - D. The pilot is the final authority to accept or reject any landing zone and may elect to coordinate with the ELZ Coordinator to select a more suitable location if identified.
  - E. As the EMS helicopter approaches make sure that necessary precautions have been taken to ensure no unauthorized entry into the ELZ during final approach.

1 F. Once the EMS helicopter has made its approach to the ELZ it may  
2 hover and maneuver to provide the best accessibility for the patient  
3 loading.  
4

5 G. After landing:  
6

- 7 1) At no time should any ground personnel approach or return to  
8 the EMS helicopter without specific crew approval, direction  
9 and accompaniment.
- 10 2) When approaching any helicopter, approach in the crouched  
11 position when entering the tip path plane and remain  
12 crouched until well under the rotor disc and close to the  
13 helicopters fuselage.
- 14 3) At no time should personnel be behind the horizontal tail fins  
15 on a rear loading helicopter or behind the fuselage where the  
16 tail booms begin on a side loading aircraft.
- 17 4) Ground personnel should have appropriate head, hearing,  
18 and eye protection if operating near the helicopter and have  
19 no loose objects on their person.
- 20 5) No equipment above mid chest level when approaching a  
21 running helicopter (i.e. IV poles, bags, etc.).
- 22 6) Only EMS helicopter personnel should operate aircraft  
23 devices and parts (aircraft doors, baggage compartments,  
24 cowlings, litter locking devices, etc.).  
25

26 H. Some patients may be declined due to:  
27

- 28 1) Radioactive or chemical contamination unless proper  
29 decontamination steps have been taken.
- 30 2) Patient's that are violent or combative unless they are  
31 physically or chemically restrained.
- 32 3) Patient's who do not meet the weight limitations (pounds and  
33 girth) of the EMS helicopter loading system/sled/gurney may  
34 need a different mode of transport.  
35

36 4. Departure Operations - the following should be considered during  
37 departure operations:  
38

39 A. During ground operations the pilot will have already formulated a  
40 departure path/plan.  
41  
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1 B. Depending on situation the departure path may be into the wind  
2 passing over the windward side of the ELZ perimeter. Other times  
3 the departure may mimic the approach. In any case when the EMS  
4 helicopter is preparing to depart be aware of any equipment or  
5 compartment doors that may be open and immediately notify the  
6 crew.  
7

8 C. Prior to the EMS helicopter departing:  
9

- 10 1) When the pilot begins to depart be aware of flying debris  
11 (you may briefly turn your back to the EMS helicopter until  
12 the debris subsides).  
13 2) The ELZ Coordinator should look for overhead traffic (other  
14 air ambulances, news helicopters, airplanes) since visibility  
15 is limited above the departing EMS HELICOPTER. The ELZ  
16 Coordinator should report that the "OVERHEAD IS CLEAR  
17 OF TRAFFIC" or "I HAVE TRAFFIC OVERHEAD YOUR  
18 POSITION."  
19 3) It is recommended that the designated ground contact  
20 position themselves at a 45 degree angle to the windward  
21 side of the ELZ. This will prevent the potential situation of  
22 the EMS helicopter departing into the wind and directly over  
23 the designated ground contact's position.  
24 4) After the EMS helicopter departs the ELZ, the security of the  
25 ELZ should be maintained until the pilot "clears the aircraft of  
26 the ELZ." This is necessary in case the departing EMS  
27 helicopter must emergently return due to mechanical or  
28 other safety issues.  
29

30 5. Communications – unless otherwise designated by the requesting agency,  
31 the following VHF communications assignments are recommended:  
32

33 A. Air-to-Ground VHF Frequencies:  
34

- 35 1) Primary CALCORD (156.075).  
36 2) Secondary: locally designated.  
37 3) Alternate: locally designated.  
38

39 B. Air-to-Ground 800 Talk Groups- the following 800 MHz talk groups  
40 are common to every 800 MHz system. These national  
41 interoperability talk groups should be considered in the absence of  
42 a designated 800 MHz air-to-ground talk group assignment. These  
43 national interoperability talk groups are generally line-of-sight and  
44 are useful after the EMS helicopter arrives in the area:  
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- 1) Primary: I-CALL Direct.
- 2) Secondary: locally designated.
- 3) Alternate locally designated.

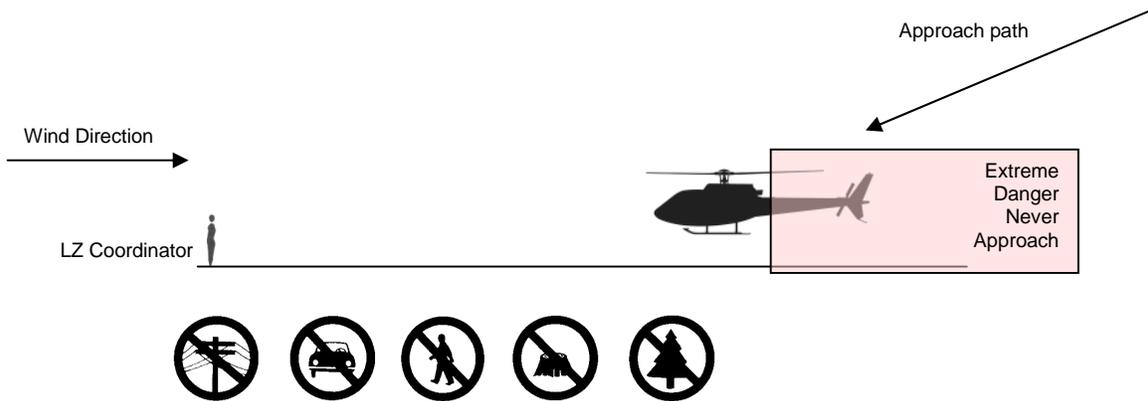
C. Air-to-Ground Communication Protocols- the following air-to-ground communication protocols are recommended:

- 1) It is recommended that designated air-to-ground frequencies should only be used for EMS helicopter-to-ELZ operations whenever possible. Dual usage of frequency assignments may lead to missing critical information.
- 2) Maintain “radio silence” on final approach and takeoff unless a safety issue arises.
- 3) Use the words “ABORT ABORT ABORT” or “STOP STOP STOP” to alert the pilot that an imminent safety condition or unforeseen hazard exists during landing.
- 4) The priority of the designated ground contact during EMS helicopter take-off and landing operations is ELZ safety and security.

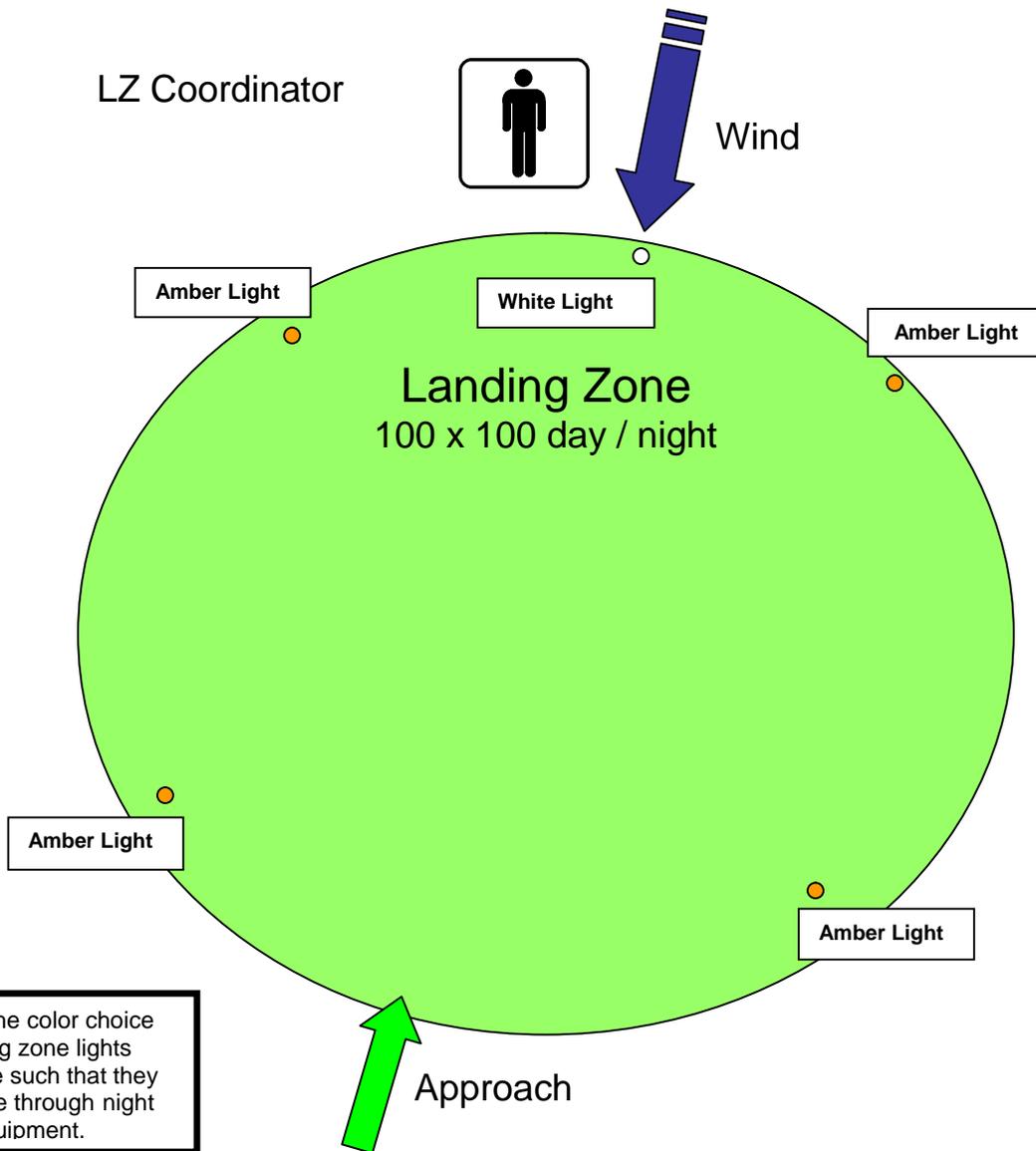
D. Air-to-Air Frequencies – unless otherwise designated by the requesting agency, the following “air-to-air” frequency is recommended:

- 1) Primary: 123.025 MHz

**Approach Diagram**



**Night Time Lighting Diagram**



## VII. Hospital Helipad Safety

### **General:**

It is recommended that each local EMS agency develop policies related to helipad safety.

### **Operational Guideline:**

Each local agency should tailor the criteria listed below for implementation into their system.

1. Approach and departure routes should be established in such a manner that the aircraft flies safely into and out of the helipad and provides noise abatement within the community.
2. Each helipad should have a contact frequency and phone number established in local policy.
3. Inbound and outbound aircraft considerations:
  - A. Public safety personnel should be present anytime an aircraft is arriving, departing or blades are turning on any unsecured helipad.
  - B. Communication between the aircraft and the hospital control is required for all inbound and outbound aircraft. Care should be taken to ensure that this includes all areas of the hospital and not just the emergency department.
  - C. When arriving or departing from a hospital helipad it is essential that pilots and crews remain alert, look for other traffic, and exchange traffic information when approaching or departing any landing site. To achieve the greatest degree of safety, it is essential that all aircraft transmit / receive on a common frequency identified for the purpose of LZ advisories. Use of the appropriate common frequency, combined with visual alertness and application of the following operating practices, will enhance safety of flight into and out of all such LZs. 123.025 is the accepted common frequency unless the LZ is located within the boundaries of Class B, C, or D airspace, or whenever a facility specific frequency is required.
  - D. For air to air communications: No less than 5 miles out ; report name of LZ, altitude, location relative to the LZ, landing or over flight intentions, and the name of the LZ.

- 1 E. Inbound aircraft should notify the helipad control 15 minutes prior to  
2 arrival when possible. If during the inbound leg for **that aircraft**  
3 another aircraft comes up on the radio as inbound this traffic  
4 information needs to be sent back out by the helipad control as a  
5 radio call to the first and second aircraft.  
6
- 7 F. Outbound aircraft should notify helipad control 10 minutes prior to  
8 departure, again asking: **Are you showing any other traffic to**  
9 **the helipad?**.  
10
- 11 G. All Helipad traffic should be documented on a helipad log. This will  
12 allow accurate traffic information given to all aircraft in the event  
13 that several people may be charged with the responsibility of  
14 answering the radio.  
15
- 16 H. A helipad log should be kept by the helipad control radio and in an  
17 area where the radio can be heard and monitored at all times. An  
18 MICN is not required to answer the radio when communicating with  
19 aircraft traffic.  
20
- 21 I. Helipad control should advise all aircraft of other expected traffic to  
22 or from the helipad by referencing the Helipad Log.  
23
- 24 J. If not advised by helipad control the aircraft should ask if there is  
25 any other expected traffic.  
26
- 27 K. If more than one aircraft is inbound, priority should be given to the  
28 more critical patient. This decision should be made in conjunction  
29 with the Emergency Department Physician.  
30
- 31 L. While a helicopter is landing or taking off, the use of artificial light is  
32 not permitted for filming or photography; i.e., photo flash bulbs or  
33 flood lights.  
34
- 35 M. All lights on the helipad checked routinely and replaced as needed.  
36
- 37 N. Helipad windsock should be checked semi-annually and replaced  
38 as needed.  
39
- 40 4. All personnel responding to the helipad should have initial helipad  
41 orientation training and participate in annual helipad safety training.  
42
- 43 5. The following items should be considered for general safety on all  
44 helipads:  
45

- 1 A. All personnel responding to the helipad should wait outside the  
2 marked safety lines until instructed to enter by the flight crew.  
3
- 4 B. IV poles and gurneys should remain outside the marked safety  
5 zone until advised to bring them forward by a crew member.  
6 Ensure that the mattress pads, sheets, blankets and any other  
7 loose item is secured and will not be displaced by the rotor wash.  
8
- 9 C. IV's and medical equipment should never be lifted over head  
10 height.  
11
- 12 D. Always approach the helicopter from the front and within the field of  
13 vision of the pilot.  
14
- 15 E. Assume a crouching position when approaching the helicopter  
16 when the blades are turning.  
17
- 18 F. At no time should anyone be permitted near the tail of the aircraft.  
19 A crew member or trained public safety officer should stand guard  
20 to avert anyone walking toward an open tail rotor.  
21
- 22 G. Smoking is prohibited by all personnel on the helipad.  
23
- 24 H. All personnel responding to the helipad to assist with patient  
25 loading and offloading should use appropriate hearing and eye  
26 protection.  
27
- 28 I. In the event of compromised vision of anyone of the helipad due to  
29 foreign body in the eyes, that person should kneel on the ground in  
30 a stationary position until assisted away from the aircraft by a  
31 member of the flight crews or public safety.  
32
- 33 J. No vehicle should be driven within 50 feet of the helicopter unless  
34 under the direct supervision of a flight crew member and only when  
35 the blades have come to a stop.  
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1 IX. Quality Improvement

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3 This section provides local EMS agencies and air medical providers with  
4 guidelines for specific considerations for Quality Improvement (QI) programs for  
5 Air Medical Resources. Because Air Medical Resources are specialized portions  
6 of the EMS system, local EMS agencies and air providers should ensure that  
7 their QI programs give consideration for the level of service provided by Air  
8 Medical Providers.

9  
10 **General:**

11  
12 Consistent with Chapter 12 of Title 22 of the California Code of Regulations,  
13 EMS air providers are to develop and implement a QI program in cooperation  
14 with other EMS system participants as defined in California Code of Regulations,  
15 Chapter 12, Section 100400.

16  
17 **Operational Guideline:**

- 18  
19 1. The Air Medical Provider QI program should be designed to objectively,  
20 systemically and continuously monitor, assess, and improve the quality and  
21 appropriateness of patient care and safety of the transport service provided.  
22 The QI program should be a written document that is approved by the  
23 provider’s medical director and outlines the responsibility and accountability of  
24 the QI plan.
- 25 2. A QI flow chart diagram or comparable tool should be developed and utilized  
26 demonstrating organizational structure in the QI plan and linkage to the  
27 Safety and Risk Management Committees and facilitation of loop closure with  
28 field personnel.
- 29 3. Air Medical Quality Improvement programs should include indicators,  
30 covering the areas listed in CCR Title 22, Chapter 12 of the Emergency  
31 Medical Services System Quality Improvement Program, which address, but  
32 are not limited to, the following:  
33  
34 A. Personnel  
35 B. Equipment and Supplies  
36 C. Documentation and Communication  
37 D. Clinical Care and Patient Outcome  
38 E. Skills Maintenance/Competency  
39 F. Transportation/Facilities  
40 G. Public Education and Prevention  
41 H. Risk Management  
42

- 1 4. The Air Medical Provider EMS QI Program should be in accordance with the  
2 Emergency Medical Services System Quality Improvement Program Model  
3 Guidelines (Rev. 3/04), incorporated herein by reference, and shall be  
4 approved by the authorizing / local EMS agency. This is a model program  
5 which will develop over time and is to be tailored to the individual  
6 organization's QI needs and is to be based on available resources for the  
7 EMS QI program.  
8
- 9 5. QI indicators should be tracked and trended to determine compliance with  
10 their established thresholds as well as reviewed for potential issues.  
11
- 12 6. The QI Program should be reviewed annually for appropriateness to the  
13 operation of the Air Medical Provider. The review should be conducted by, at  
14 minimum, an internal QI committee established by the provider and the  
15 provider's medical director.  
16
- 17 7. Participation between the authorizing / local EMS agency and the Air Medical  
18 provider's EMS QI Program is encouraged. This may include, but not limited  
19 to, making available mutually agreed upon relevant records for program  
20 monitoring and evaluation. Participation in the local EMS QI Program may  
21 include but not be limited to committee membership, policy review and trauma  
22 center QI.  
23
- 24 8. Develop, in cooperation with appropriate personnel/agencies, a performance  
25 improvement action plan for the air medical provider when the EMS QI  
26 Program identifies a need for improvement. If the area identified as needing  
27 improvement includes system clinical issues, collaboration is required with the  
28 provider medical director and the authorizing / local EMS agency medical  
29 director or his/her designee if the provider does not have a medical director.  
30
- 31 9. Provide the authorizing / local EMS entity with an annual update, from date of  
32 approval and annually thereafter, on the EMS QI Program. The update  
33 should include, but not be limited to; a summary of how the air medical  
34 provider's EMS QI Program addressed the program indicators.  
35
- 36 10. Such programs should include indicators that are reviewed for  
37 appropriateness on a quarterly basis with an annual summary of the  
38 indicators performance. QI data should be considered when QI indicators are  
39 developed to monitor issues found in current practices or processes. Air  
40 Medical Providers may reference CAMTS to identify potential indicators they  
41 may wish to implement in their system. Indicators should address, but are not  
42 limited to, the following triggers:  
43  
44  
45

- 1 A. Personnel - Continuing education/staff development should be completed  
2 and documented for all Critical Care and ALS Providers. These should be  
3 specific and appropriate for the mission statement and scope of care of  
4 the medical transport service. Didactic continuing education should  
5 include an annual review of:  
6
- 7 1) Hazardous materials recognition and response.
  - 8 2) Crew Resource Management – Air Medical Resource Management  
9 (AMRM).
  - 10 3) Clinical and laboratory continuing education should be developed  
11 and monitored on an annual basis and should include:
    - 12 a. Critical care (Adult, pediatric, neonatal);
    - 13 b. Emergency / trauma care;
    - 14 c. Invasive procedure labs; and
    - 15 d. Labor and delivery.
- 16
- 17 B. Equipment and Supplies - Medical transport personnel must ensure that  
18 all medical equipment is in working order and all equipment/supplies are  
19 validated through documented checklists for both the primary and  
20 secondary aircraft, if applicable. All patient equipment failures are  
21 monitored through the QA process.  
22
- 23 1) Equipment must be periodically tested and inspected by a certified  
24 clinical engineer at the manufacturer's suggested intervals.
  - 25 2) Equipment inspections and records of inspections are maintained  
26 according to the program's guidelines.  
27
- 28 C. Documentation and Communication - A mechanism should be in place to  
29 ensure accurate, appropriate and complete documentation of, but not  
30 limited to, the following items:  
31
- 32 1) Time of call (Time of request / inquiry received).
  - 33 2) Name of requesting agency.
  - 34 3) Age, diagnosis or mechanism of injury.
  - 35 4) Destination airport, refueling stops (if necessary), location of  
36 transportation exchange and hours of operation.
  - 37 5) Weather checks prior to departure and during mission as needed.
  - 38 6) Previous turn-downs of the mission (e.g. helicopter shopping)
  - 39 7) Ground transportation coordination at sending and receiving areas.
  - 40 8) Time of dispatch (time medical personnel notified flight is a go, post  
41 pilot OK's flight).
  - 42 9) Time depart base (time of lift-off from base or other site).
  - 43 10) Number and names of persons on board.
  - 44 11) Estimated time of arrival (ETA).
  - 45 12) Pertinent LZ information.
  - 46 13) All times (and intervals) associated with the call.

1  
2 D. Clinical Care and Patient Outcome.

- 3  
4 1) Patient outcome (morbidity and mortality) at the time of arrival at  
5 destination.  
6 2) Patient change in condition during transport.  
7 3) Discharge summary, including date of discharge and patient  
8 condition. The air medical provider should work with the local EMS  
9 agency to obtain necessary outcome information when it is not  
10 readily available to the provider, including:  
11 a. Patients that are discharged home directly from the  
12 Emergency Department (ED) or discharged within 24 hours  
13 of admission.  
14 b. Patients who are transported within an intravenous (IV) line  
15 or Oxygen.  
16 c. When Cardio-Pulmonary Resuscitation (CPR) is being  
17 performed at the referring location.  
18 d. A patient who is transported more than once for the same  
19 illness or injury in a 24 hour period.  
20 e. Patients who are transported from the scene of injury with a  
21 trauma score of 15 or greater or fails to meet area-specific  
22 triage criteria for a critically injured trauma patient.  
23 f. Patients who are treated at the scene but not transported.  
24 g. Patients who are not transferred bedside to bedside by the  
25 flight team.  
26 h. Patients who are transported for continuation of care and the  
27 receiving facility is not a higher level of care than the  
28 referring facility.

29  
30 E. Skills Maintenance/Competency.

- 31  
32 1) At minimum, annual evaluations ensuring all required skills and  
33 operations are conducted in compliance with existing provider and /  
34 or LEMSA standards should be done by each discipline.  
35 2) High risk, low frequency skills should also be monitored through the  
36 QI process. Each air medical provider should have a policy in  
37 place and track compliance for high risk skills and procedures.  
38

39 F. Transportation/Facilities.

- 40  
41 1) Hot / cold (rotors turning / stopped) patient load / unload policy  
42 including equipment and weight considerations.  
43 2) Unusual / unanticipated helipad incidents.  
44 3) Situations where non-assigned medical personnel are placed in  
45 aircraft to provide primary patient care during air medical transport.

- 1 4) Appropriate transport destination based on local EMS agency
- 2 policy for the patient pick-up location.
- 3 5) Appropriate utilization of air medical resources based on patient
- 4 condition in the field.
- 5 6) Fixed wing transport monitoring, if applicable.
- 6 7) Fuel issues, including situations where hot fueling (rotors turning) or
- 7 topping off fuel is required prior to response or during patient
- 8 transport.
- 9

10 G. Public Education and Prevention - Integration into local system

11  
12 H. Risk Management - Air providers should have a policy that addresses the  
13 following:

- 14
- 15 1) An annual drill is conducted to exercise the post incident / accident
- 16 plan (PIAP). This drill should include pilots, medical personnel,
- 17 communications personnel, mechanics and administrative
- 18 personnel. Written debriefing and critique of PIAP drills should be
- 19 shared with all staff members.
- 20 2) Fatigue.
- 21 3) A non-punitive system for employees to report hazards and safety
- 22 concerns.
- 23 4) A system to document, track, trend and mitigate errors or hazards.
- 24 5) A system to audit and review organizational policy and procedures,
- 25 on going safety training for all personnel (including managers), a
- 26 system of pro-active and reactive procedures to insure compliance.
- 27 6) Track and trend weather related previous turn downs.
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# X. Multi-Jurisdictional Air Provider

## **General:**

The Multi-Jurisdictional Air Provider section outlines a best practice for accrediting Multi-Jurisdictional Air Service Providers (M-JASP) within a local, regional, statewide, or interstate service area. The end goal is to support safety and excellence in patient care while working to minimize regulatory barriers to getting the right resource to the right patient in the right amount of time. This Best Practice Guideline states M-JASPs who have multiple bases throughout California to standardize their program in all aspects of medical control and patient care. The local EMS agencies may elect to designate a single classifying EMS agency, with the end goal of minimizing regulatory barriers. This section will also address standard medical control issues and keep air operational issues, such as destination policies, “as is” within each authorizing local EMS agency’s jurisdiction.

## **Operational Guideline:**

1. Medical control decisions for M-JASPs should be a collaborative effort of all stakeholder medical directors involved (i.e., the medical directors of the classifying EMS agency, the authorizing EMS agency, and the M-JASP). (reference H&S 1797.202).
2. If at any point in time an authorizing EMS agency determines a change is needed in any aspect of medical control policies, procedures, or protocols, revisions may be reviewed by all stakeholder medical directors involved.
3. When a new M-JASP is established, it is recommended that the new air service provider undergo the classifying and authorizing process with all local EMS agencies served by the M-JASP Provider.
4. All collaboration may be established between the classifying EMS agencies through an inter-agency agreement, a memorandum of understanding (MOU), etc. with each authorizing local EMS agency where the M-JASP has a base of operations in California.
5. Classifying Local EMS Agency:
  - A. Should verify that an appropriate licensed physician functions as the medical director for the M-JASP.
  - B. Should establish and maintain:

- 1) A medical flight crew accreditation and authorization process.
- 2) A standardized drug and equipment list, based upon the scope of practice pre-determined by all the stakeholder medical directors involved.
- 3) An approved data collection process in a universal format as identified by the State EMS Air Medical Task Force.
- 4) Primary coordination of incident review.
- 5) Should approve the M-JASP's Quality Improvement Plan.

C. Should collaborate to establish the following:

- 1) Accreditation and authorization standards for the medical flight crew.
- 2) Scope of practice for the paramedic flight crew member; may include expanded scope.
- 3) Standardized procedures for the authorized nurse flight crew member (H&S 1797.56).
- 4) Medical protocols for the medical flight crew.
- 5) A QI process.
- 6) A data collection and submission process.
- 7) An incident review process.
- 8) Schedule for site visits and inspections of EMS aircraft.

\*It is strongly recommended that the local EMS agency establish and host collection point for M-JASP data based on NEMSIS, CEMSIS, and additional aircraft data requested by the EMS Air Ops Task Force with access granted specifically to local EMS agency's for any EMS Aircraft within their jurisdiction. Data received from this collection shall be made available to the EMS Authority for review.

6. Authorizing EMS Agency:

A. Establishes and maintains the following:

- 1) A provider agreement with all M-JASP who have a base of operations within their jurisdiction or who routinely provide service from or within their jurisdiction.
- 2) Control of LEMSA approved operational decisions for any EMS aircraft within its jurisdiction, e.g. dispatch, destination decision and policies and EMS Aircraft Utilization policies.

B. Receives or is provided access to data for all M-JASP within their jurisdiction.

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- C. Collaborates with classifying local EMS agency to establish the following:
    - 1) Accreditation and authorization standards for the medical flight crew. Shall grant reciprocity to multi-jurisdictional medical flight crew accredited or authorized by the classifying agency.
    - 2) Scope of practice for the paramedic flight crew member; may include expanded scope.
    - 3) Medical protocols for medical flight crew.
    - 4) Standardized procedures for the authorized nurse flight crew member (H&S 1797.56).
    - 5) A QI process.
    - 6) A data collection and submission process.
    - 7) An incident review process.
    - 8) Schedule for site visits and inspections of EMS aircraft.
- 18 7. Multi-Jurisdictional Air Medical Service Provider:
- 19
- A. Establishes and maintains classification for all air bases in California with a local EMS agency.
  - B. Establishes and maintains a provider agreement with each authorizing local EMS agency where an air base is located or where the provider is assigned primary response to a designated area within an authorizing local EMS agency jurisdiction.
  - C. Maintains at a minimum a physician approved by the coordinating local EMS agency, who functions as the M-JASP medical director.
  - D. Works in collaboration with the authorizing local medical directors to:
    - 1) Establish accreditation and authorization standards for the medical flight crew.
    - 2) Scope of practice for the paramedic flight crew member; may include expanded scope.
    - 3) Medical protocols for medical flight crew.
    - 4) Standardized procedures for the authorized registered nurse flight crew member (H&S 1797.56).
  - E. Provides data to the classifying EMS agency in universal format consistent with CEMSIS.
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# XI. Temporary Flight Crew Authorization

## **General:**

This section provides local EMS agencies with guidelines for the temporary authorization or accreditation for medical flight crew personnel in the event that a provider is temporarily unable to staff an aircraft with permanently assigned authorized or accredited flight crew member.

## **Operational Guideline:**

1. This is an emergency temporary process to authorize or accredit a medical flight crew member with an authorizing local EMS agency for no more than a 90-day period of time. The emergency authorization or accreditation time period may be reduced by the local EMS agency based on system needs.
2. When a medical flight crew member is approved to work in another local EMS region on a temporary basis, they shall:
  - A. Not administer medications or perform skills outside the scope of practice from where they are permanently accredited or authorized. The medical flight crew's scope of practice may be limited due to the medications and equipment routinely stocked on the aircraft where they are temporarily working.
  - B. Be scheduled with another medical flight crew member who is permanently authorized or accredited by the authorizing EMS agency. Air transport providers normally staffed with one ALS provider shall ensure any temporary flight crew members are knowledgeable of the policies of the local EMS agency in which they are providing service.

## **Procedure:**

1. In order to receive temporary authorization under this policy, the EMS aircraft provider agency shall submit all of the following to the medical director of the local EMS agency:
  - A. A letter requesting the implementation of this emergency temporary process for the medical flight crew member for approval to work in that EMS region. The request shall outline the need to implement this process and be signed by the EMS aircraft provider's medical director or authorized management representative and administration substantiating the necessity for temporary accreditation / authorization.

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- B. Documentation of the following:
    - 1) Registered nurses: a copy of a current California nursing license. The Board of Registered Nurses (BRN) does not recognize any form of mutual aid for nurses, except in the time of a declared state of emergency by the Governor or his / her designee consistent with Business and Professions Code Section 2757.
    - 2) EMT-Paramedics: a copy of a current California paramedic license.
  
  - C. Documentation demonstrating “in good standing” status within another California local EMS agency; the following may be used to validate this requirement where applicable:
    - 1) Registered nurses: a copy of a current MICN card / authorization.
    - 2) EMT-Paramedics: a copy of a current paramedic accreditation card.
  
  - D. In exigent circumstances, an EMS aircraft provider can temporarily fulfill requirements “1A – 1C” of this paragraph by making a notification (verbal / electronic) notification to the local EMS agency during weekends / nights / holidays. The EMS aircraft provider must ensure that a confirmation is received from the authorized local EMS agency duty officer that a temporary flight crew request has been received and approved within 24 hours of submission. The request may be made verbally or electronically.
2. This temporary authorization or accreditation shall not be routinely renewed, but may be converted to a permanent authorization/accreditation by completing remaining authorization or accreditation requirements by the authorizing EMS agency. The authorizing local EMS Agency may consider renewal of this process on a case by case basis.

## 1 XII. References

- 2
- 3 1. California Code of Regulations, Title 22, Chapter 9, EMS Quality
- 4 Improvement Regulations
- 5 2. California Code of Regulations, Title 22, Chapter 8, Prehospital EMS Air
- 6 Regulations
- 7 3. Health and Safety Code Section 1797.202, 1797.56, 1797.224, 1797.201
- 8 4. Commission on Accreditation of Medical Transport Systems (CAMTS);
- 9 Accreditation Standards
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- 13 *Care*. 2008;65(6):1253-1257.
- 14 6. Guidelines from the American College of Surgeons, Air Medical
- 15 Physicians Association, National Association of EMS Physicians.
- 16 NAEMSP, AAMS, AAOP.
- 17 7. FAA Federal Aviation Regulations 2009
- 18 8. Field Operations Guide-FOG
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