#### I. <u>Purpose:</u>

A. To establish local documentation and reporting of medications and practices of state and county regulated procedures and protocols in Imperial County.

## II. Authority:

A. Health and Safety Code, Section 1797.220, 1798. Title 22, Section 100170.

## III. Background:

- A. The California Emergency Medical Services Authority (EMSA) implemented regulations related to Quality Improvement (QI) programs for EMS services throughout the state which require the Local EMS Agencies (LEMSA) to develop integrated, multidisciplinary processes for the management of quality in their systems.
- B. The clinical QI program for the Imperial County EMS System incorporates all EMS stakeholders within its jurisdiction. The LEMSA in conjunction with the prehospital provider agencies develops and implements QI activities. In addition, each provider agency will submit an annual report of QI activities to the LEMSA. The LEMSA incorporates the provider agency QI Activity reports into its annual report of QI activities that it will review and monitor through quality assurance review. See **Quality Assurance and Improvement Policy** for Agency quality assurance (QA) plan recommendations.
- C. The included indicators were determined to be of a high priority for continuous monitoring by the Imperial County quality assurance review. This list is not intended to limit the monitoring and reporting of other performance indicators selected by EMS provider agencies. Through continuous collaboration by quality assurance and review, and in response to policy and protocol updates, identified trends in incident reports and/or complaints received by the EMS Agency, and other factors, additional performance indicators will be identified for continuous or temporary monitoring. The core measures of the EMS authority for California are required and can be referenced through their website for the most up to date values.
- D. The Clinical QA process in Imperial County EMS evaluates important aspects of prehospital patient care such as compliance with policies and patient treatment protocols. The QA process ensures a review of any care that falls outside the identified standard and implementation of improvement plans to correct deficiencies. Improvement plans are monitored for continued progress towards the identified goals.

- E. Each provider agency should have designated personnel who manage the internal quality improvement process for that agency. The provider agency QI personnel and medical directors report issues in medical management of patients to the EMS Agency Medical Director and EMS Manager upon completion of their internal QI review.
- F. If there are changes to the agency QI leadership, the EMS agency should be made aware at the time of the change to avoid any delays in quality assurance evaluation or review.

## IV. Responsibilities:

- A. Responsibilities of the Imperial County EMS Agency:
  - 1. Develop and implement quality assurance review based on EMSA regulations.
    - a. These include, but are not limited to discrete required data elements and local optional scope medications.
  - 2. Provide logistical and administrative support for the quality assurance and review.
  - 3. In collaboration with provider agencies, identify and develop indicators for performance measurement.
  - 4. Maintain summary quality assurance reports submitted by the provider agencies.
  - 5. Oversee the development of any indicated Performance Improvement Processes.
  - 6. Facilitate the development of education and training programs for the provider agencies in relation to the implementation of the quality assurance process.
  - 7. Monitor and Report progress of the quality assurance process.
- B. Responsibilities of EMS agencies within Imperial County
  - 1. In cooperation with the EMS Agency, implement quality assurance review internally.
  - 2. Assist in the identification of indicators needed and ensure compliance with completion of required indicators.
  - 3. Share results of internal QI activities as well as dissemination of appropriate information forwarded from the quality assurance review with all EMS personnel within the agency.
  - 4. Develop and implement a provider-specific written quality assurance plan.
  - 5. Review the provider-specific quality assurance annually for effectiveness in identifying and resolving provider related QI issues and revise as needed.
  - 6. Provide the EMS Agency with all required reports including an annual update on the provider quality assurance and review.

7. Biospatial or other aggregate data software does not capture all metrics, and separate reporting will be required.

## V. <u>Reporting Clinical Indicators:</u>

- A. Each provider agency will complete the indicators based on the care that their personnel render to the patient. Using an Excel Spread Sheet as exemplified on the next page, each provider agency will submit the required information for the clinical indicator currently in use to the EMS Agency. The EMS Agency will send the spreadsheet electronically to each provider agency.
- B. The clinical indicator information, in spreadsheet form, will be due back to Imperial County EMS Agency by the 15<sup>th</sup> business day of the following month. The Agency will review and validate the data and look for trends. Trends derived from the clinical indicators will be discussed at the quality assurance review meetings.
- C. The indicators will measure current compliance with identified best practices. If compliance is maintained or improved, the indicators may be retired and new indicators are developed through the quality assurance review.
- D. Imperial County EMS will maintain the records of the results of the clinical indicators submitted by the local provider agencies. The provider agencies will maintain all raw data collected for the clinical indicators should there be any questions about trends or identified issues
- E. The indicators required for reporting include:
  - 1. ACS Administration of aspirin for suspected ACS
  - 2. ACS Completion of 12 Lead EKG
  - 3. TRA Transport of Trauma Patients to a Trauma Center
  - 4. HYP Treatment Administered for Hypoglycemia
  - 5. STR Prehospital Screening for Suspected Stroke Patients
  - 6. PED Respiratory Assessment for Pediatric Patients
  - 7. RST 911 Requests for Services That Included a Lights and/or Sirens Response
  - 8. RST 911 Requests for Services That Included a Lights and/or Sirens Transport
  - 9. Ambulance Patient Offloading Time

- 10. HEMS Unified Scope Reporting Requirements, ETA and dispatch requirement (per EMSA unified scope requirement)
- 11. Respiratory and Cardiac Arrest
  - a. Airway and Breathing Interventions
    - i. Supraglottic Airway Use (Cardiac Arrest and Respiratory Arrest)
    - ii. Continuous EtCO2 Pre and Post Intervention
    - iii. CPAP Use
  - b. Cardiac Arrest
    - i. Suspected medical or traumatic source
    - ii. Adult or pediatric
    - iii. Witnessed or unwitnessed
    - iv. Defibrillation Occurred
      - v. Airway (should be included in Airway Intervention)
    - vi. Medications
    - vii. ROSC, termination of resuscitation, obvious death, transported to hospital
    - viii. Transport
- 12. Procedures and Medications
  - a. Pleural Decompression
    - i. Adult or pediatric
    - ii. Spontaneous or traumatic suspected etiology
  - b. Dopamine administration
  - c. Push-dose epinephrine administration
  - d. Local Optional Scope Medications for Medics
    - i. Tranexamic acid
    - ii. Ketorolac
    - iii. IV Acetaminophen
    - iv. Interfacility transport antibiotic
    - v. Hydroxocobalamin/ sodium thiosulfate
    - vi. Pitocin
    - vii. Magnesium

viii. 2PAM autoinjector

13. EMT Local Optional Scope or High Risk Skill

a. King airway



# The table below lists all NEMSIS v3.5.0 essential data elements used to execute core quality measure reports.

Data Element Name	Data Element Number
Destination/Transferred To, Code	eDisposition.02
Additional Transport Mode Descriptors	eDisposition.18
Hospital Capability	eDisposition.23
Transport Disposition	eDisposition.30
Trauma Triage Criteria (High Risk for Serious Injury)	elnjury.03
Trauma Triage Criteria (Moderate Risk for Serious Injury)	elnjury.04
Medication Administered	eMedications.03
Age	ePatient.15
Age Units	ePatient.16
Procedure	eProcedures.03
Type of Service Requested	eResponse.05
Unit Transport and Equipment Capability	eResponse.07
Additional Response Mode Descriptors	eResponse.24
Provider's Primary Impression	eSituation.11
Provider's Secondary Impressions	eSituation.12
Pulse Oximetry	eVitals.12
Respiratory Rate	eVitals.14
End Tidal Carbon Dioxide (ETCO2)	eVitals.16
Blood Glucose Level	eVitals.18
Stroke Scale Score	eVitals.29

Reporting Example	
Reporting Period:	Monthly
Numerator:	Total Number of patients encountered with symptoms suggestive
	of suspected Acute Coronary Syndrome which were correctly
	treated according to IC Treatment Protocol 9170. (N=90).
Denominator:	Total number of patients who presented with symptoms
	suggestive of Acute Coronary Syndrome. (D=95)
Formula:	Numerator/Denominator * 100=% (90/95) * 100= 95% Summary
Indicator	95% compliance with IC Treatment Protocol 9170
	for patients who present with symptoms suggestive Acute
	Coronary Syndrome.

# Acute Coronary Syndrome (ACS) - Aspirin

#### **DEFINITIONS:**

% Compliance: Percentage (%) of adult patients assessed by EMS personnel who present with

symptoms consistent with suspected Acute Coronary Syndrome (ACS) and are

treated with Aspirin (ASA) prior to hospital arrival.

Adult patient: Age >35 years

Symptoms of ACS Including but not limited to one or more of the following suspected cardiac

complaints: chest pain or pressure; chest tightness, discomfort, arm or neck pain,

anginal equivalent including shortness of breath

## **REPORTING:**

Indicator items: Total number of patients presenting with symptoms suggestive of Acute

Coronary Syndrome

Total number of above identified patients who received ASA according to the

chest pain/suspected ACS protocol.

% compliance rate for correct protocol use in patients presenting to EMS

personnel with suspected cardiac ischemia.

*Reporting formula:* N/D \* 100 = %

Data Points: Inclusion criteria:

• Patient age > 35 years

- Patient complains of symptoms suggestive of suspected Acute Coronary Syndrome.
- IC chest pain/suspected ACS protocol is utilized
- Appropriate aspirin dose (324 mg) is documented
- If unable to provide aspirin, document why

#### Numerator:

Total Number of patients encountered with symptoms suggestive of Acute Coronary Syndrome who received ASA. (N)

#### Denominator:

Number of patients who presented with symptoms suggestive of Acute Coronary Syndrome (D)

Reporting Period: Monthly

# Acute Coronary Syndrome (ACS) – Pre-Hospital 12-Lead

#### **DEFINITIONS:**

% Compliance: Percentage (%) of patients assessed by EMS personnel who present with symptoms

consistent with suspected ACS, and received a 12 lead by paramedics prior to

hospital arrival.

Symptoms of ACS Including but not limited to one or more of the following suspected cardiac

complaints: chest pain or pressure; chest tightness, discomfort, arm, or neck pain,

or anginal equivalent, including shortness of breath.

#### **REPORTING:**

Indicator items: Total number of patients presenting with symptoms suggestive of Acute

Coronary Syndrome

Total number of above identified patients who received 12-lead according to IC

treatment protocol for chest pain/suspected ACS.

% compliance rate for correct protocol use in patients presenting to EMS

Personnel with suspected cardiac ischemia.

*Reporting formula:* N/D \* 100 = %

Data Points: Inclusion criteria:

• Patient age > 18 years

Patient complains of symptoms suggestive of suspected Acute Coronary

Syndrome.

• IC Treatment Protocol for chest pain/suspected ACS.

Numerator:

Total Number of patients encountered with symptoms suggestive of Acute Coronary Syndrome who a 12 lead was performed on. (N)

Denominator:

Number of patients who presented with symptoms suggestive of Acute

Coronary Syndrome (D)

Reporting Period: Monthly

# Treatment Administered for Hypoglycemia

#### **DEFINITIONS:**

% Compliance: Percentage (%) of patients received treatment to correct their hypoglycemia

originating from a 911 response

Hypoglycemia: Glucose level <80 mg/dL (adult), 60mg/dL (child) or 45mg/dL (neonate)

**REPORTING:** 

Indicator items: Total number of patients with hypoglycemia

Total number of above identified patients who received treatment according to

the corresponding protocol.

% compliance rate for correct protocol use in patients presenting to EMS

personnel with hypoglycemia.

*Reporting formula:* N/D \* 100 = %

Data Points: Inclusion criteria:

Hypoglycemia

Numerator:

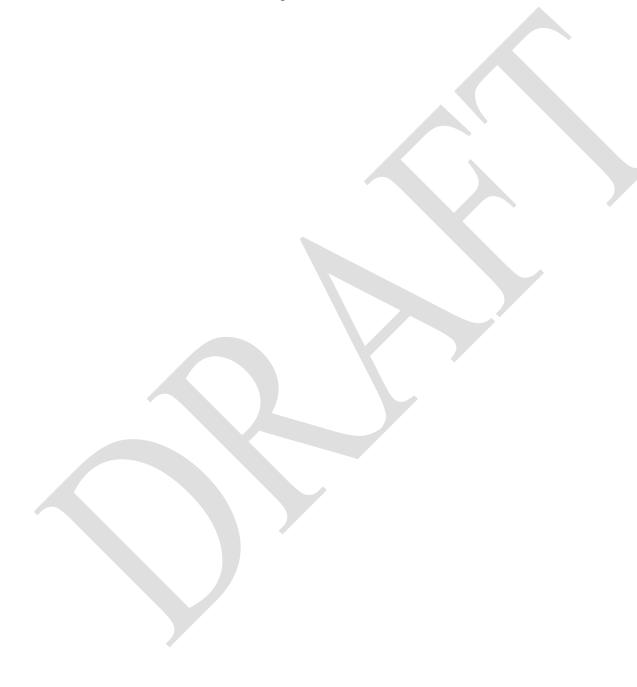
Total number of patients who received treatment to correct hypoglycemia

originating from a 911 response. (N)

Denominator:

Number of patients who presented with hypoglycemia (D)

Reporting Period: Monthly



# **Suspected Acute Stroke Glucose Monitoring**

#### **DEFINITIONS:**

% Compliance: Percentage (%) of patients assessed by EMS personnel as suspecting acute stroke

and receive glucose testing.

Acute suspected Stroke:

Any change in a patient's neurological state displaying neurological deficit.

**REPORTING:** 

Indicator item: % Compliance glucose testing rate per total cases

Reporting formula: N/D \* 100 = %

Data points: Inclusion criteria: Patient concerning for stroke presentation

Numerator: Total number of patients who had glucose testing on all

suspected strokes

Denominator: Total number of patient cases assessed by EMS personnel as

suspected Acute Stroke Symptoms

*Reporting period:* Monthly

# **Acute Stroke – Stroke Scale Assessment Documentation**

#### **DEFINITIONS:**

% Compliance: Percentage (%) of patients assessed by EMS personnel who present with symptoms

consistent with suspected Acute Stroke and received a Stroke Scale Assessment

documented prior to hospital arrival.

Symptoms of suspected stroke

Including but not limited to one or more of the following

complaints: unilateral weakness, paresthesia, facial droop, difficulty speaking,

vision changes, balance or ambulation issues.

**REPORTING:** 

Indicator items: Total number of patients presenting with symptoms suggestive of Acute

Stroke using BEFAST scoring system

Total number of above identified patients who received a Stroke Scale Assessment according to IC treatment protocol for altered mental status.

% compliance rate for correct protocol use in patients presenting to EMS

Personnel with suspected Acute Stroke.

*Reporting formula:* N/D \* 100 = %

Data Points: Inclusion criteria:

Patient complains of symptoms suggestive of suspected Acute Stroke.

IC Treatment Protocol for altered mental status.

Numerator:

Total Number of patients encountered with symptoms suggestive of Acute Stroke

who a Stroke Assessment (N)

Denominator:

Number of patients who presented with symptoms suggestive of Acute

Stroke (D)

Reporting Period: Monthly

#### **Performance of Skills – Endotracheal Intubation**

#### **DEFINITIONS:**

% Compliance: Percentage (%) of adult, or adult-sized, patients who received successful

endotracheal intubation within two attempts in a prehospital setting.

Adult patient: Patient age > 14 years old (or patients qualifying by size greater than pediatric

length-based tape)

**REPORTING:** 

Indicator items: Total number of all events with endotracheal intubation attempts

% compliance rate for successful endotracheal intubations as defined as

successful within 2 (two) attempts.

*Reporting formula:* N/D \* 100 = %

Data Points: Inclusion criteria:

• Patient age > 14 years or size greater than pediatric length-based tape

Patient receiving endotracheal intubation attempts

Numerator:

Total Number of patients encountered with a successful endotracheal intubation

within 2 attempts. (N)

Denominator:

Number of patients who received an endotracheal intubation attempt. (D)

Reporting Period: Monthly

Data Source: Patient Care Reports; Intubation Validation Form

# Performance of Skills – King Airway

#### **DEFINITIONS:**

% Compliance: Percentage (%) of adult, or adult-sized, patients who received successful King

Airway application within two attempts in a prehospital setting.

Adult patient: Patient age > 14 years old (or patients qualifying by size greater than pediatric

length-based tape)

**REPORTING:** 

Indicator items: Total number of all events with King Airway attempts

% compliance rate for successful King Airway placement as defined as

successful within 2 (two) attempts.

*Reporting formula:* N/D \* 100 = %

Data Points: Inclusion criteria:

• Patient age > 14 years or size greater than pediatric length-based tape

Patient receiving King Airway attempts

Numerator:

Total Number of patients encountered with a successful King Airway application

within 2 attempts. (N)

Denominator:

Number of patients who received a King Airway attempt. (D)

*Reporting Period:* Monthly

# Performance of Skills – Continuous Positive Airway Pressure (CPAP)

#### **DEFINITIONS:**

% Compliance: Percentage (%) of adult, or adult-sized, patients who received appropriate CPAP

application in a prehospital setting.

Adult patient: Patient age > 14 years old (or patients qualifying by size greater than pediatric

length-based tape)

**REPORTING:** 

Indicator items: Total number of all events with CPAP application

% compliance rate for successful CPAP application without negative outcome

*Reporting formula:* N/D \* 100 = %

Data Points: Inclusion criteria:

• Patient age > 14 years or size greater than pediatric length-based tape

Patient receiving CPAP application

Numerator:

Total Number of patients encountered with application of CPAP

Denominator:

Number of patients who received CPAP application. (D)

*Reporting Period:* Monthly

# Performance of Skills - Pleural Decompression

#### **DEFINITIONS:**

% Compliance: Percentage (%) of adult, or adult-sized, patients who received appropriate pleural

decompression in a prehospital setting.

Adult patient: Patient age > 14 years old (or patients qualifying by size greater than pediatric

length-based tape)

**REPORTING:** 

Indicator items: Total number of all events with pleural decompression

% compliance rate for pleural decompression without negative outcome

*Reporting formula:* N/D \* 100 = %

Data Points: Inclusion criteria:

Patient age > 14 years or size greater than pediatric length-based tape

Patient receiving pleural decompression

Numerator:

Total Number of patients encountered with application of pleural decompression

Denominator:

Number of patients who received pleural decompression. (D)

*Reporting Period:* Monthly

# **Out-of-Hospital Cardiac Arrest – Return of Spontaneous Circulation**

**DEFINITIONS:** 

% Compliance: Percentage (%) of patients who experience cardiac arrest have return of

spontaneous circulation (ROSC) prior to arrival or receiving facility.

Resuscitation: Any time an EMS provider provides chest compressions.

**REPORTING:** 

Indicator items: Total number of patients presenting with resuscitation due to cardiac arrest

% rate for patients who had ROSC after resuscitation prior to arrival of receiving

facility.

*Reporting formula:* N/D \* 100 = %

Data Points: Inclusion criteria:

Patient experiencing cardiac arrest with initiation of chest

compressions prior to arrival of receiving facility.

Numerator:

Total Number of patients with ROSC after initiation of chest compressions by

EMS providers prior to arrival to receiving facility. (N)

Denominator:

Number of patients who received resuscitative measures with chest

compressions by EMS prior to arrival to receiving facility (D)

*Reporting Period:* Monthly

## **Out-of-Hospital Cardiac Arrest Utilization of Automated External Defibrillation (AED)**

#### **DEFINITIONS:**

% Compliance: Percentage (%) of patients who experience cardiac arrest and resuscitation who

received defibrillation by automatic or semi-automatic external defibrillator and

performed by on duty EMS personnel.

Resuscitation: Any time an EMS provider provides chest compressions.

**REPORTING:** 

Indicator items: Total number of patients presenting with cardiac arrest and receive

resuscitation measures by on duty EMS personnel.

% rate for patients who received defibrillation during an out of hospital

resuscitation with an AED by on duty EMS personnel.

*Reporting formula:* N/D \* 100 = %

Data Points: Inclusion criteria:

Patient experiencing cardiac arrest with EMS provision of chest compressions prior to arrival of receiving facility.

Numerator:

Total Number of patients who were defibrillated utilizing an AED by on duty

EMS personnel during cardiac arrest resuscitation. (N)

Denominator:

Number of patients who received resuscitative measures with chest

compressions by EMS prior to arrival to receiving facility (D)

# **Medications and Procedures under Local Optional Scope of Practice**

(IV Tranexamic Acid, IV acetaminophen, IV/IM/IO ketorolac, IV hydroxocobalamin, amyl nitrate with IV sodium thiosulfate and sodium nitrate)

\*\*These medications should be submitted through separate reports, and not as a combined total.\*\*

#### **DEFINITIONS:**

% Compliance: Percentage (%) of patients who are administered these medications and all

parameters for administration, including appropriately identified contraindications

(Ex: age, pregnancy or vital signs) are utilized.

## **REPORTING:**

Indicator items: Total number of patients receiving the above medications by on duty EMS

personnel.

% rate for patients who appropriately received the medications, appropriately

following inclusion criteria, and contraindications.

*Reporting formula:* N/D \* 100 = %

Data Points: Inclusion criteria:

Patients meeting criteria for the individual local optional scope of practice medications

Numerator:

Total Number of patients who correctly received these medications with all inclusion criteria and contraindications met. (N)

Denominator:

Number of patients who received any of these medications by EMS prior to

arrival to receiving facility (D)

# 911 Requests for Services that Included a Lights and/or Sirens Response

**DEFINITIONS:** 

% Compliance: Percentage (%) of EMS responses originating from a 911 request that included the

use of lights and/or sirens during a response.

**REPORTING:** 

Indicator items: % rate of EMS responses originating from a 911 request that included the use

of lights and/or sirens during a response.

*Reporting formula:* N/D \* 100 = %

Data Points: Inclusion criteria:

911 request for service that included a lights and/or sirens response.

Numerator:

Number of EMS responses originating from a 911 request that included a lights

and/or sirens response. (N)

Denominator:

Number of EMS responses originating from a 911 request. (D)

# 911 Requests for Services that Included a Lights and/or Sirens Transport

**DEFINITIONS:** 

% Compliance: Percentage (%) of EMS responses originating from a 911 request that included the

use of lights and/or sirens during a transport.

**REPORTING:** 

Indicator items: % rate of EMS transports originating from a 911 request that included the

use of lights and/or sirens during a transport.

*Reporting formula:* N/D \* 100 = %

Data Points: Inclusion criteria:

911 request for service that included a lights and/or sirens transport.

Numerator:

Number of EMS transports originating from a 911 request that included a lights

and/or sirens transport. (N)

Denominator:

Number of EMS transports originating from a 911 request. (D)

## **Respiratory Assessment for Pediatric Patients**

**DEFINITIONS:** 

% Compliance: Percentage (%) of pediatric patients that had a primary or secondary impression of

respiratory distress and received a documented respiratory assessment originating

from a 911 response.

**REPORTING:** 

*Indicator items:* Total number of pediatric patients who had a primary or secondary

impression of respiratory distress originating from a 911 response.

% rate for patients had a primary or secondary impression of respiratory distress

and received a documented respiratory assessment originating from a 911

response.

*Reporting formula:* N/D \* 100 = %

Data Points: *Inclusion criteria*:

Pediatric patients who had a primary or secondary impression of

respiratory distress originating from a 911 response.

Numerator:

Number of pediatric patients who had a primary or secondary impression of respiratory distress originating from a 911 response and yielded a documented

respiratory assessment. (N)

Denominator:

Number of pediatric patients who had a primary or secondary impression of

respiratory distress originating from a 911 response. (D)

Monthly Reporting Period:

## **VI.** Evaluation of Clinical Indicators:

- A. Clinical indicators are completed monthly by the provider agencies and the results are sent electronically to the EMS Agency (the EMS Medical Director and EMS Manager) for analysis. The EMS Agency compiles indicator data and documents compliance with the measured criteria in graph form.
- B. The EMS agency sends the results of the analysis back to the provider agencies each month with a graph that demonstrates the mean county rate of compliance with the measured indicators, the agency's specific compliance as it relates to the county's mean compliance and the comparison of agency and county compliance. (See figures 1, 2 and 3).
- C. The compliance threshold for each criteria measured is set at 90%. Once the mean county compliance meets and sustains at 90% consistently for 6 months, the clinical indicator will be retired and new indicators will replace the existing indicators

## VII. Methods for Improvement:

- A. The provider agencies, through their internal QI process, are responsible for creating and monitoring issue resolution programs in conjunction with the EMS agency Medical Director, up to and including individual performance improvement plans, education and training, standardized education and if necessary discipline.
- B. The involvement of all stakeholders in the Quality Assurance Committee ensures that a multidisciplinary approach to issue resolution exists. As trends in issues are identified through quality assurance review, and may elect to refer issues to the EMS Training/ Education subcommittees to address specific issues and develop solutions.
- C. Should an issue arise outside of the specifically collected indicators or filters, notification of the issue will be directed by the EMS agency to the provider agencies. The EMS Agency in collaboration with the provider agencies will explore the issue's root causes as well develop solutions. Any of the advisory committees can be a forum for discussion of these issues.

#### **VIII. Ouality Assurance Issues and Concerns:**

A. Major issues identified will be investigated by the Quality Assurance Advisory Group (members of the prior committee) via a Root Cause Analysis method in order to find the "Root Cause" of the problem versus apply a punitive action against the providers. Analysis will be reported to the

Agency for further actions and recommendations. Individual Performance Improvement Plans will be coordinated between the Agency, QI representative, BH representative and the provider.

APPROVED:

Signature on File

Katherine Staats, M.D. FACEP

