STATE OF IDAHO

EMS PHYSICIAN COMMISSION

STATEWIDE PROTOCOLS

Corresponding to Idaho EMS Scope of Practice 2017-1

* Including EMSPC required Protocols and Procedures

Published July 1, 2017

2017 Revisions Include;

- Updated “Patient Destination: Trauma Triage” Protocol C-9.
- Updated “Bradycardia – Adult” Protocol C-2.
- “Fever / Infection Control” changed to “Fever / Suspected Sepsis”
- Updated “Fever / Suspected Sepsis” Protocol M-7.
- Updated “Hypotension Shock, Adult” Protocol Ci-2.
- Updated “Targeted Temperature Management” Protocol G-11.

Adopted by _____ (Agency Name)

Medical Director Name _____

Medical Director Signature _____ Date _____

IDAHO DEPARTMENT OF HEALTH & WELFARE

Introduction

ACKNOWLEDGMENTS

The Idaho Emergency Medical Services Physician Commission (EMSPC) is dedicated to serving the EMS system and providers throughout Idaho with EMS specific medical expertise and through open communication. The EMSPC continues to add resources for improved patient care with the development of the "***Statewide Protocols***". The protocols were developed with the expertise of the physicians assigned to the protocol subcommittee of the EMSPC, adhoc subcommittee members with extensive clinical and field experience, and the support of the Idaho Bureau of EMS & Preparedness. The protocol subcommittee utilized professionally recognized resources for content while focusing on the skills and interventions available to Idaho licensed providers according to the most current (2014-1) scope of practice adopted by the EMSPC. The treatments outlined in these protocols were developed from the latest evidence-guided recommendations from EMS and medical organizations which include the National Association of EMS Physicians (NAEMSP), American Heart Association (AHA), American Stroke Association (ASA), American College of Cardiology (ACC), and the American College of Surgeons Committee on Trauma (ACS-COT). A special thanks for the countless hours, expertise, and commitment to quality the following individuals contributed to the project:

David Kim, M.D. Initial Subcommittee Chair and project lead.
Curtis Sandy, M.D. Current Subcommittee Chair and project lead.

Subcommittee members:
Mark Urban, M.D.
Ian Butler-Hall, M.D.
Gordon Luther, M.D.

INTRODUCTION TO STATEWIDE TREATMENT PROTOCOLS

The EMSPC is pleased to provide these protocols for use by EMS providers of Idaho. The protocols may be adopted by the EMS agency medical director for use within their agency or system. Specific protocols that are identified in the EMSPC standards manual as required to be used for specific interventions are identified and included in this publication. The protocols represent an acceptable standard of care for managing patient injuries or illness in a manner consistent with the scope of practice established by the EMSPC. The protocols work collectively to guide treatment decisions for rapid interventions to ultimately deliver the patient to the receiving hospitals in an improved clinical state whenever possible. Each protocol has an entry or starting point which is followed by defined steps to guide decision making. The protocols are a guide to assist the sound clinical judgment of the provider. The EMSPC has taken extreme caution to ensure all information is accurate and in accordance with professional standards in effect at the time of publication. Since written protocols cannot feasibly address all patient care situations that may develop, the EMSPC expects EMS providers to use their training and judgment regarding any protocol-driven care and consider that some interventions could be harmful to a patient. When the EMS provider believes that following a protocol is not in the best interest of the patient or themselves, the provider should contact an online medical control physician if possible. Cases where deviation from protocols are justified are rare. The reasons for any deviation should be documented and reviewed by the agency medical director. Changes to the protocols can be requested by agency medical directors by submitting a written description of the change directly to the EMSPC by email at EMSPhysicianComm@dhw.idaho.gov. EMS providers are also encouraged to provide feedback and recommendations to the EMSPC at any time. The EMSPC will review the protocols on a regular basis to incorporate changes as the scope of practice or clinical interventions continue to evolve in EMS. The most current version of the protocols will be maintained on the EMSPC web site through the Bureau web site at www.IdahoEMS.org. EMS providers are responsible for knowing the interventions allowed within their scope of practice and which their medical director has credentialed them to perform. Providers should be familiar with the use of these protocols as adopted by their agency medical director.

Idaho EMSPC Protocol Legend

These flow chart style protocols utilize standardized symbols, letters, colors, shapes, and formatting to provide the reader with a significant amount of information. The following definitions are to be applied to the protocol content for consistency and accuracy of interpretation.

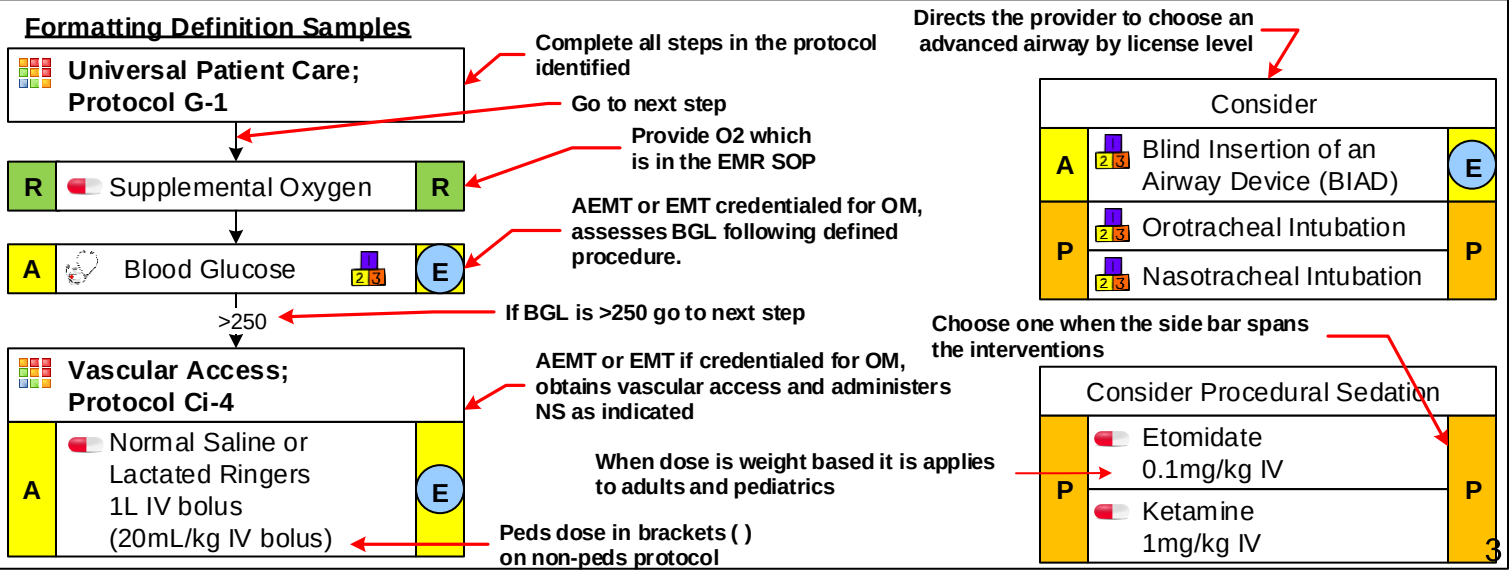
Symbol Definitions

- The stethoscope requires an assessment which can be focused or general in nature.
- The question mark identifies a targeted assessment finding.
- The pill symbolizes a medication intervention.
- The stacked blocks indicate a procedural intervention.
- An arrow points to the next step in a sequence.
- Yes → An arrow with a qualifier such as “Yes”, “No”, “>60", or other qualifiers points to a conditional step if the condition is present.
- The square grid identifies a box as a protocol.
- The exclamation mark identifies a protocol or procedure that is required to be followed for SOP interventions designated with a **“Requires EMSPC Protocol - 4**” in the EMSPC standards manual.

Color and Shape Definitions

- **R** The square green side bar with an “R” indicates the intervention is within the floor scope of practice (SOP) of an Idaho Emergency Medical Responder (EMR) – 2011.
- **R** The round green shape with an “R” indicates the intervention is an optional module (OM) available to an EMR – 2011 which has additional requirements for use.
- **E** The square blue shape with an “E” indicates an intervention is within the floor SOP for an Idaho Emergency Medical Technician (EMT) – 2011.
- **E** The round blue shape indicates the intervention is an OM available to an EMT – 2011 which has additional requirements for use. This is also a floor SOP for Advanced EMT-85 who has also transitioned to EMT – 2011.
- **A** The yellow side bar with the “A” indicates the intervention is within the floor scope of practice of an Idaho Advanced EMT – 2011.
- **A** The round yellow shape with an “A” indicates the intervention is an OM available to an Advanced EMT – 2011.
- **P** The gold side bar with a “P” indicates the intervention is within the floor SOP of an Idaho Paramedic – 2011.
- **P** The dark blue round shape with a “P” indicates that the intervention is an optional module available to a Paramedic – 2011.
- **O** The grey side bar with a white circle indicates the intervention is an OM for all levels of Idaho personnel.
- **M** The red side bar with an “M” indicates an intervention requires contacting medical control.

Formatting Definition Samples



Protocol Index

General

Airway

Cardiac

Circulatory

Environmental

Medical

OB/Childbirth

Trauma

Universal Patient Care

- Assess Scene Safety and the Need for Additional Resources
- Bring All Necessary Equipment to the Patient's Side
- Demonstrate Professionalism and Courtesy

R | PPE (If Indicated, Consider Airborne or Droplet PPE) | R

R | Immediate Life Threat? | R — Yes → Go to Specific **Protocol** as Appropriate

No

R | Refusing Care? | R — Yes → **Refusal Of Care; Protocol G-10**

No

R | Vital Signs | R

R | POST, Living Will, Advanced Directive | R

R | Special Healthcare Need | R

R | Supplemental Oxygen | R

Possible Procedures

R | Adult Assessment | R

R | Pediatric Assessment | R

E | Pulse Oximetry | E

A | Blood Glucose ! | E

P | 12-Lead EKG | E

P | Cardiac Monitor | P

R | Pain Scale | R

Consider

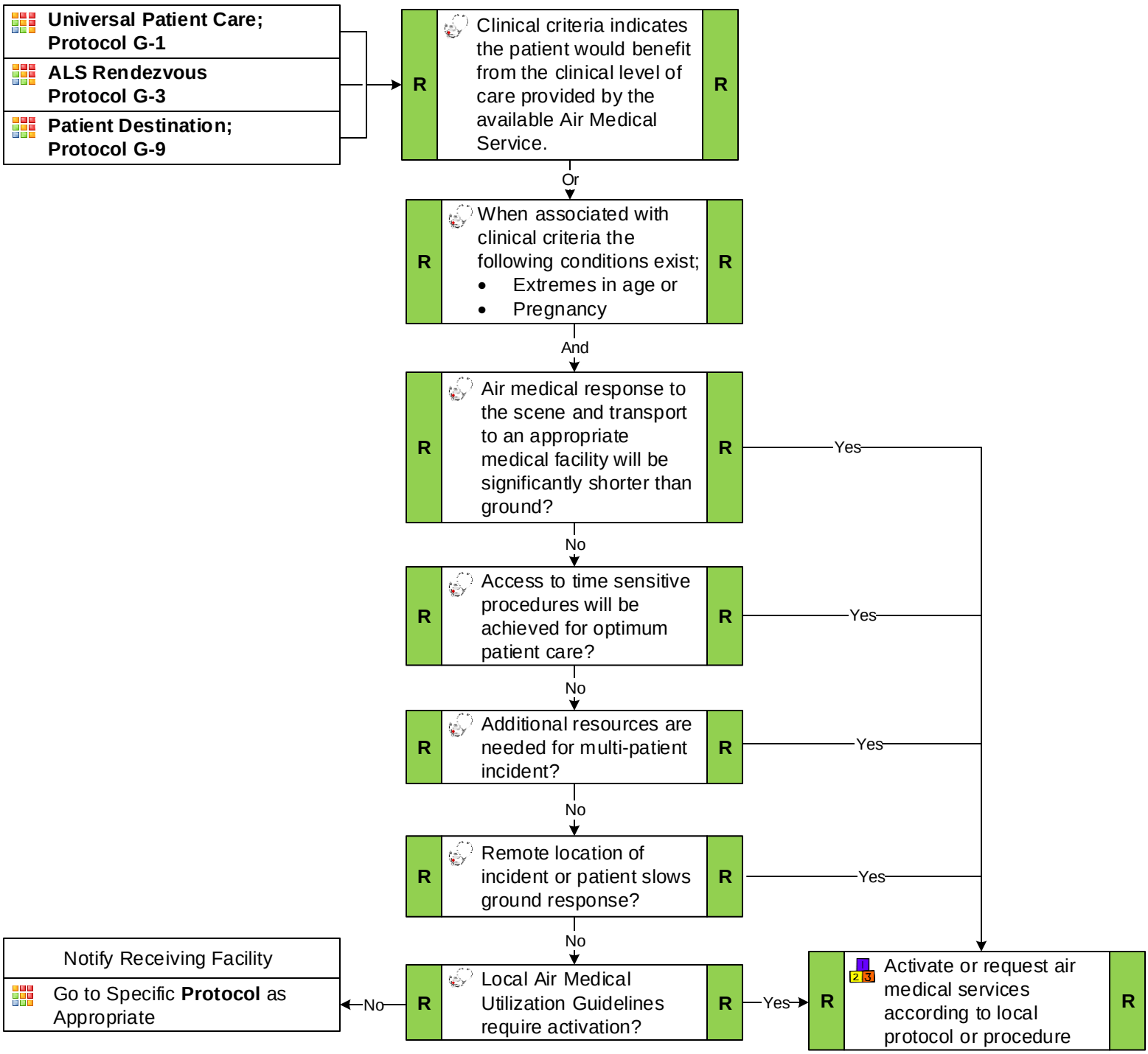
- **Airway, Adult; Protocol A-1**
- **Airway, Pediatric; Protocol A-5**
- **Vascular Access; Protocol Ci-4**
- **Selective C-Spine Clearance; Protocol T-10**
- **Termination of Resuscitation Trauma Arrest; Protocol C-11**
- **Refusal Of Care; Protocol G-10**
- **ALS Rendezvous Protocol G-3**
- **Air Medical; Protocol G-2**

M | Contact Medical Control if Patient Does Not Fit a Specific Protocol or if There Is a Need to Deviate from a Specific Protocol | M

Pearls

- All patient contacts require completion of a patient care report (PCR); including refusals of care, treat-and-releases, and other scenarios that result in non-transport by EMS.
- Pulse oximetry and temperature documentation is dependent on the specific complaint.
- The patient is considered pediatric if they are < 12 years of age or they fit on the Broselow-Luten tape. If a patient does not fit either criteria, they are considered an adult for the purposes of these protocols.
- The timing of a transport should be based on the patient's clinical condition.
- 12-lead EKG acquisition should not delay stabilization of the ABCs or patient transport.
- Never hesitate to contact Medical Control for the patient who refuses transport.
- Ask if the patient has a Medical Emergency Health Care Information form, especially if they have special healthcare needs.
- Does the patient have a POST, Living Will, or other Advance Directive?

Air Medical Utilization



Pearls

- Activate air medical services as soon as possible when indicated.
- Air medical services can be activated prior to arrival at the scene when the incident or mechanism indicates patient condition will meet criteria for air medical utilization.
- EMS personnel must complete a patient assessment prior to canceling an air medical response.

Performance Improvement Suggestions

- Review over/under triage of air medical requests
- Documentation of clinical criteria for air medical utilization

ALS Rendezvous

History
- "High Risk" patients include:
  - Extremes in age
  - Significant trauma
  - Significant / complex medical issues

Signs & Symptoms
- Airway compromise
- Shock
- Chest pain (suspicious of cardiac etiology)
- Combative behavior or altered level of consciousness

Differential
- None

Universal Patient Care; Protocol G-1

R — Airway / breathing compromise requiring intervention? — R → Yes
No

R — Glasgow Coma Scale < 8 or "P" in AVPU? — R → Yes
No

R — Chest pain with "High Risk" patient? — R → Yes
No

R — Status epilepticus? — R → Yes
No

R — Overdose with "High Risk" patient? — R → Yes
No

R — Significant trauma or post-arrest ROSC? — R → Yes
No

R — BLS provider judgment anticipates deteriorating patient condition? — R → Yes
No

E — Manage Patient at Current Level — R
Go to Specific **Protocol** as Appropriate

No ← ALS is available and can be met before arrival at receiving facility?

Yes

E — ALS Rendezvous — E

Consider

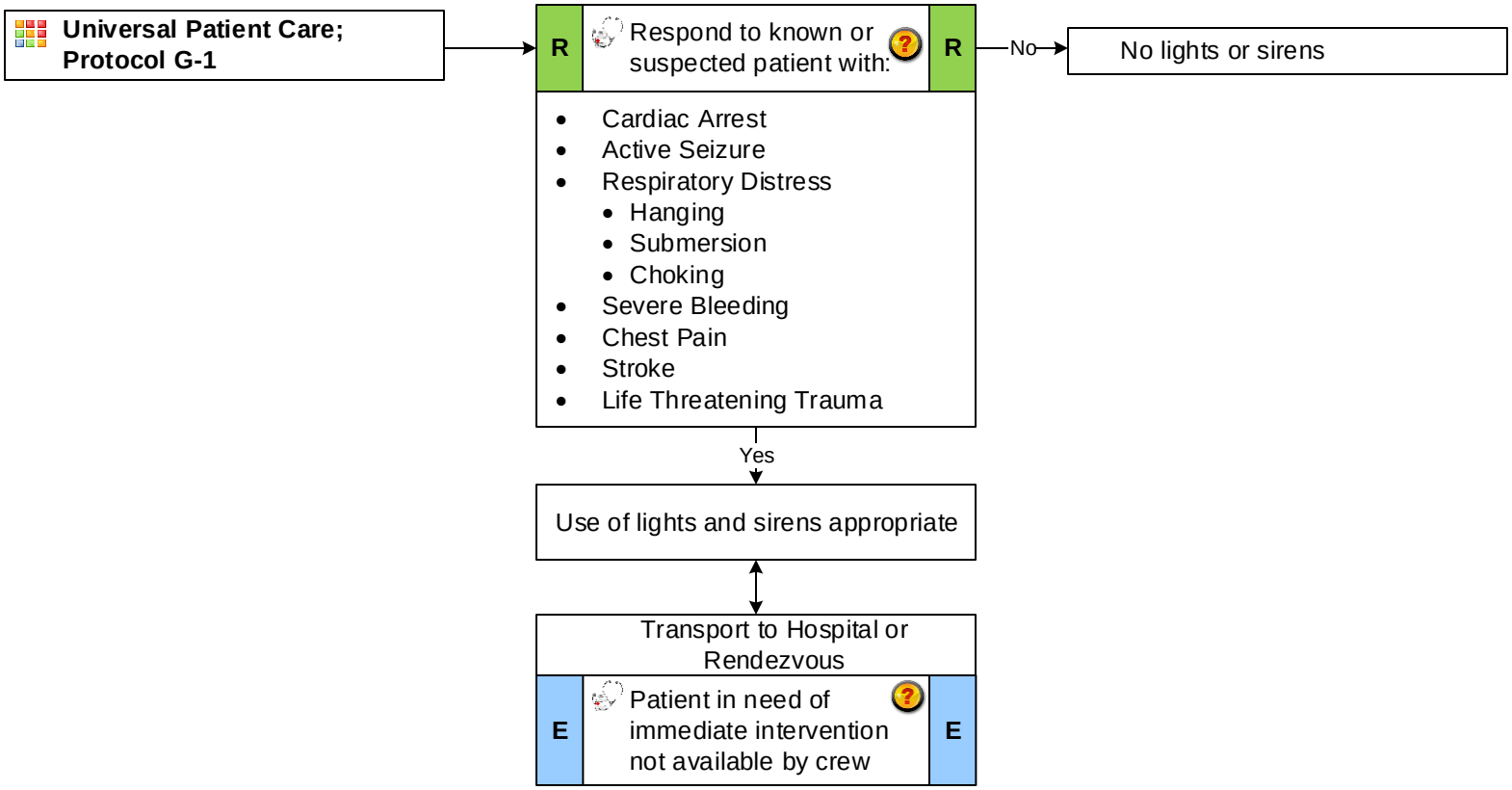
Air Medical; Protocol G-2

Patient Destination; Protocol G-9

Pearls
- DO NOT delay patient transportation on-scene; begin the transport and set up a rendezvous location while en route.
- ALS rendezvous agreements should be established and integrated with dispatch procedures.
- Consider a preemptive ALS rendezvous early in the call rather than waiting for the patient's condition to deteriorate.

Performance Improvement Suggestions
- Correct utilization of an ALS rendezvous dependent upon the patient condition
- Patient care needs correlate to dispatch protocols (run reviews)

Use of Lights and Sirens



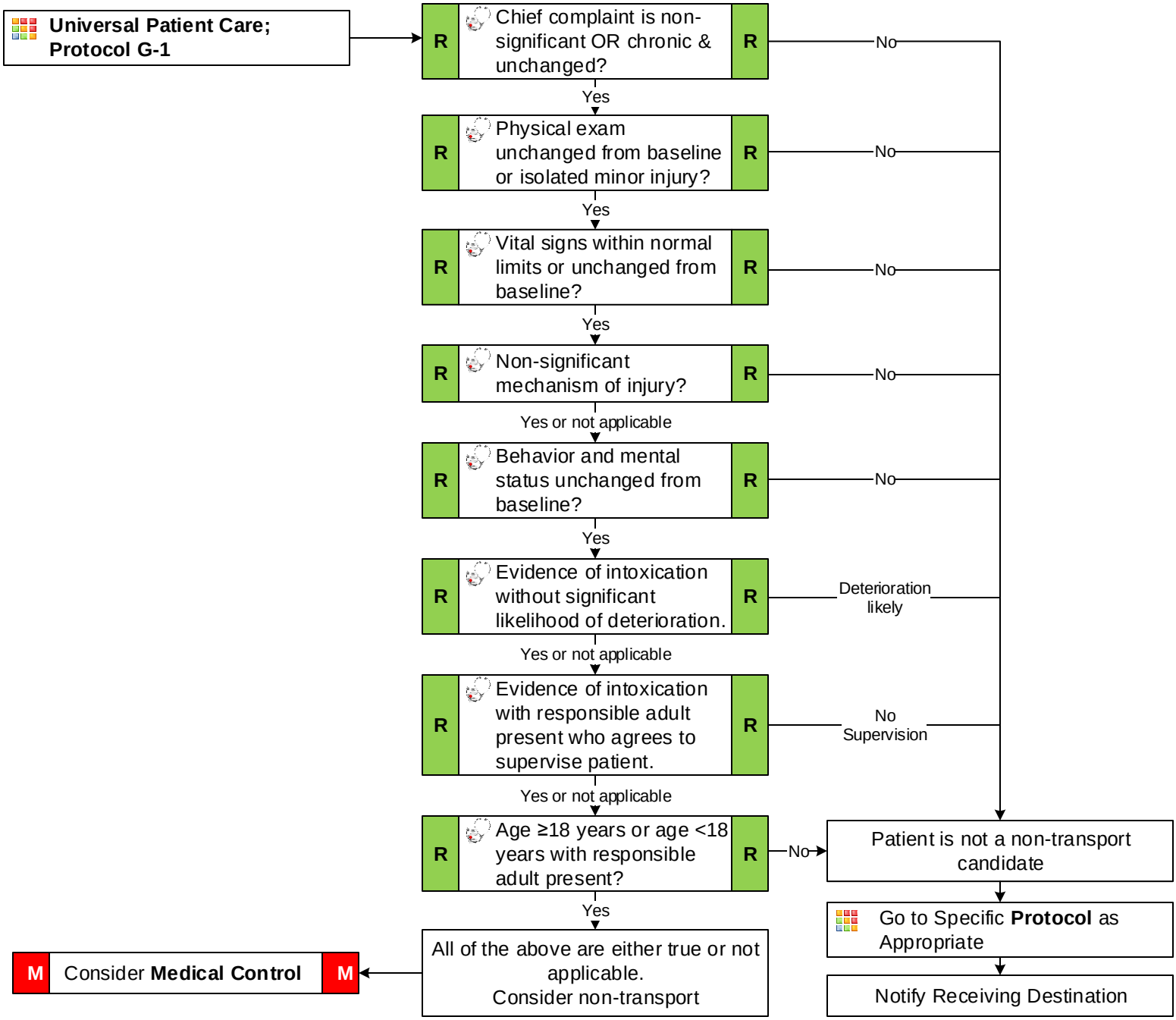
Pearls

- **Use of lights and sirens creates a greater risk of motor vehicle crashes to responders and public.**

Performance Improvement Suggestions

- Review of patient conditions for appropriate use

Non-Transport



Pearls

- This protocol does not apply to a patient-initiated refusal of care.
- In general, a person becomes a patient when he/she or another responsible party requests an EMS response. This request implies consent for assessment and treatment. When a person is unconscious or is otherwise incapable of providing consent, EMS may initiate an assessment if a reasonable person would ordinarily consent to assessment and treatment under similar circumstances.
- At times, EMS may be dispatched to a medical or trauma scene where multiple persons are present and it's unclear for whom EMS was requested. A person who declines EMS at such a scene (e.g., "I'm okay but you should check that person over there.") is not considered a patient as long as that person is well-appearing and appears capable of medical decision-making.
- Consider medical control prior to non-transport to help reduce the likelihood of not transporting a patient with potentially serious illness or injury.
- Non-transported minors must be released to a responsible adult.

Performance Improvement Suggestions

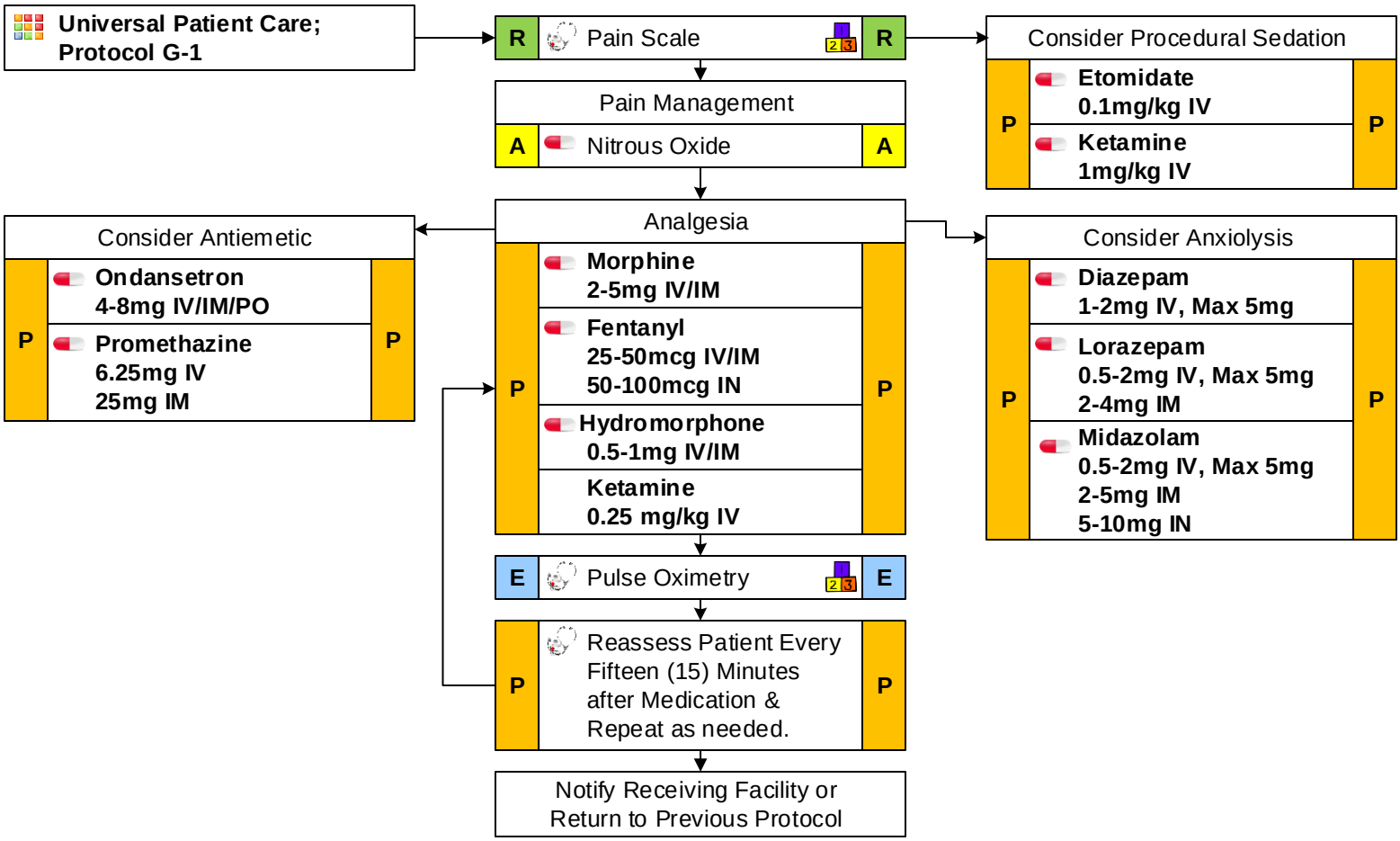
- Documentation of applicable non-transport criteria

Pain Management, Adult

History
- Age
- Location of pain
- Duration
- Severity (0-10)
- Past medical history
- Current medications
- Drug allergies

Signs & Symptoms
- Quality (sharp, dull, etc.)
- Radiation
- Relation to movement & respiration
- Increased with palpation of area

Differential
- Per the specific protocol
- Musculoskeletal
- Visceral (abdominal)
- Cardiac
- Pleural (respiratory)
- Neurogenic
- Renal (kidneys)



Pearls
- Prioritize patient care – the stabilization of ABCs is more important than pain management.
- Pain severity (on a scale of 0-10) is a vital sign to be recorded at disposition and pre- and post-medication delivery.
- Administer narcotics with caution in patients presenting with hypotension or an altered mental status.
- All patients should have drug allergies documented prior to administering pain medications.
- The onset of pain relief may be delayed after narcotic IM administration as compared to IV administration. Alternately, the duration of action of IM-administered drugs may be prolonged as compared to those administered via IV.
- The administration of a narcotic medication in combination with a benzodiazepine may result in synergistic or excessive sedation and/or respiratory depression. The narcotic should be administered first and its effects assessed prior to benzodiazepine administration.
- Limit IN medications to 1mL per nostril; if more than 2mL is required, additional medications may be given IN after 10 minutes.
- If needed, Narcan (Naloxone) should be carefully titrated to reverse respiratory depression without completely reversing analgesia.
- Ondansetron (Zofran) is the primary medication for the treatment of nausea. Promethazine (Phenergan) may result in excessive sedation and may cause soft tissue necrosis when given via IV.
- Consider procedural sedation for short-term events that may cause extreme pain (e.g. splinting, extrication, etc.).

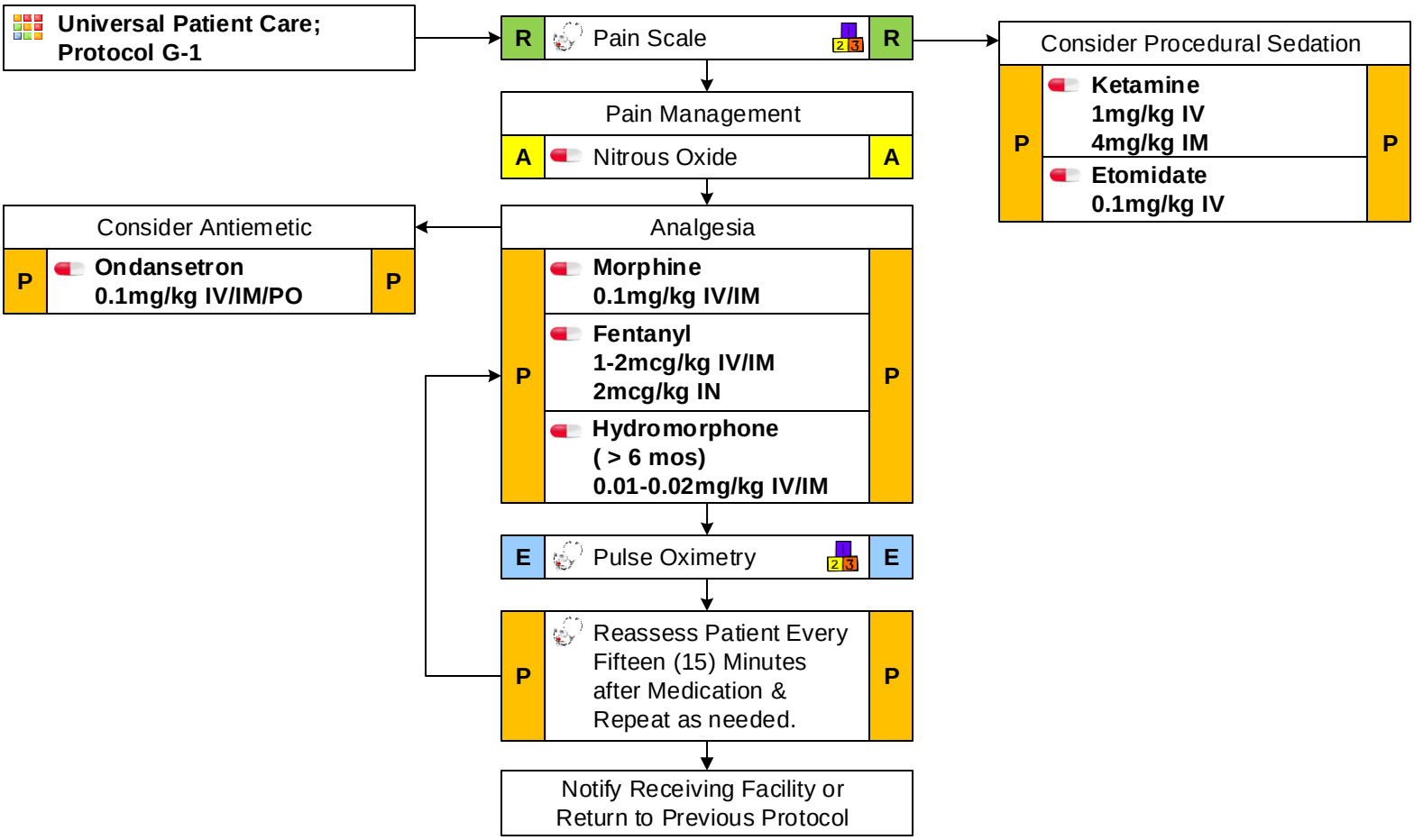
Performance Improvement Suggestions
- Documentation of pain severity
- Need for narcotic reversal

Pain Management, Pediatric

History
- Age
- Location of pain
- Duration
- Severity (0-10)
- Past medical history
- Current medications
- Drug allergies

Signs & Symptoms
- Quality (sharp, dull, etc.)
- Radiation
- Relation to movement & respiration
- Increased with palpation of area

Differential
- Per the specific protocol
- Musculoskeletal
- Visceral (abdominal)
- Cardiac
- Pleural (respiratory)
- Neurogenic
- Renal (kidneys)



Pearls
- Prioritize patient care – the stabilization of ABCs is more important than pain management.
- The pediatric pain scale is a vital sign to be recorded pre- and post-medication delivery and at disposition.
- Administer narcotics with caution in patients presenting with hypotension or an altered mental status.
- All patients should have drug allergies documented prior to administering pain medications.
- The onset of pain relief may be delayed after narcotic IM administration as compared to IV administration. Additionally, the duration of action of IM administered drugs may be prolonged as compared to those administered via IV.
- The administration of a narcotic in combination with a benzodiazepine may result in synergistic or excessive sedation and/or respiratory depression. The narcotic should be administered first and its effects assessed prior to benzodiazepine administration.
- Limit IN medications to 1mL per nostril; if more than 2mL is required, additional medications may be given IN after 10 minutes.
- If needed, Narcan (Naloxone) should be carefully titrated to reverse respiratory depression without completely reversing analgesia.
- Ondansetron (Zofran) is the primary medication for the treatment of nausea. Promethazine (Phenergan) may result in excessive sedation and may cause soft tissue necrosis when given via IV.
- Consider procedural sedation for short-term events that may cause extreme pain (e.g. splinting, extrication, etc.).

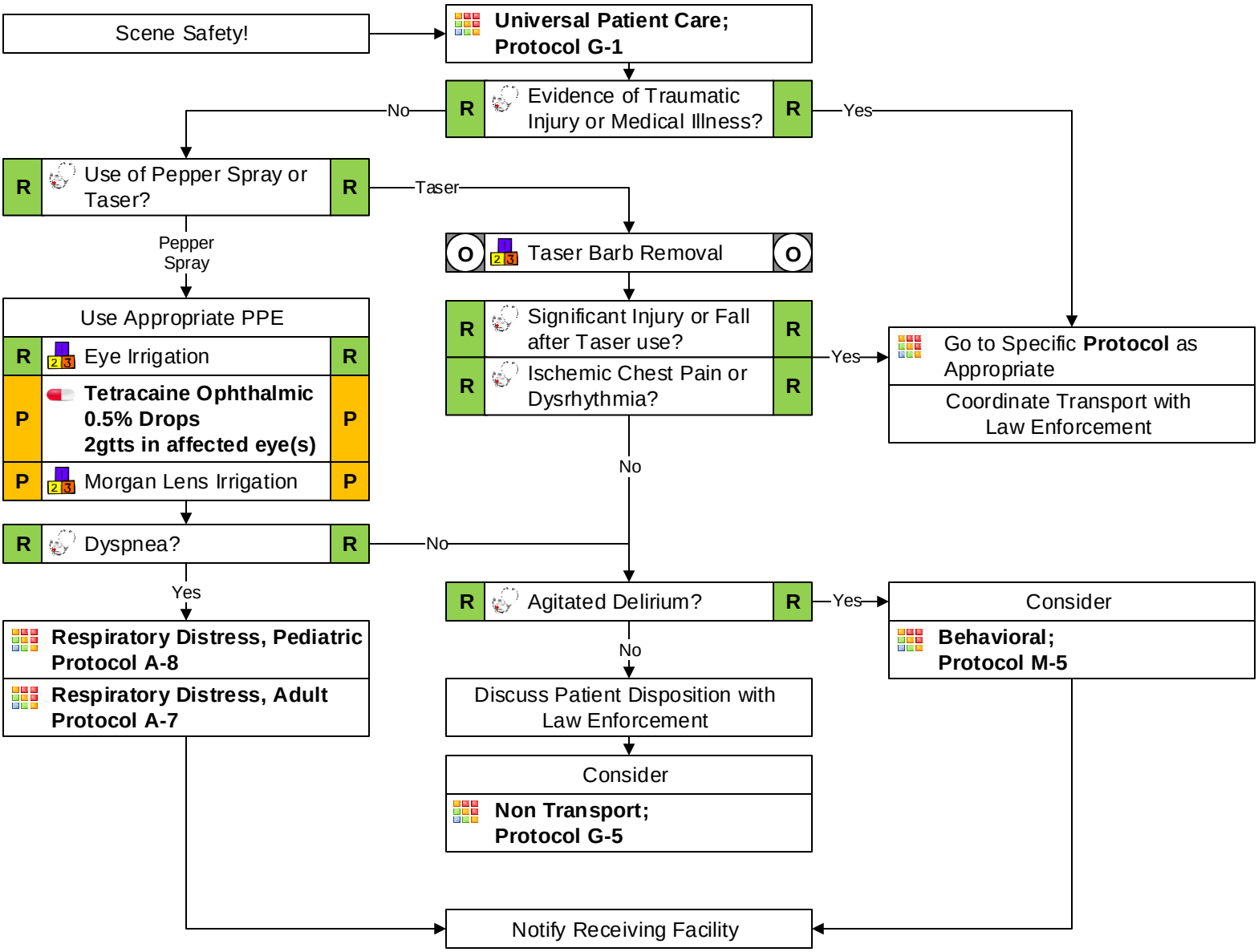
Performance Improvement Suggestions
- Documentation of pain severity
- Need for narcotic reversal

Police Custody

History
- Traumatic injury
- Drug abuse
- Cardiac history
- History of asthma
- Psychiatric history

Signs & Symptoms
- External signs of trauma
- Palpitations
- Shortness of breath
- Wheezing
- Altered mental status
- Agitation

Differential
- Agitated delirium
- Substance abuse
- Traumatic injury
- Closed head injury
- Asthma exacerbation
- Cardiac dysrhythmia



Pearls
- This protocol may also be used when a patient is not in police custody or when a patient is not under arrest.
- Agitated delirium is characterized by marked restlessness, irritability and/or high fever. Patients exhibiting these signs are at higher risk for sudden death and should be transported to the hospital - avoid prone positioning.
- Patients restrained by law enforcement devices may not be transported in the ambulance without a law enforcement officer in the patient compartment who is capable of removing the devices.

Performance Improvement Suggestions
- Documentation of taser probe location
- Documentation of eye irrigation duration & volume of eye irritant

Patient Destination

Universal Patient Care; Protocol G-1

R Trauma Patient? **R** — Yes → **Patient Destination: Trauma Triage; Protocol T-9**

No

P STEMI? **E** — Yes → Transport to PCI-capable facility

- STEMI present on 12-lead EKG
- Transport time (air or ground) to PCI-capable facility <60 minutes

No

E Brain Attack? **E** — Yes → Transport to Stroke Center

- Positive Cincinnati Stroke Scale
- Time from last seen normal to arrival at stroke center <3 hours for IV TPA
- Time from last seen normal to arrival at stroke center <3-6 hours for IA TPA or mechanical thrombectomy

No

E Immediately Life-Threatening Condition? **E** — Yes → Transport to Closest Appropriate Facility

No

E Mass Casualty Incident? **E** — Yes → Transport Determined by Incident Commander or Designee

No

E Special Patient or System Considerations? **E** — Yes → Transport to Closest Appropriate Facility

- Pediatric Patient
- High-Risk Obstetric Patient

No

E Patient Preference? **E** — Yes → Transport in Accordance to Patient Preference

No

Transport to Closest Appropriate Facility → **M** Contact Medical Control when the closest appropriate facility is unclear. **M**

Pearls

- The window for IV TPA may be extended to 4.5 hours for certain brain attack patients. Consult with your local stroke center for specific patient criteria.
- Consult with your local stroke center to determine their brain attack capabilities (e.g., IV TPA, IA TPA, mechanical thrombectomy).
- If the patient requests transport to a facility not consistent with this protocol, honor the request only after informing the patient why the EMS system recommends another facility (e.g., available medical capability or capacity, shorter transport time, “time is muscle”) and after the patient verbalizes understanding (informed refusal). If the patient demonstrates impairment of judgment related to injury, shock, drug effects, or emotional instability, act in the patient’s best interest and transport the patient to the most appropriate facility as determined by this protocol.
- EMS may decline transport to the patient’s preferred facility when transport time or distance will adversely effect local EMS resource availability. Additional EMS system or geopolitical considerations (e.g, county boundaries) may also preclude transport to the patient’s preferred facility.

Performance Improvement Suggestions

- Documentation of criteria used to determine patient destination
- Documentation of informed refusal, if applicable
- For STEMIs and brain attacks, EMS transport time to receiving facility and door-to-reperfusion time at receiving facility

Refusal of Care

Universal Patient Care; Protocol G-1

R Is a POST or Advance Directive Present? **R**

- POST / advance directive is valid
- Patient's refusal of care is consistent with POST / advance directive

Yes → Honor the Refusal of Care

No

R Is Patient a Minor? **R**

- Age < 18 years

Yes → **M** Contact Medical Control for Advice / Guidance **M**

No

R Is Patient Unable to Comprehend Nature of Illness / Injury, Recommended Treatment and / or Risks of Refusal? **R**

- Evidence / suspicion of acute psychiatric illness (e.g., hallucinations, delusions, homicidal ideation, suicidal ideation or gesture)
- Evidence of intoxication, head injury, or change from baseline mental status
- Evidence of hypoxemia or acute respiratory failure
- Evidence of hypoglycemia or abnormal vital signs compromising decision-making capacity

Yes

No

R Any Other Contributors to the Refusal of Care? **R**

- Any other circumstance(s) or condition(s) that may impair patient's comprehension or decision-making capacity
- Other circumstance(s) or condition(s) that suggests the expressed refusal of care is a result of coercion

Yes

No

Consider

M Contact Medical Control for Advice / Guidance **M**

Honor Refusal of Care

- Perform physical exam and emphasize documentation to support EMS assessment of patient's decision-making capacity and ability to comprehend
- Explain your concerns or possible complications concerning a refusal of care and document that patient understands
- Encourage patient to seek care with their personal physician / healthcare provider, if applicable

Patient May Not Refuse Care

↓

Consider Law Enforcement Involvement

↓

Go to Specific **Protocol** as Appropriate

↓

Consider

Behavioral; Protocol M-5

Pearls

- A patient who refuses care must be able to receive information, process the received information, and demonstrate understanding of the information as well as the consequences of refusing care.
- A patient's denial of illness, financial constraints, and/or fear of hospitalization may contribute to a refusal of care.
- Enlist family, coworkers, friends, and/or medical control to help convince patients to receive appropriate care and transport.
- Voluntary consent to treatment is greatly preferred over conflict, law enforcement involvement, or physical restraint.

Performance Improvement Suggestions

- Documentation that patient understands risk of refusing care
- Documentation of law enforcement's participation, if applicable

Targeted Temperature Management

History
- Non-traumatic cardiac arrest with return of spontaneous circulation
- Adult > 16 years of age
- Initial temperature > 93ºF / 33.9ºC

Signs & Symptoms
- Glasgow Coma Scale < 8
- No purposeful response to pain

Differential
- Continue to address specific differentials associated with the original dysrhythmia

Return of Spontaneous Circulation; Protocol C-7

No → If ROSC Is Lost, Discontinue Targeted Temperature Management
Go to Specific **Protocol** as Appropriate

Yes

Intubated?

No → P: Orotracheal Intubation / Nasotracheal Intubation :P

Consider
Airway, Drug Assisted Intubation; Protocol A-3

Yes

P: Targeted Temperature Management :P

If Shivering

Anticonvulsant
- P: **Midazolam 1-5mg IV** / **Diazepam 5-10mg IV** :P

Paralytic
- P: **Rocuronium 1mg/kg IV-Loading .5mg/kg IV-Maintenance** / **Vecuronium 0.1mg/kg IV** :P

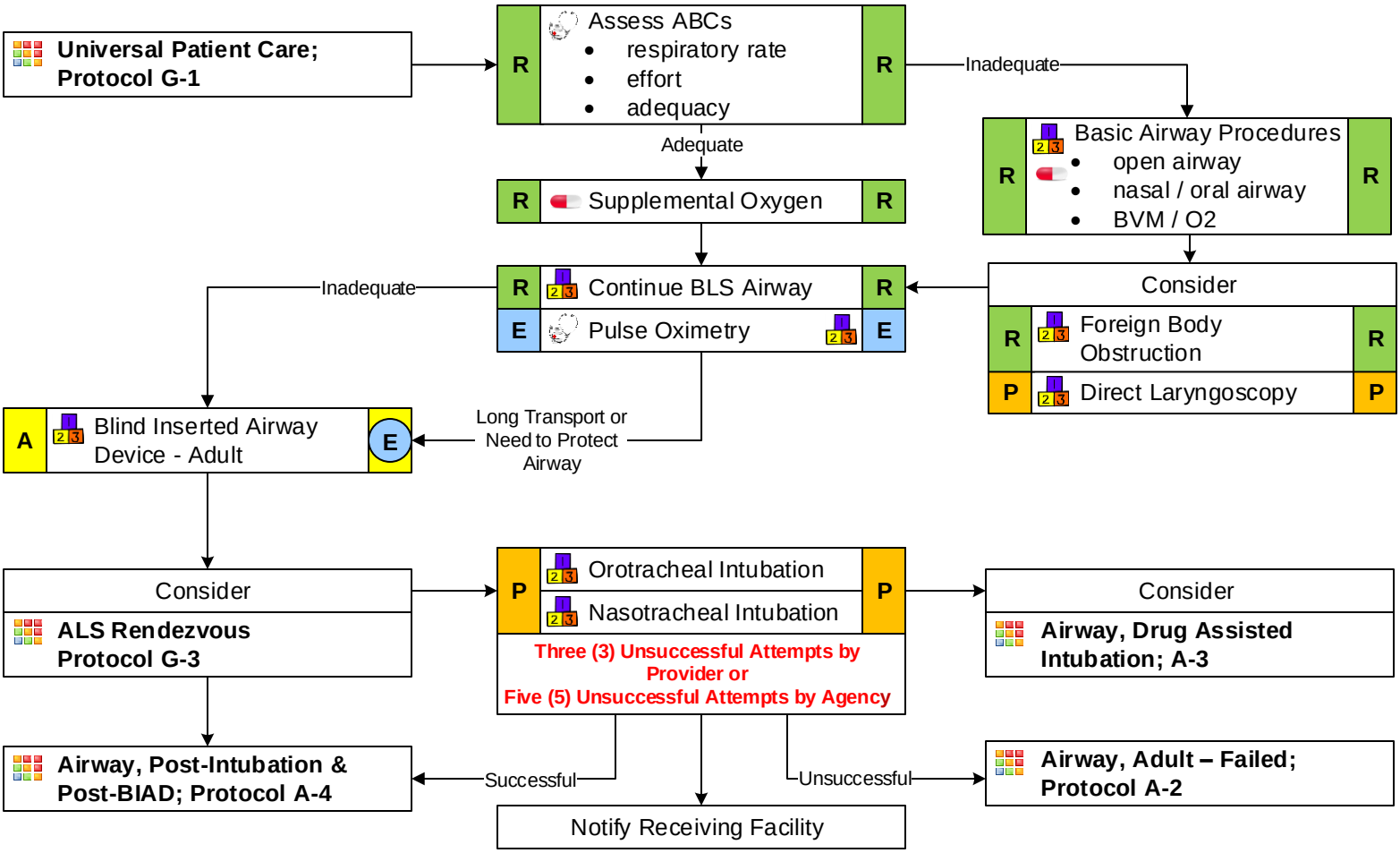
Target temperature of 90º-96º F

Return of Spontaneous Circulation; Protocol C-7

Pearls
- Overcooling is common and should be avoided.
- Avoid hyperventilation; keep the $EtCO_2$ at 40.
- Do not delay transport for cooling.
- External cooling measures with ice packs is the preferred method.

Performance Improvement Suggestions
- Documentation of temperature on arrival

Airway, Adult



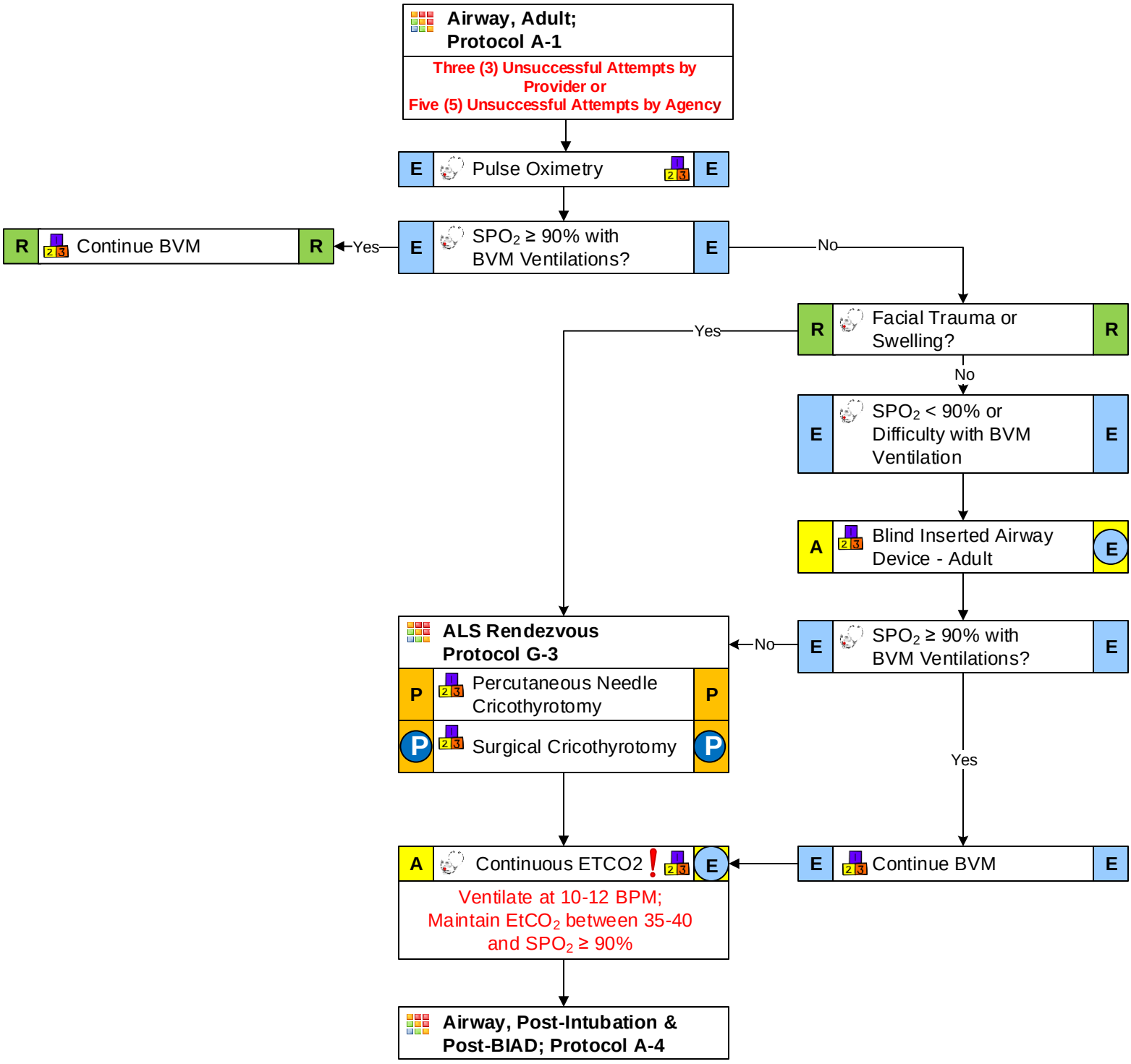
Pearls

- For the purposes of this protocol, a secure airway is when the patient is receiving appropriate oxygenation and ventilation.
- Do not assume hyperventilation is psychogenic – use oxygen, not a paper bag.
- If an effective airway is being maintained by BVM with continuous pulse oximetry values of ≥ 90, it is acceptable to continue with basic airway measures instead of using a BIAD or intubation.
- An 'intubation attempt' is defined as insertion of the laryngoscope blade into the mouth or insertion of the endotracheal tube through the nares.
- Paramedics should consider using a BIAD rather than intubation if a difficult airway is anticipated.
- Paramedics should consider drug-assisted intubation in patients that are awake as well as patients who, despite sedation, are persistently combative.
- Ear-to-sternal notch patient positioning will improve your laryngoscopic view; however, maintain C-spine immobilization for patients with a suspected spinal injury.
- Sellick's maneuver, BURP maneuver (Back [posterior], Up, and to pt's Right Pressure), and/or external laryngeal manipulation should be used to assist with difficult intubations.
- Although $EtCO_2$ detection is the preferred method to confirm ETT and BIAD placement, multiple methods must be used such as an esophageal tube detector device, auscultation of breath sounds, absence of epigastric sounds, ETT misting, chest rise, and patient response (e.g., pulse oximetry, skin color, heart rate).
- If first intubation attempt fails, make an adjustment and try again:
  - Use a different laryngoscope blade size/type or a different ETT size
  - Apply external laryngeal manipulation: e.g. BURP maneuver
  - Gum Elastic Bougie
  - Change head positioning to achieve ear-to-sternal notch patient positioning (unless c-spine immobilization indicated)
- It is important to secure the ETT and BIAD well; consider a C-collar to better maintain placement.
- If breath sounds are decreased on the left side after intubation, check your ETT depth & consider right mainstem intubation.

Performance Improvement Suggestions

- Documentation of ventilatory rate
- Documentation of pulse oximetry

Airway, Adult – Failed



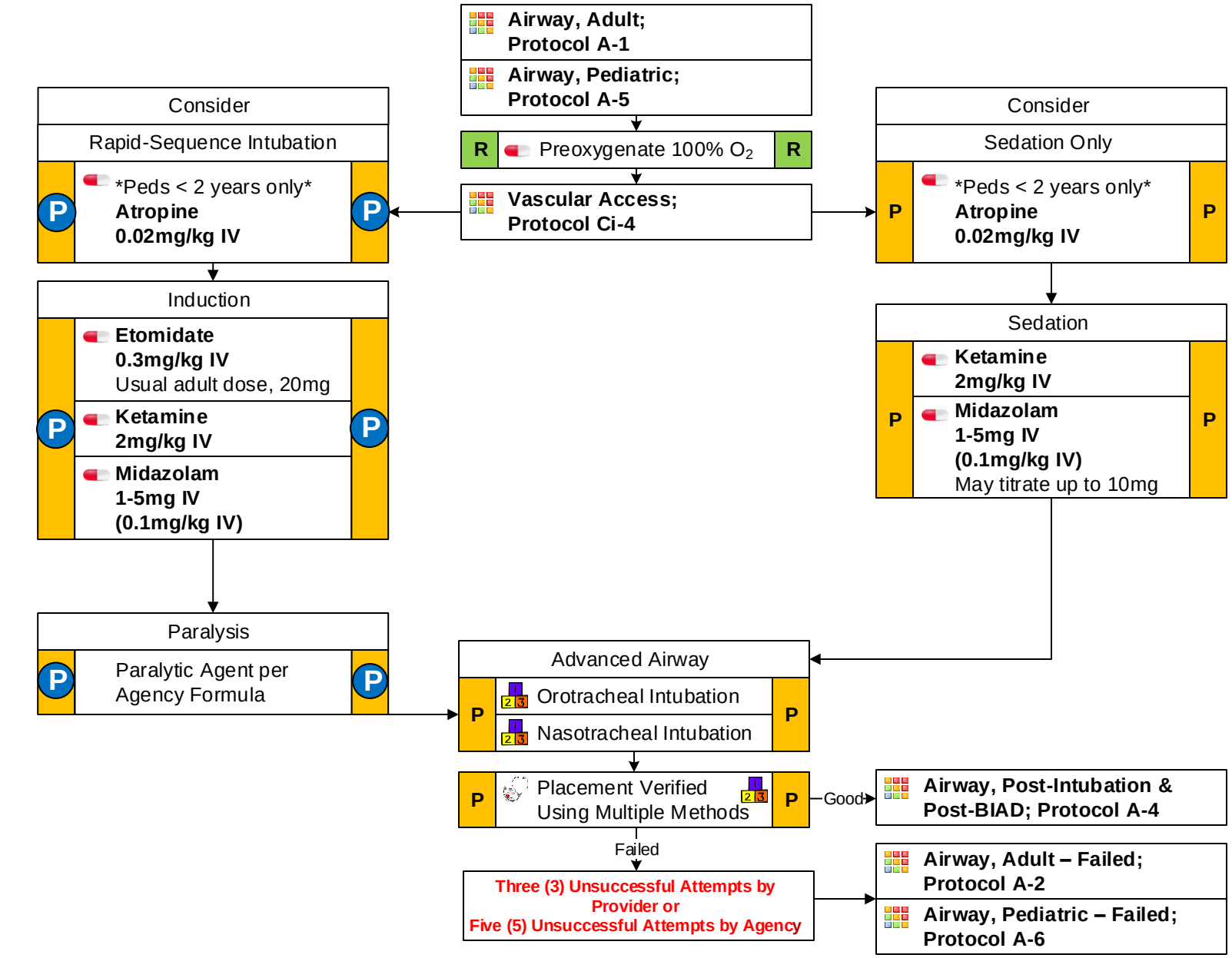
Pearls

- Continuous $EtCO_2$ monitoring should be initiated in all patients with an ETT or BIAD.
- Notify receiving facility AS EARLY AS POSSIBLE when you encounter a difficult or failed airway.

Performance Improvement Suggestions

- Number of intubation attempts prior to BIAD or cricothyrotomy
- Incidence of inappropriate hyperventilation
- Cricothyrotomy success rate
- Documentation of pulse oximetry

Airway, Drug Assisted Intubation



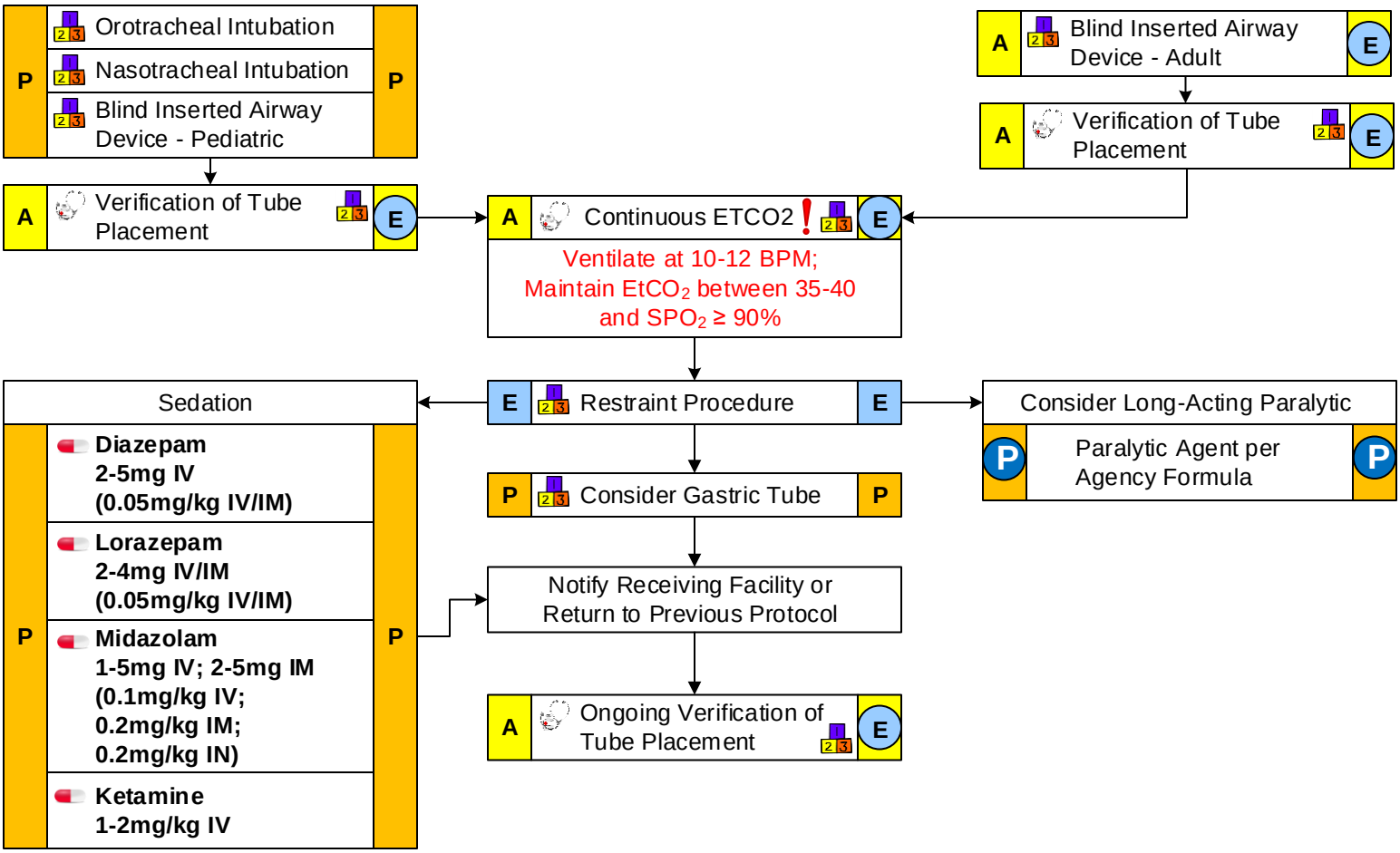
Pearls

- Once a patient has been given a paralytic drug, *YOU* ARE RESPONSIBLE FOR VENTILATIONS AND ADEQUATE SEDATION!
- All equipment, including suction, must be in place and ready for use prior to administering any drugs.
- Prepare rescue airway device when you anticipate a difficult airway.
- Each patient may only receive one dose of succinylcholine. Rocuronium may be repeated.
- Although $EtCO_2$ detection is the preferred method to confirm ETT and BIAD placement, multiple methods must be used such as an esophageal tube detector device, auscultation of breath sounds, absence of epigastric sounds, ETT misting, chest rise, and patient response (e.g., pulse oximetry, skin color, heart rate).
- If 1st intubation attempt fails, make an adjustment and try again:
  - Use a different laryngoscope blade size/type or a different ETT size
  - Apply external laryngeal manipulation: e.g. BURP maneuver
  - Gum elastic bougie
  - Change head positioning to achieve ear-to-sternal notch patient positioning (unless C-spine immobilization indicated).
- If breath sounds are decreased on the left side after intubation, check your ETT depth & consider right mainstem intubation.

Performance Improvement Suggestions

- Number of Provider/EMS Agency attempts prior to Airway, Adult – Failed; Protocol A-2 -OR- Airway, Pediatric – Failed; Protocol A-6
- Placement verified with $EtCO_2$ detection & multiple methods

Airway, Post-Intubation & Post-BIAD



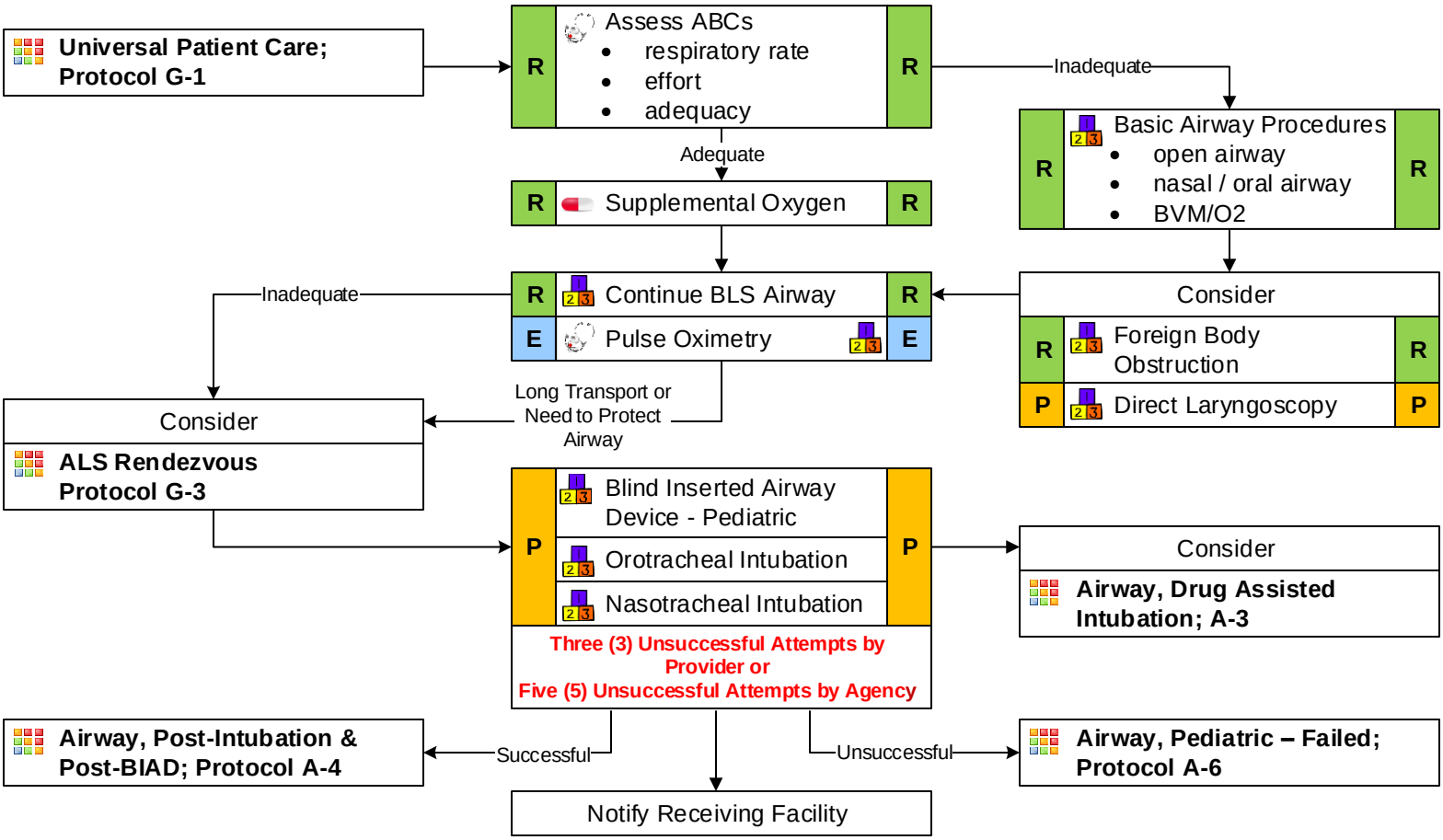
Pearls

- Although $EtCO_2$ detection is the preferred method to confirm ETT and BIAD placement, multiple methods must be used such as an esophageal tube detector device, auscultation of breath sounds, absence of epigastric sounds, ETT misting, chest rise, and patient response (e.g., pulse oximetry, skin color, heart rate).
- Continuous $EtCO_2$ capnography and pulse oximetry are strongly recommended for the monitoring of all patients with a BIAD or ETT.
- Initial ventilatory rates should be 10-12/minute to maintain an $EtCO_2$ of 35-40. (Peds: 30/minute, age < 1 yr; 25/minute, 1-5 yrs; 20/minute, 6-12 yrs). Avoid hyperventilation except in cases of impending herniation - in cases of impending herniation, maintain an $EtCO_2$ between 25-30. (Peds: 35/minute, age < 1 yr; 30/minute 1-5 yrs; 25/minute 6-12 yrs.)
- An orogastric or nasogastric tube will reduce the risk of aspiration and may improve oxygenation and ventilation. Gastric tube placement should be considered in all intubated and BIAD patients, if available.
- Long-acting paralytics may be needed post-intubation and post-BIAD insertion to protect the patient from self-extubation and to improve ventilation.
- Chemical paralysis precludes a neurologic assessment at the receiving destination, which may adversely affect patient management, especially for patients with a head injury. Chemical paralysis will also delay the recognition of seizures. For these and other reasons, long-acting paralytics should not be used routinely.
- Perform and document a neurologic exam prior to the administration of a long-acting paralytic.
- Once a patient has been give a paralytic drug, *YOU* ARE RESPONSIBLE FOR VENTILATIONS AND ADEQUATE SEDATION!
- It is important to secure the ETT or BIAD well; consider a C-collar to better maintain placement.
- If breath sounds are decreased on one side, recheck your ETT depth; the ETT may have migrated into a mainstem bronchus.
- An intubated patient (especially one who has been paralyzed) needs appropriate sedation.

Performance Improvement Suggestions

- Documentation of the indication for a long-acting paralytic
- Administration of sedation when a patient is chemically paralyzed
- Verification of ETT & BIAD position after patient transfers
- Incidence of inappropriate hyperventilation

Airway, Pediatric



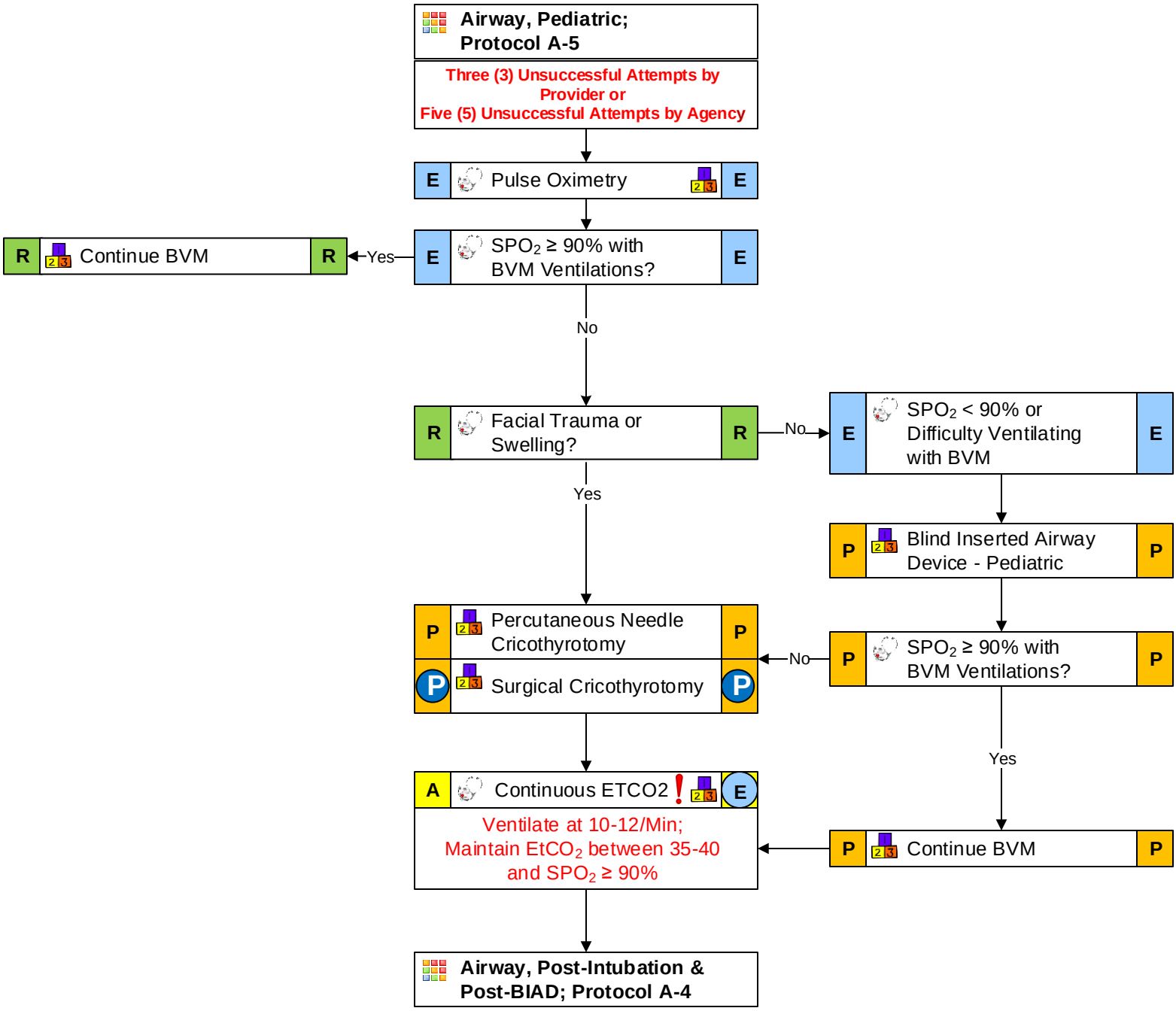
Pearls

- For the purposes of this protocol, pediatric is defined as < 12 years of age or any patient who can be measured on the Broselow-Luten tape and a secure airway is when the patient is receiving appropriate oxygenation and ventilation.
- Do not assume hyperventilation is psychogenic – use oxygen, not a paper bag.
- If an effective airway is being maintained by BVM with continuous pulse oximetry values of ≥ 90, it is acceptable to continue with basic airway measures instead of using a BIAD or intubation.
- An 'intubation attempt' is defined as insertion of the laryngoscope blade into the mouth or insertion of the endotracheal tub e through the nares.
- Paramedics should consider using a BIAD rather than intubation if a difficult airway is anticipated.
- Paramedics should consider drug-assisted intubation in patients that are awake as well as patients who, despite sedation, are persistently combative.
- Ear-to-sternal notch patient positioning will improve your laryngoscopic view; however, maintain C-spine immobilization for patients with a suspected spinal injury.
- Sellick's maneuver, BURP maneuver (Back [posterior], Up, and to pt's Right Pressure), and/or external laryngeal manipulation should be used to assist with difficult intubations.
- Although $EtCO_2$ detection is the preferred method to confirm ETT and BIAD placement, multiple methods must be used such as an esophageal tube detector device, auscultation of breath sounds, absence of epigastric sounds, ETT misting, chest rise, and patient response (e.g., pulse oximetry, skin color, heart rate).
- If first intubation attempt fails, make an adjustment and try again:
  - Use a different laryngoscope blade size/type or a different ETT size
  - Apply external laryngeal manipulation: e.g. BURP maneuver
  - Gum elastic bougie
  - Change head positioning to achieve ear-to-sternal notch patient positioning (unless c-spine immobilization indicated)
  - It is important to secure the ETT and BIAD well; consider a C-collar to better maintain placement.
- If breath sounds are decreased on the left side after intubation, check your ETT depth & consider right main stem intubation.

Performance Improvement Suggestions

- Documentation of pulse oximetry
- Documentation of ventilatory rate

Airway, Pediatric – Failed



Pearls

- Continuous EtCO2 monitoring should be initiated in all patients with an ETT or BIAD.
- Notify receiving facility AS EARLY AS POSSIBLE when you encounter a difficult or failed airway.
- Initial ventilatory rate should be:
  - < 1 yr: 30/minute
  - 1-5 yrs: 25/minute
  - 6-12 yrs: 20/minute

Performance Improvement Suggestions

- Number of intubation attempts prior to BIAD or cricothyrotomy
- Cricothyrotomy success rate
- Documentation of pulse oximetry
- Incidence of inappropriate hyperventilation

Respiratory Distress, Adult

! Required protocol for the use of Adrenaline or epi auto-injector designated as 4,OM

History
- Asthma, emphysema, congestive heart failure, COPD/chronic bronchitis
- Home treatment (oxygen, nebulizer)
- Medications
  - Theophylline
  - Steroids
  - Inhalers
- Toxin / smoke inhalation
- Trauma

Signs & Symptoms
- Shortness of breath
- Pursed lip breathing
- Decreased ability to speak
- Increased respiratory rate & effort
- Wheezing, rhonchi
- Use of accessory muscles
- Fever, cough
- Tachycardia
- Tripod position
- Sniffing position

Differential
- Asthma / Allergy / Anaphylaxis
- Foreign body / epiglottitis
- Aspiration
- COPD (emphysema, bronchitis)
- Pleural effusion
- Pneumothorax
- Pneumonia / pulmonary embolus
- Cardiac (MI or CHF)
- Pericardial tamponade
- Hyperventilation
- Toxin / smoke inhalation

Universal Patient Care; Protocol G-1

Airway Compromise?
- Yes → **Airway, Adult; Protocol A-1**
- No ↓

Possible Allergic Reaction?
- Yes → **Allergic Reaction; Protocol M-2** !
- No ↓

Rales or Signs of CHF?
- Yes → **Cardiogenic Pulmonary Edema; Protocol C-4**
- No ↓

R Position Patient for Comfort R

If Wheezing ?

Bronchodilator

E **Prescribed Beta Agonist 2 puffs MDI** E

E **Prescribed Beta Agonist Albuterol 2.5mg SVN** E

A **Beta Agonist MDI** A

A **Albuterol 2.5mg SVN** A

A **Ipratropium/Albuterol 0.5mg/2.5mg nebulized** A

P **Methylprednisolone 125mg IV/IM** P

Consider

P Continuous Positive Airway Pressure E

If Stridor ?

P **Epinephrine 1:1000 5.0mL nebulized** P

P **Methylprednisolone 125mg IV/IM** P

M If No Improvement, Contact Medical Control for Possible Auto-Injector or IM Epinephrine M

E **Epi Auto-injector 1 adult dose** ! R

A **Epinephrine 1:1000 0.3mg IM** ! R

Notify Receiving Facility

Pearls
- A silent chest in respiratory distress is a sign of pre-respiratory arrest.
- When the patient presents with stridor, anticipate the patient having a difficult airway.
- Congestive heart failure may present with wheezing.

Performance Improvement Suggestions
- Documentation of reassessment after nebulizer treatment
- Documentation of pulse oximetry

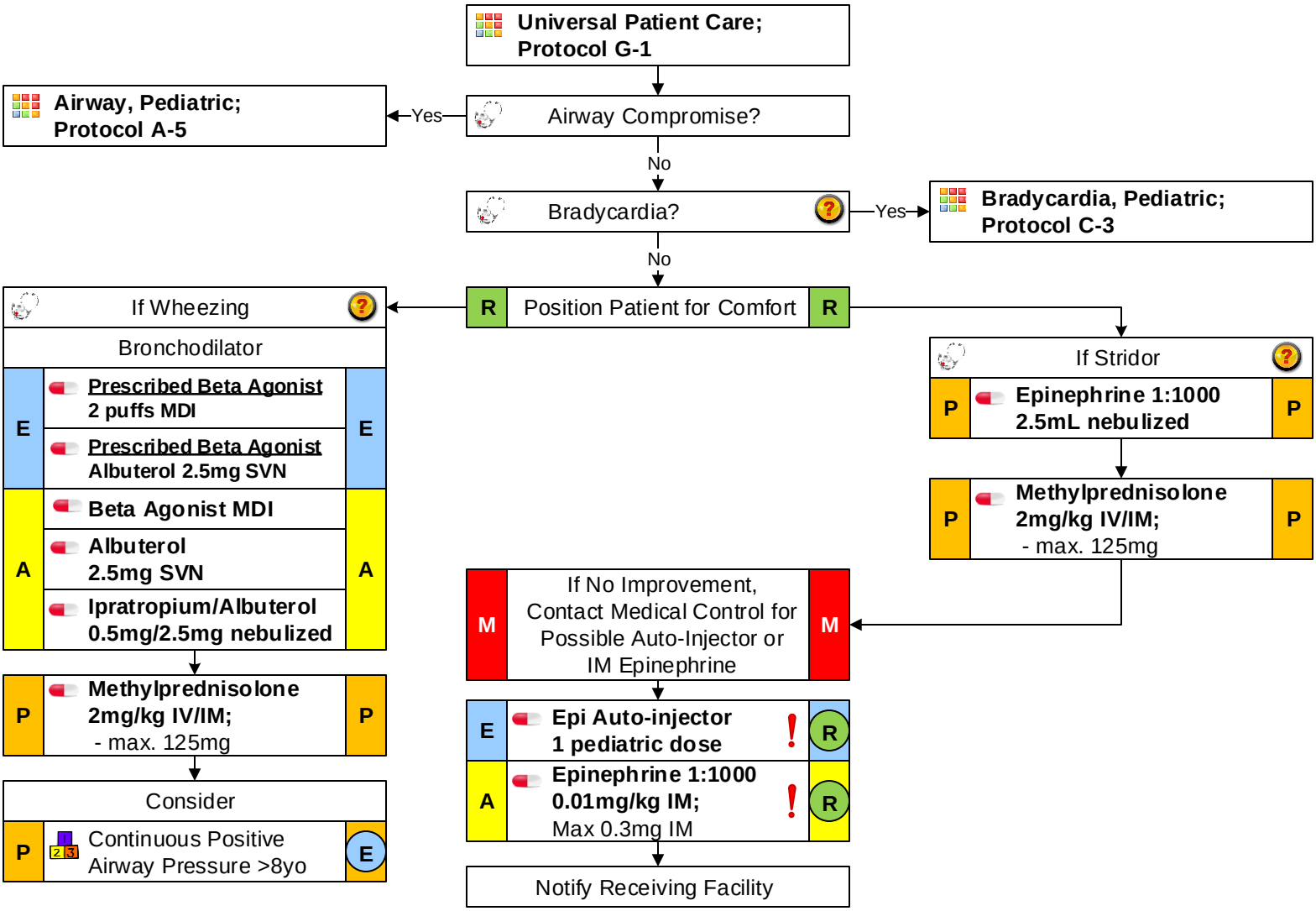
! Required protocol for the use of Adrenaline or epi auto-injector designated as 4,OM

Respiratory Distress, Pediatric

History
- Time of onset
- Possibility of foreign body in airway
- Past medical history
- Medications
- Fever or respiratory infection
- Ill siblings / family members
- History of trauma

Signs & Symptoms
- Wheezing or stridor
- Respiratory retractions
- Increased heart rate
- Altered level of consciousness
- Anxious appearance
- Nasal flaring
- Drooling
- Tripod or sniffing position

Differential
- Allergic reaction
- Asthma
- Foreign body airway obstruction
- Aspiration
- Infection
  - Pneumonia
  - Croup
  - Epiglottitis
- Congenital heart disease
- Inhaled toxin
- Pneumothorax



Pearls
- Never force a conscious child into a position; they will protect their airway by their body position.
- Avoid unnecessary agitation in a pediatric patient in respiratory distress; agitation (i.e. IV initiation) may worsen an airway obstruction.
- Airway control is the most important component of treatment for respiratory distress.
- Transmitted upper airway sounds may mimic wheezing and rhonchi.
- Bradycardia is defined as < 80 bpm for infants up to the age of 1 year; < 60 bpm for children ages 1-8.

Performance Improvement Suggestions
- Documentation of pulse oximetry
- Documentation of post-nebulizer treatment assessment

Asystole & Pulseless Electrical Activity

History
- Age
- Past medical history
- Medications
- Events leading to arrest
- End-stage renal disease
- Estimated “downtime”
- Suspected hypothermia
- Suspected overdose
- DNR or POST form

Signs & Symptoms
- Pulseless
- Apneic
- EKG rhythm
- No auscultated heart tones

Differential
- Medical or trauma
- Hypoxia
- Potassium levels (hypo- / hyper-)
- Drug overdose
- Acidosis
- Hypothermia
- Device / lead error
- Death

Termination of Resuscitation Cardiac Arrest; Protocol C-10

Termination of Resuscitation Trauma Arrest; Protocol C-11

R — CPR — R

If Trauma Consider

Vasopressor

If Medical Consider

P — **Epinephrine 1mg IV/IO Repeat q 3-5 (.01 mg/Kg)** — P

Overdose / Toxic Ingestion; Protocol M-10

Hypothermia; Protocol E-4

Hypovolemia

A — **Normal Saline or Lactated Ringers 1L IV bolus (20mL/kg IV bolus)** — E

Dialysis / Hyperkalemia

P — **Sodium Bicarb 50 mEq (1mEq/Kg)** — P

P — **Calcium Chloride 1 g (20mg/Kg)** — P

Pneumothorax

P — Needle-Chest Decompression — P

Treat Reversible Causes

Airway, Adult; Protocol A-1

Airway, Pediatric; Protocol A-5

Rhythm Change

P — Asystole > 20 minutes — P

Go to Specific **Dysrhythmia Protocol** as Appropriate

ROSC AT ANY TIME

Return of Spontaneous Circulation; Protocol C-7

Consider

M — **Contact Medical Control To Terminate Resuscitation** — M

Notify Receiving Facility or Return to Previous Protocol

Pearls
- Always confirm asystole in more than one lead.
- Application of a mechanical CPR device should not delay the initiation of CPR or delay chest compressions.
- Airway management should not interrupt CPR. High quality CPR and defibrillation are the priority in resuscitation.
- Successful resuscitation of asystole or PEA requires the identification and correction of a reversible cause such as:
  - Acidosis
  - Hypovolemia
  - Hyperkalemia
  - Hypoxia
  - Tamponade
  - Overdose (narcotics, tricyclic antidepressants, calcium channel blockers, beta blockers)
  - Tension Pneumothorax
  - Hypothermia

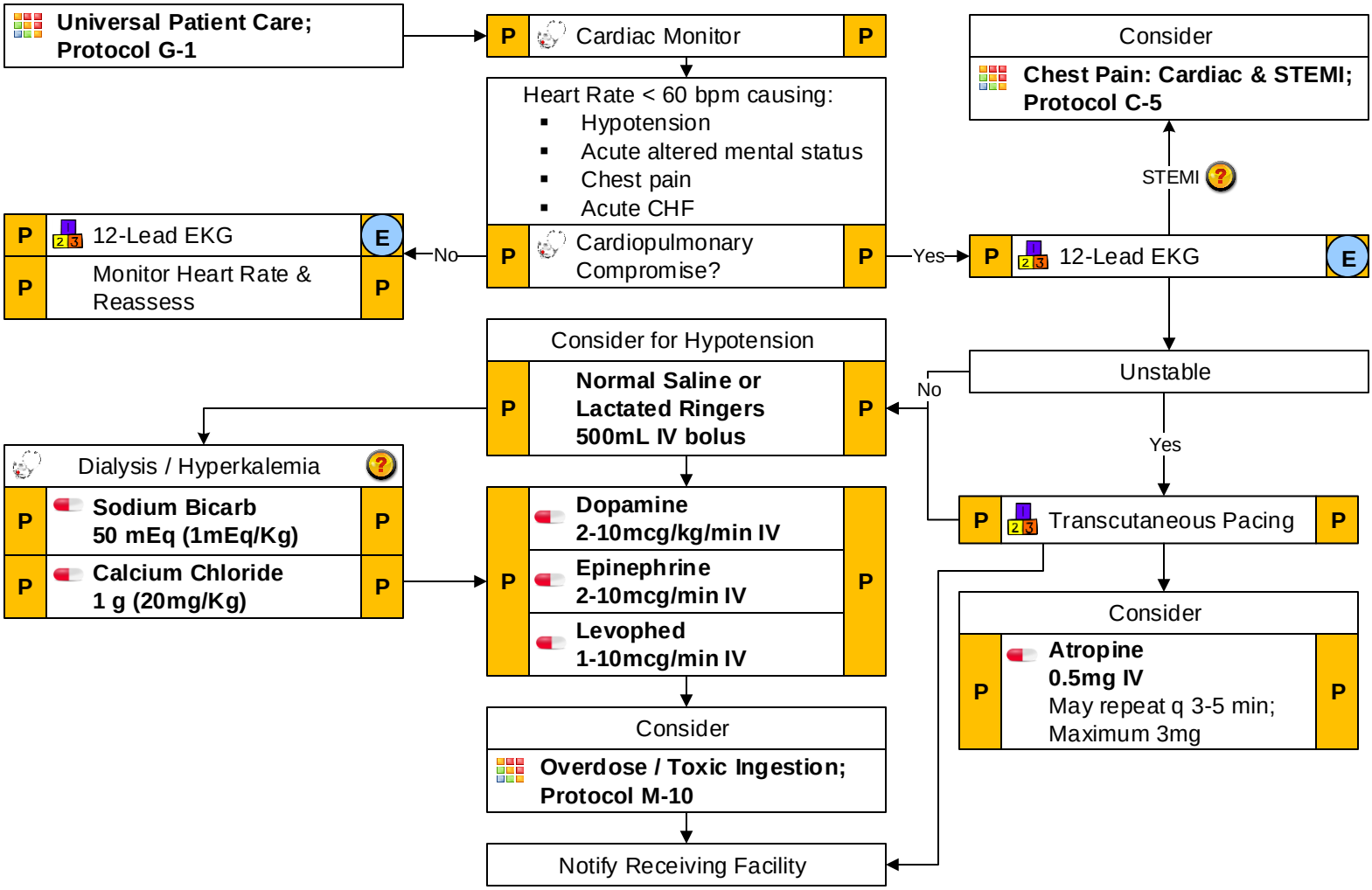
Performance Improvement Suggestions
- Administration of Epinephrine every 3-5 minutes
- Documentation of EKG rhythm & rhythm strip present

Bradycardia, Adult

History
- Past medical history
- Medications
  - Beta-blockers
  - Calcium channel blockers
  - Clonidine
  - Digoxin
- Pacemaker
- Insecticide exposure
- Renal failure / dialysis

Signs & Symptoms
- Heart rate < 60 bpm
- Hypotension
- Acute altered mental status
- Chest pain
- Acute congestive heart failure
- Syncope
- Respiratory distress

Differential
- Acute myocardial infarction
- Hypoxia
- Pacemaker failure
- Hypothermia
- Sinus bradycardia
- Athleticism
- Elevated intracranial pressure (head injury, stroke)
- Spinal cord injury
- Heart block
- Overdose
- Hyperkalemia



Pearls
- Treatment of bradycardia is based upon the presence or absence of symptoms. If the patient is symptomatic, treat them; if the patient is asymptomatic, monitor them.
- In a dialysis patient with a wide complex bradycardia, consider hyperkalemia. Contact medical control for possible treatment with Calcium and Sodium Bicarbonate.

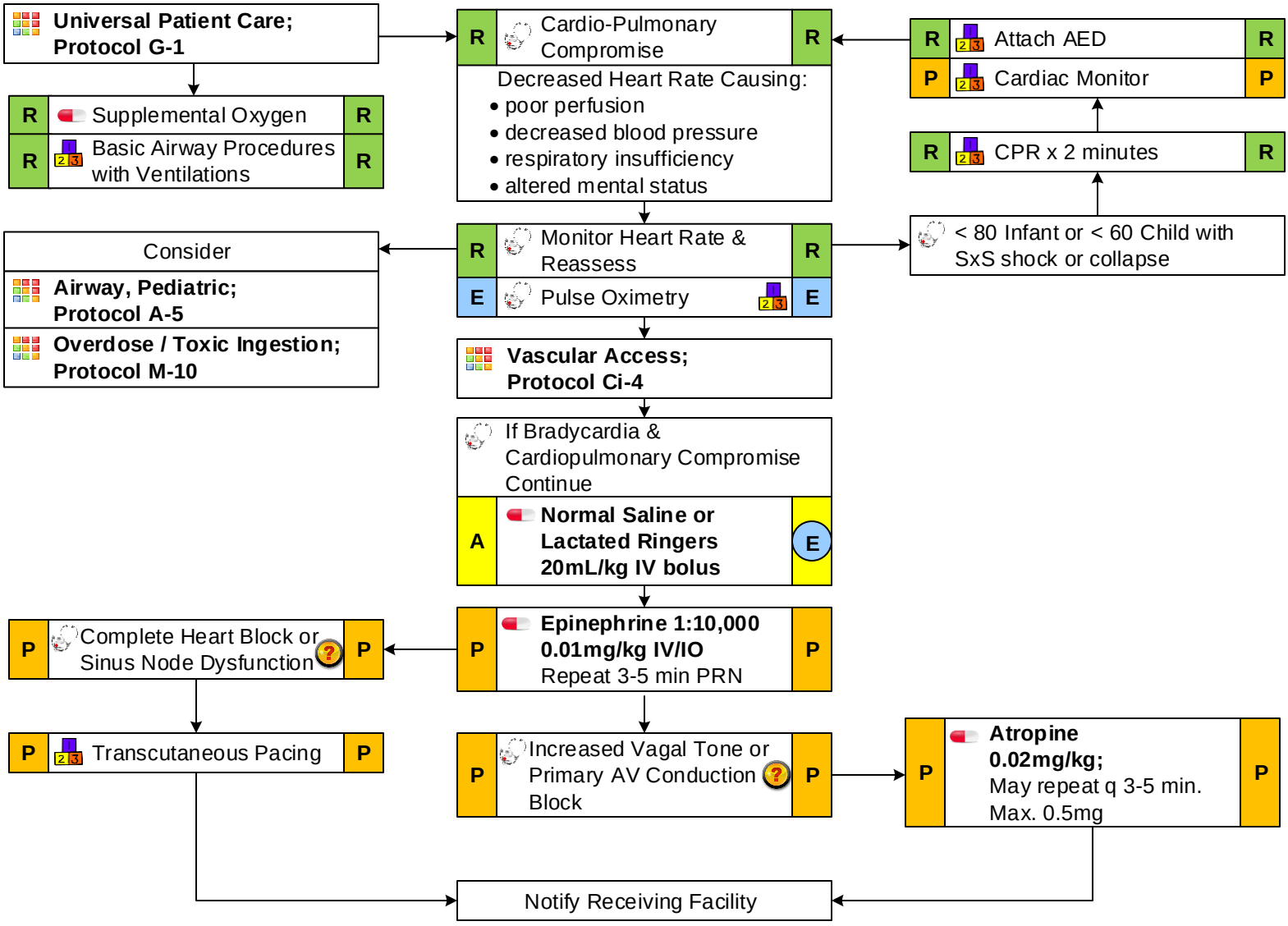
Performance Improvement Suggestions
- Documentation of the presence / absence of overdose, toxic exposure, or dialysis
- Documentation of response to treatment
- Documentation of pacing energy level at capture

Bradycardia, Pediatric

History
- Past medical history
- Respiratory distress or arrest
- Suspected choking victim
- Apnea
- Possible toxic or poison exposure
- Congenital disease
- Medication (maternal or infant)

Signs & Symptoms
- Decreased heart rate
- Delayed capillary refill / cyanosis
- Mottled, cool skin
- Hypotension
- Altered level of consciousness

Differential
- Respiratory failure:
  - Foreign body airway obstruction
  - Secretions
  - Infection (croup, epiglottitis)
- Hypovolemia (dehydration)
- Congenital heart disease
- Trauma
- Tension pneumothorax
- Hypothermia
- Toxin or medication reaction



Pearls
- Bradycardia in pediatric patients is usually due to airway problems and hypoxia.
- Use the Broselow-Luten tape for drug dosages and normal range of vital signs.

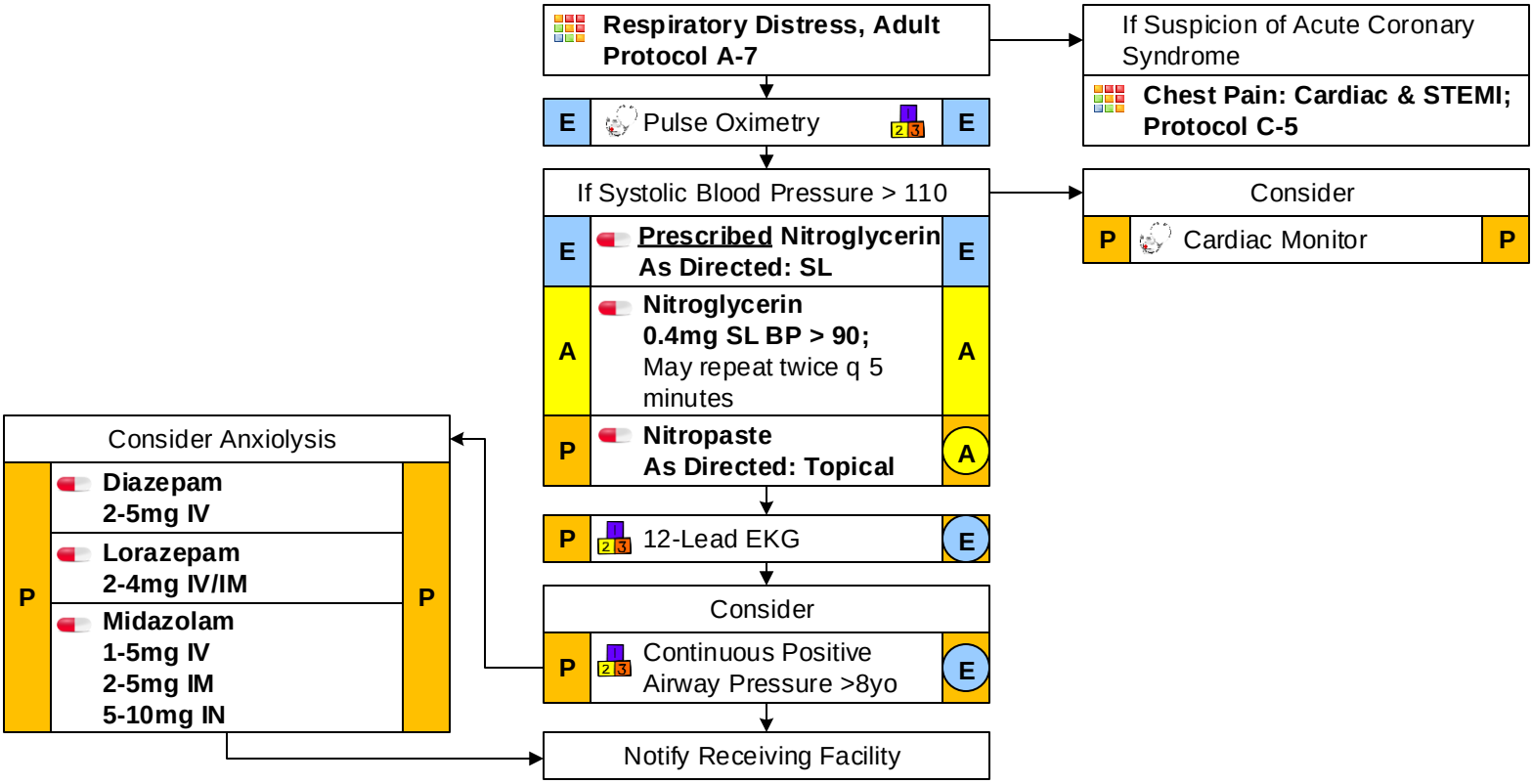
Performance Improvement Suggestions
- Documentation of the presence / absence of overdose or toxic exposure
- Documentation of response to treatment
- Documentation of pacing energy level at capture

Cardiogenic Pulmonary Edema

History
- History of congestive heart failure or pulmonary edema
- History of hypertension
- History of myocardial infarction
- Past medical history
- Medications
  - Lasix
  - Digoxin
- Viagra, Levitra, or Cialis use

Signs & Symptoms
- Respiratory distress
- Bilateral rales
- Orthopnea
- Jugular vein distention
- Pink, frothy sputum
- Peripheral edema
- Diaphoresis
- Hypotension / shock
- Chest pain
- Apprehension

Differential
- Myocardial infarction
- Congestive heart failure
- Asthma
- Anaphylaxis
- Aspiration
- COPD
- Pleural effusion
- Pneumonia
- Pulmonary embolus
- Pericardial tamponade
- Toxic exposure
- Non-cardiogenic pulmonary edema
- Renal failure / dialysis



Pearls
- Due to potential severe hypotension, avoid Nitroglycerin for any patient who has used Viagra or Levitra in the past 24 hours or Cialis in the past 36 hours.
- Even though it has historically been a mainstay of EMS treatment, Furosemide and narcotics have NOT been shown to improve the outcomes of prehospital patients with pulmonary edema and are no longer recommended for treatment.
- If a patient has taken Nitroglycerin without relief, consider the potency of the medication.
- Consider the risk of myocardial infarction in patients presenting with pulmonary edema; diabetics and geriatric patients often present with atypical pain or only have generalized complaints.
- Carefully monitor the level of consciousness, blood pressure, and respiratory status with any interventions used.
- Discontinue the use of sublingual Nitroglycerin if Nitropaste is used.
- Allow the patient to be in their position of comfort in order to maximize their breathing efforts.
- Remove Nitropaste if the patient's systolic blood pressure is < 100.
- Limit IV fluids in patients presenting with pulmonary edema.

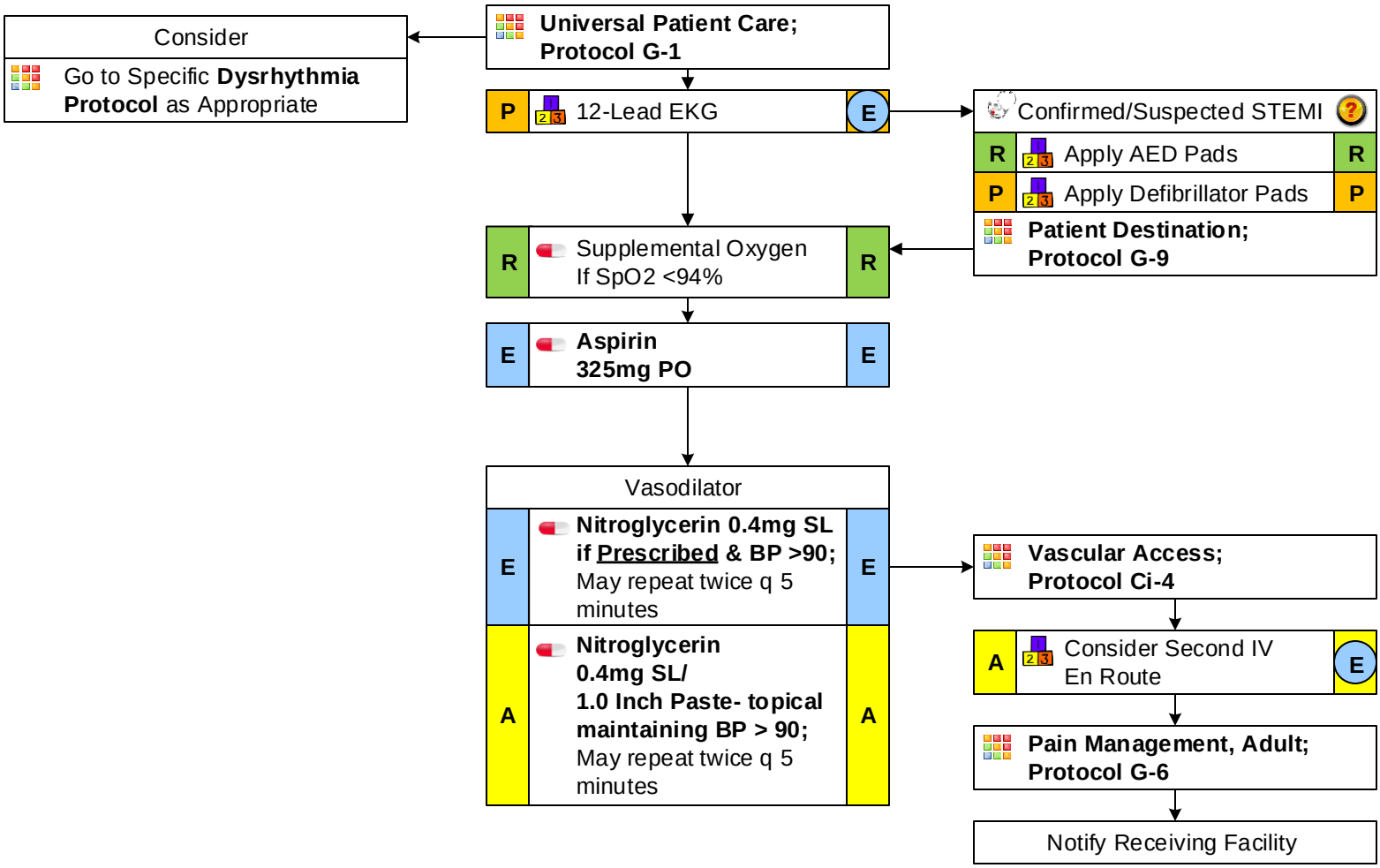
Performance Improvement Suggestions
- Documentation of rate of intubation upon hospital arrival
- Documentation of blood pressure after each Nitroglycerin dose

Chest Pain: Cardiac & STEMI

History
- Age
- Cardiac risk factors
- Recent physical exertion
- Palliation / provocation
- Quality (crampy, constant, sharp, dull, etc.)
- Region / radiation / referred
- Severity (1-10 pain scale)
- Time (onset, duration, repetition)

Signs & Symptoms
- Chest pain or discomfort
- Location (substernal, epigastric, arm, jaw, neck, shoulder)
- Pale, diaphoretic
- Shortness of breath
- Nausea / vomiting

Differential
- Angina versus myocardial infarction
- Pericarditis / pneumothorax
- Pulmonary embolism
- Asthma / COPD
- Aortic dissection or aneurysm
- GE reflux / hiatal hernia
- Esophageal spasm
- Chest wall injury or pain
- Pleural pain / pleurisy
- Cocaine or methamphetamine use



Pearls
- Due to potential severe hypotension, avoid Nitroglycerin for any patient with suspected inferior MI or who has used Viagra or Levitra in the past 24 hours or Cialis in the past 36 hours.
- Patients with ST-Elevation Myocardial Infarction (STEMI) should be transported to the appropriate destination based on the regional EMS STEMI Plan. Depending on local capabilities, the treatment and transport of STEMI patients may be optimized for either percutaneous coronary intervention (PCI) or thrombolytic therapy. The Plan may also incorporate air medical transport to ensure timely reperfusion.
- Diabetic, geriatric, and female patients may have atypical pain or only generalized complaints such as weakness.
- Notify the receiving facility as soon as feasible after STEMI identification.
- Use Morphine with caution. Titrate oxygen to maintain SpO2 at 94% or higher.

Performance Improvement Suggestions
- Documentation of time to first 12-lead EKG
- Accuracy of STEMI identification on 12-lead EKG

Pulseless Arrest, Pediatric

History
- Past medical history
- Time of arrest
- Medications
- Possibility of foreign body in airway
- Hypothermia

Signs & Symptoms
- Unresponsive
- Apneic
- Pulseless

Differential
- Respiratory failure:
  - Foreign body airway obstruction
  - Secretions
  - Infection (croup, epiglottitis)
- Congenital heart disease
- Non-accidental trauma
- Child abuse

Termination of Resuscitation Cardiac Arrest; Protocol C-10

R CPR R
R Automated Defibrillation R
P Cardiac Monitor P

Shock Advised? Ventricular Fibrillation / Tachycardia

No → Asystole / PEA

Yes

R Defibrillate: 1x @ AED Peds Setting R
P Defibrillate: 1x @ 2J/Kg P
R CPR x 2 minutes R

Airway, Pediatric; Protocol A-5

Vascular Access; Protocol Ci-4

P Defibrillate: 1x @ 4J/Kg P
P **Epinephrine 1: 10,000 0.01mg/kg IV/IO**; max 1mg May repeat q 3-5 min. P
R CPR x 2 minutes R

P **Amiodarone 5mg/kg IV/IO**; max 300mg May repeat x2 P

P Defibrillate: 1x @ > 4J/Kg max 10J/Kg or adult dose, whichever lower P

ROSC AT ANY TIME

Return of Spontaneous Circulation; Protocol C-7

Rhythm Change

Go to Specific **Dysrhythmia Protocol** as Appropriate

Vascular Access; Protocol Ci-4

P **Epinephrine 1: 10,000 0.01mg/kg IV/IO**; max 1mg May repeat q 3-5 min. P
R CPR x 2 minutes R

Treat Reversible Causes

P Asystole in 3 Leads P
P Asystole > 20 minutes P

R Chest Compressions by EMS 20 Minutes; BVM AED Advises No Shock R

Termination of Resuscitation Cardiac Arrest; Protocol C-10

Pearls
- AEDs may have a pediatric attenuating system that should be used for infants and children up to 25kg (approximately 8 years of age). If an attenuator is not available, use an AED with standard electrodes.
- For manual defibrillators, use the largest paddles or self-adhering electrodes that will fit on the chest without touching each other. When possible, leave approximately 3cm between the paddles or electrodes.
- Monophasic and biphasic waveform defibrillators should use the same energy levels noted above.
- Successful resuscitation of asystole or PEA requires the identification and correction of a reversible cause such as:
  - Acidosis
  - Hypovolemia
  - Hyperkalemia
  - Hypoxia
  - Tamponade
  - Overdose (narcotics, tricyclic antidepressants, calcium channel blockers, beta blockers)
  - Tension Pneumothorax
  - Hypothermia

Performance Improvement Suggestions
- Documentation of timeline: dispatch, patient contact, decision to transport, and termination of resuscitation (if applicable)

Return of Spontaneous Circulation

History
- Respiratory arrest
- Cardiac arrest

Signs & Symptoms
- Return of pulse

Differential
- Continue to address specific differentials associated with the original dysrhythmia

Termination of Resuscitation Trauma Arrest; Protocol C-11
Termination of Resuscitation Cardiac Arrest; Protocol C-10
V-Fib & V-Tach, Pulseless Adult; Protocol C-12
Pulseless Arrest, Pediatric; Protocol C-6
Asystole & Pulseless Electrical Activity; Protocol C-1

Airway, Adult; Protocol A-1
Airway, Pediatric; Protocol A-5

E: When feasible, titrate F_iO_2 to minimum necessary to achieve SPO2 ≥ 94%

A: Titrate Ventilations to EtCO2 of 35-40 ! E

Consider
P: Cardiac Monitor P

R: Systolic BP < 90? R

Yes

Consider
A: **Normal Saline/LR fluid bolus 1L (20ml/kg)** May repeat x1 E

If Still Hypotensive after Fluid Bolus, Consider
P: **Dopamine 5-20 mcg/kg/min IV**
Epinephrine 2-10 mcg/min IV
Levophed 1-10 mcg/min IV P

No

P: If ROSC was as a result of anti-arrhythmics, continue their use P

Patient Follows Commands?

No

Consider
Targeted Temperature Management; Protocol G-11

Yes

P: 12-Lead EKG E

STEMI?

Yes

Chest Pain: Cardiac & STEMI; Protocol C-5

No

Notify Receiving Facility or Return to Previous Protocol

Pearls
- Hyperventilation is a significant cause of hypotension and recurrence of cardiac arrest in the post-resuscitation phase and must be avoided!
- The condition of post-resuscitation patients fluctuates rapidly and continuously; they will require close monitoring. Stabilize the patient prior to transport. Vital signs should be checked at least every five minutes.
- Common causes of post-resuscitation hypotension include hyperventilation, hypovolemia, pneumothorax, and medication reaction(s) to ALS drugs.
- Documentation of initial rhythm, witnessed arrest, bystander CPR and total down time of patient may facilitate receiving facility in making treatment decisions.

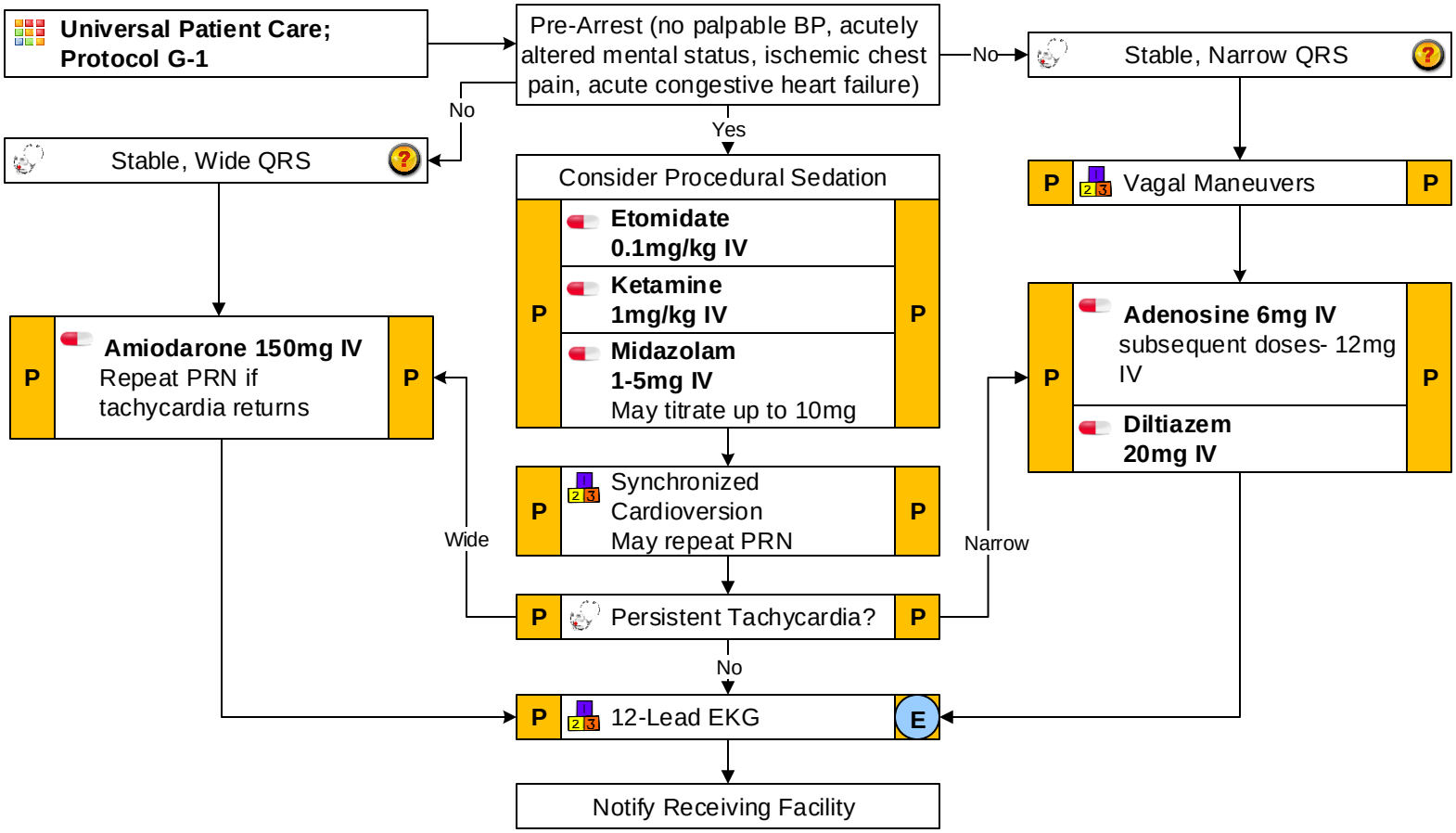
Performance Improvement Suggestions
- Documentation of vital signs every 5 minutes
- Documentation of 12-lead EKG, if obtained
- Documentation of treatment of hypotension

Tachycardia With Pulse, Adult

History
- Stimulant use
  - Medications
  - Diet (caffeine, energy drinks)
  - Drugs (nicotine, cocaine)
- Previous myocardial infarction / stents/coronary artery bypass grafting
- History of palpitations / heart racing / atrial fibrillation / supraventricular tachycardia / Wolff-Parkinson-White syndrome
- Pacemaker / Automatic Implantable Cardioverter Defibrillator
- Syncope / near syncope
- Cardiomyopathy / congestive heart failure

Signs & Symptoms
- Heart rate > 150/minute
- QRS duration
- Lightheadedness
- Chest pain
- Dyspnea

Differential
- Sinus tachycardia
- Ventricular tachycardia
- Supraventricular tachycardia
  - Atrial fibrillation / flutter
  - Wolff-Parkinson-White syndrome
  - Multifocal atrial tachycardia
- Myocardial infarction
- Electrolyte imbalance
- Hypoxia / pulmonary embolism
- Hypovolemia / anemia
- Drug effect / overdose
- Thyroid storm



Pearls
- Apply an AED if the patient becomes pulseless or unconscious.
- If the patient has a history of Wolff-Parkinson-White (WPW), **DO NOT** administer Adenosine or a calcium channel blocker (e.g. Diltiazem) without first contacting Medical Control.
- Adenosine may not be effective in atrial fibrillation / flutter, yet it is not harmful.
- Document all rhythm changes with monitor strips and obtain monitor strips with each therapeutic intervention.
- Polymorphic ventricular tachycardia (Torsades de Pointes) may benefit from Magnesium Sulfate – contact Medical Control first.

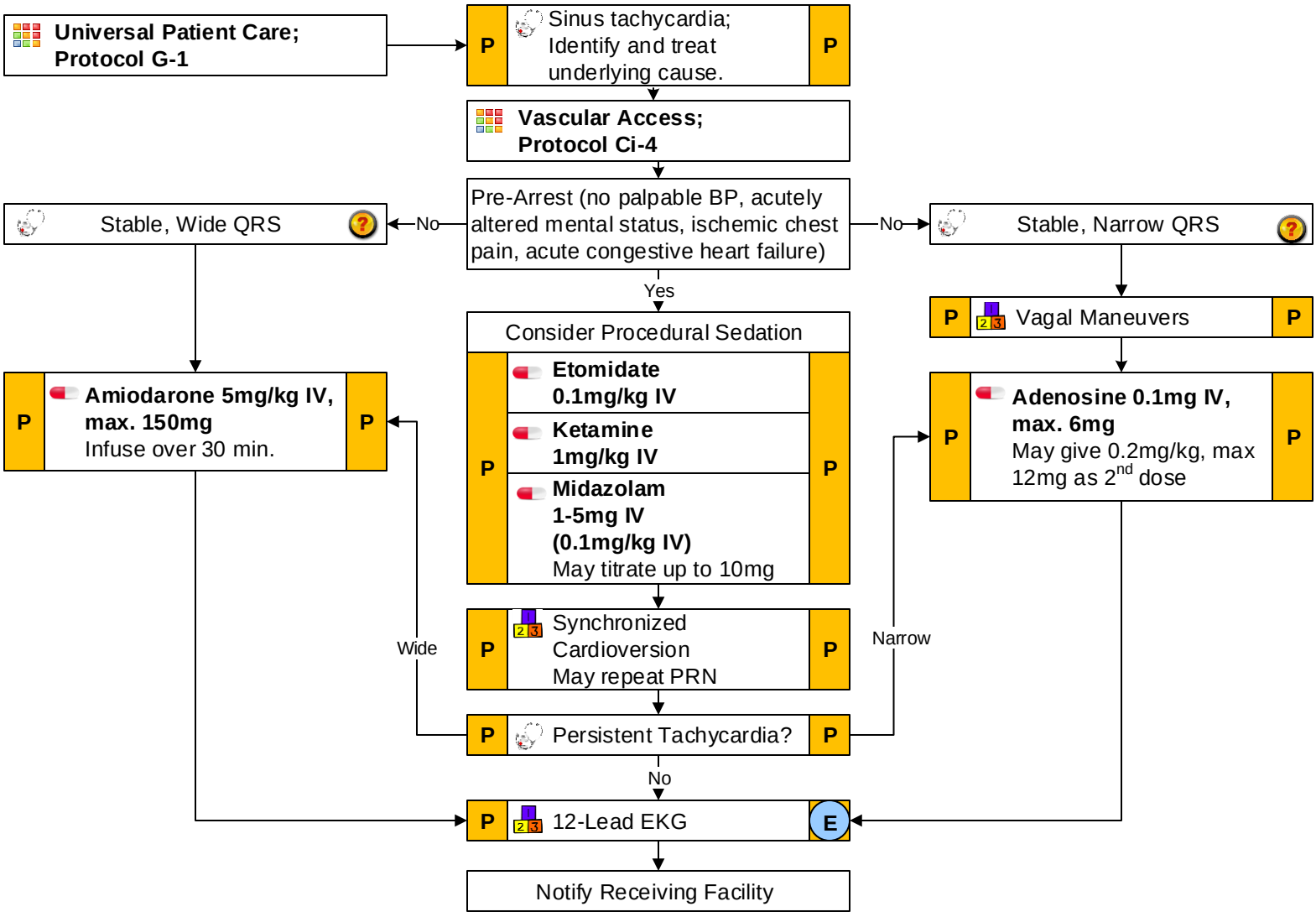
Performance Improvement Suggestions
- Documentation of initial rhythm with a rhythm strip
- Documentation of response to treatment

Tachycardia With Pulse, Pediatric

History
- Stimulants
  - Medications
  - Diet (caffeine, energy drinks)
  - Drugs (nicotine, cocaine)
- History of heart disease / murmur
- Syncope / near syncope
- Fever
- Vomiting / diarrhea

Signs and Symptoms
- Infant HR ≥220/min
- Child HR ≥180/min
- QRS duration
- Lightheadedness
- Tachypnea
- Poor perfusion

Differential
- Sinus tachycardia
- Supraventricular tachycardia
  - Atrial fib / flutter
  - SVT / WPW / MAT
- Ventricular tachycardia
- Electrolyte imbalance
- Hypoxia / PE / pneumothorax
- Hypovolemia or anemia
- Drug effect / overdose
- Fever / infection / sepsis
- Anxiety / pain / emotional stress



Pearls
- Apply an AED if patient becomes pulseless or unconscious.
- 12 lead ECG may assist with rhythm identification but should not delay treatment.
- If patient has history of Wolfe Parkinson White (WPW), DO NOT administer adenosine without contacting Medical Control.
- Document all rhythm changes with monitor strips and obtain monitor strips with each therapeutic intervention.
- Polymorphic ventricular tachycardia (Torsades de Pointes) may benefit from magnesium sulfate - contact Medical Control first.

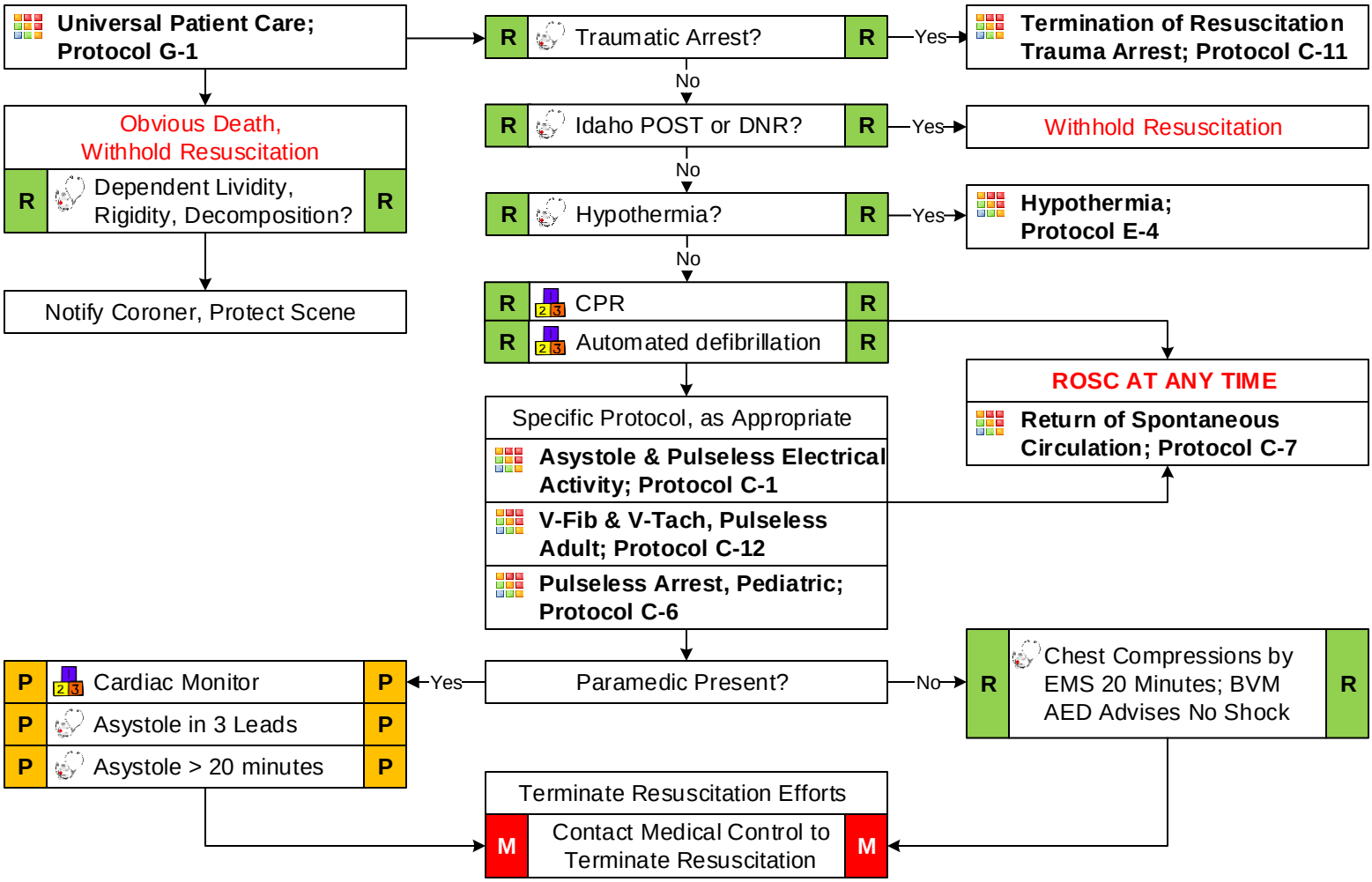
Performance Improvement Suggestions
- Documentation of initial rhythm with a rhythm strip
- Documentation of response to treatment

Termination of Resuscitation: Cardiac Arrest

History
- Events leading up to arrest
- Estimated down-time
- Past medical history & medications
- Existence of terminal illness
- DNR, POST, Living Will, Durable Power of Attorney for Health Care
- Bystander CPR

Signs & Symptoms
- Unresponsive
- Apneic
- Pulselessness

Differential
- Medical versus trauma
- Ventricular fibrillation versus pulseless ventricular tachycardia
- Asystole
- Pulseless electrical activity (PEA)



Pearls
- During treatment of traumatic arrest patients, neither rescuers nor bystanders should be at risk.
- The decision to transport is influenced by the mechanism of injury, proximity to the hospital, and the patient's age.
- Manual chest compressions in a moving ambulance are generally ineffective and potentially hazardous to the rescuer(s).
- Special circumstances (i.e. family needs, victim location, maternal arrest) may necessitate transport without the return of spontaneous circulation (ROSC).

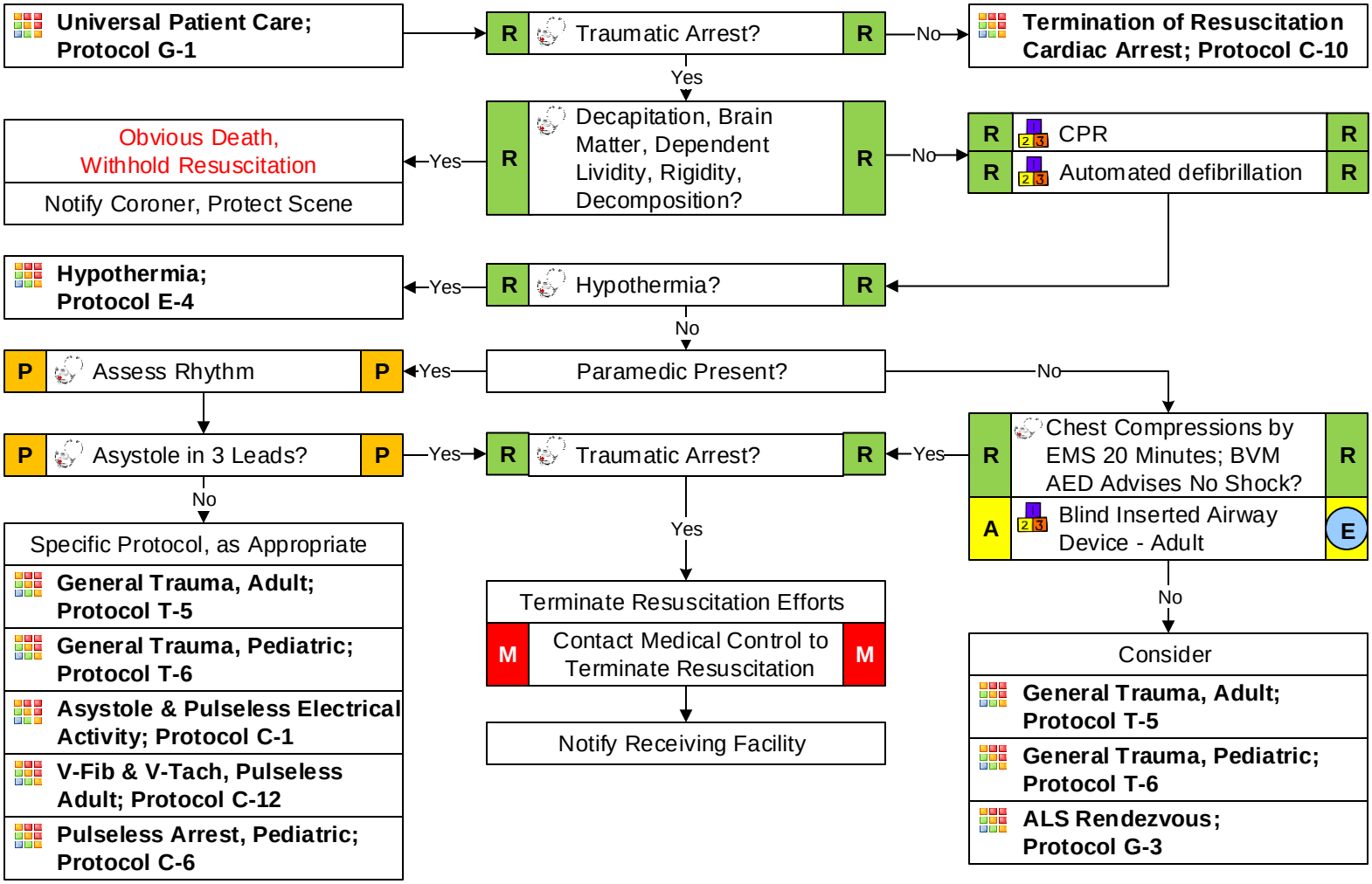
Performance Improvement Suggestions
- If resuscitation efforts are terminated, documentation of all required criteria
- Documentation of the timeline: dispatch, patient contact, and decision to terminate resuscitation
- Documentation of asystole confirmed in multiple leads
- Documentation of the application of an AED

Termination of Resuscitation: Trauma Arrest

History
- Events leading up to arrest
- Estimated down-time
- Past medical history
- Medications
- Existence of terminal illness
- DNR, POST, Living Will, Durable Power of Attorney for Health Care
- Bystander CPR

Signs & Symptoms
- Unresponsive
- Apneic
- Pulseless

Differential
- Medical versus trauma
- Ventricular fibrillation versus pulseless ventricular tachycardia
- Asystole
- Pulseless electrical activity (PEA)



Pearls
- Survival from traumatic arrest is rare.
- During treatment of traumatic arrest patients, neither rescuers nor bystanders should be at risk.
- The decision to transport is influenced by the mechanism of injury, proximity to the hospital, and the patient's age.
- Manual chest compressions in a moving ambulance are generally ineffective and potentially hazardous to the rescuer(s).
- Special circumstances (i.e. family needs, victim location, maternal arrest) may necessitate transport without the return of spontaneous circulation (ROSC).

Performance Improvement Suggestions
- If resuscitation efforts are terminated, documentation of all required criteria
- Documentation of the timeline: dispatch, patient contact, and decision to terminate resuscitation
- Documentation of asystole confirmed in multiple leads
- Documentation of the application of an AED

Ventricular Fibrillation/Tachycardia Pulseless, Adult

History
- Past medical history
- Time of arrest
- Medications
- Possibility of foreign body in airway
- Hypothermia
- Electrocution
- Drowning
- DNR

Signs & Symptoms
- Unresponsive
- Apneic
- Pulseless

Differential
- Medical vs. Trauma
- Artifact or monitor failure
- Asystole

Termination of Resuscitation Cardiac Arrest; Protocol C-10

R — CPR — R
R — Attach AED — R
P — Cardiac Monitor — P

Shockable Rhythm?

Ventricular Fibrillation/Tachycardia

R — Automated Defibrillation — R
P — Manual Defibrillation — P
R — CPR x 2 minutes — R

P — **Epinephrine 1mg IV/IO**; repeat q 3-5 min. — P

Shockable Rhythm?

No

Consider
- **Airway, Adult; Protocol A-1**
- **Vascular Access; Protocol Ci-4**
- **Return of Spontaneous Circulation; Protocol C-7**

Consider

ROSC AT ANY TIME

Yes

R — Automated Defibrillation — R
P — Manual Defibrillation — P
R — CPR x 2 minutes — R

P — **Amiodarone 300mg IV/IO;** Repeat 150 mg
Lidocaine 1.5mg/kg IV Repeat x1 q 5 min — P

Repeat if Unchanged

Termination of Resuscitation Cardiac Arrest; Protocol C-10

Go to Specific **Dysrhythmia Protocol** as Appropriate

Notify Receiving Facility

Pearls
- For manual defibrillators, use the largest paddles or self-adhering electrodes that will fit on the chest without touching each other. When possible, leave approximately 3cm between the paddles or electrodes.
- Application of a mechanical CPR device should not delay the initiation of CPR or delay chest compressions.

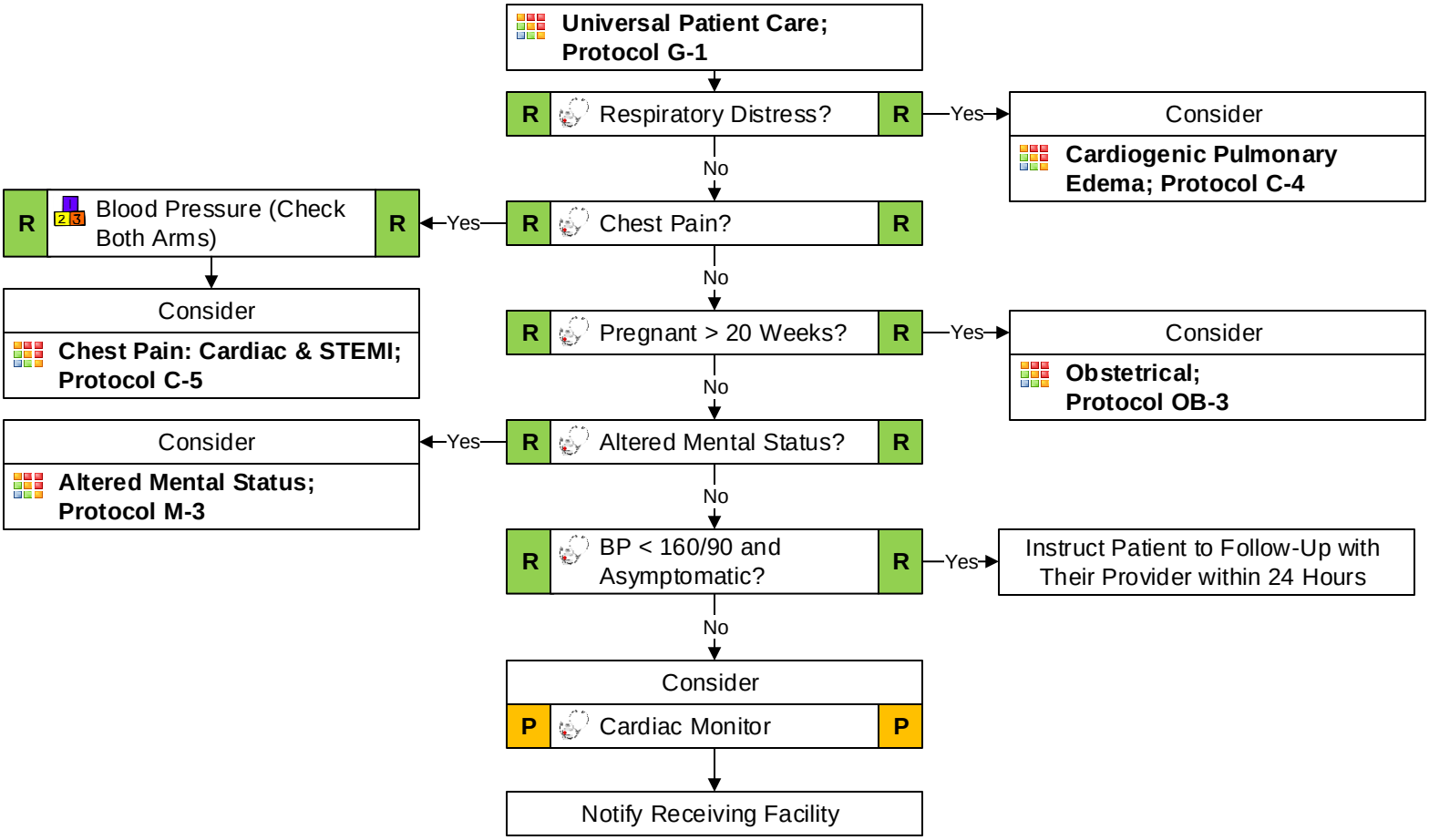
Performance Improvement Suggestions
- Documentation of timeline: dispatch, patient contact, decision to transport, and termination of resuscitation (if applicable)

Hypertension

History
- Documented hypertension
- Related diseases:
  - Diabetes
  - CVA
  - Renal Failure
  - Cardiac disease
- Pacemaker
- Insecticide exposure
- Renal failure / dialysis

Signs & Symptoms
- Headache
- Epistaxis
- Blurred vision
- Dizziness
- Confusion
- Chest pain
- Shortness of breath
- Focal neurological deficit

Differential
- Hypertensive encephalopathy
- Primary CNS injury (Cushing's response = bradycardia with hypertension)
- Myocardial infarction
- Aortic dissection
- Pre-eclampsia / eclampsia
- Renal failure



Pearls
- Symptomatic hypertension is typically revealed through end-organ damage to the cardiac, CNS, or renal systems (e.g. congestive heart failure, stroke, renal failure).
- Aortic dissection classically presents with the sudden onset of tearing chest pain that radiates to the back with unequal upper-extremity blood pressures.

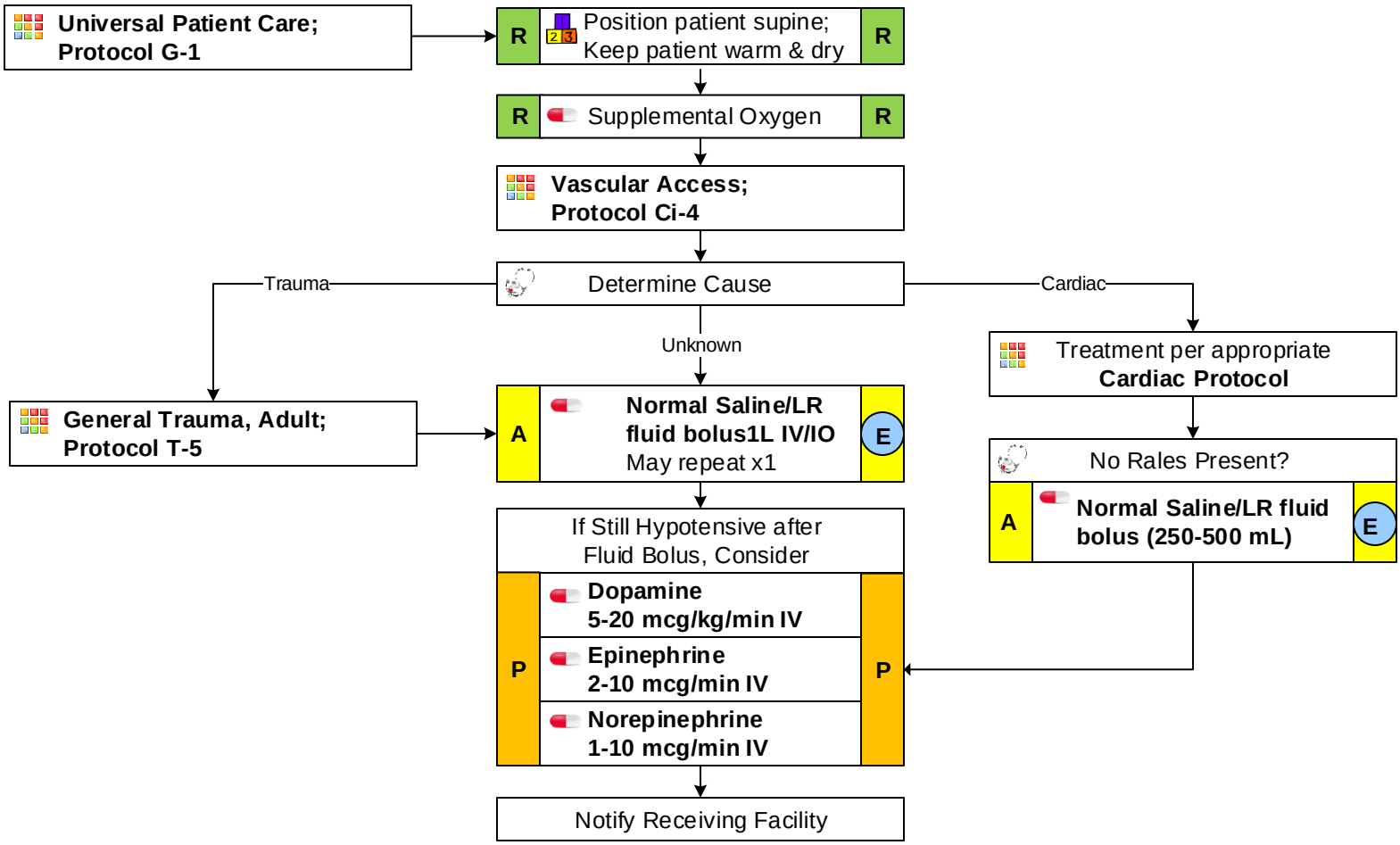
Performance Improvement Suggestions
- Documentation of blood pressure in both arms when chest pain is present
- Documentation of pregnancy status and gestation

Hypotension/Shock, Adult

History
- Blood loss (vaginal / gastrointestinal bleeding / AAA / ectopic)
- Fluid loss (vomiting, diarrhea, fever
- Infection
- Cardiac history (MI, CHF)
- Medications
- Allergic reaction
- Pregnancy
- History of poor oral intake
- Trauma history
- Age

Signs and Symptoms
- Restlessness, confusion
- Weakness, lightheadedness
- Weak, rapid pulse
- Pale, cool, clammy skin
- Delayed capillary refill
- Coffee-ground emesis
- Tarry stools
- Declining BP
- Decreased pulse pressure

Differential
- Shock
  - Hypovolemic
  - Cardiogenic
  - Septic
  - Neurogenic
  - Anaphylactic
- Ectopic pregnancy
- Dysrhythmias
- Pulmonary embolus
- Tension pneumothorax
- Medication effect / overdose
- Vasovagal
- Physiologic (pregnancy)



Pearls
- Consider smaller fluid bolus (250-500 mL) in the elderly, who are at increased risk of tidal overload.
- Anaphylactic shock may not always present with rash or wheezing.
- Shock is defined as decreased end-organ perfusion; Hypotension is not required for the assessment of shock.
- Trendelenberg & leg elevation are ineffective treatments for shock.
- Treat shock with SHOCK:
  Secure the airway. Heat conservation. Oxygenate the blood. Core perfusion improvements. Keep field time short.
- If shock is from hemorrhage target MAP of 70

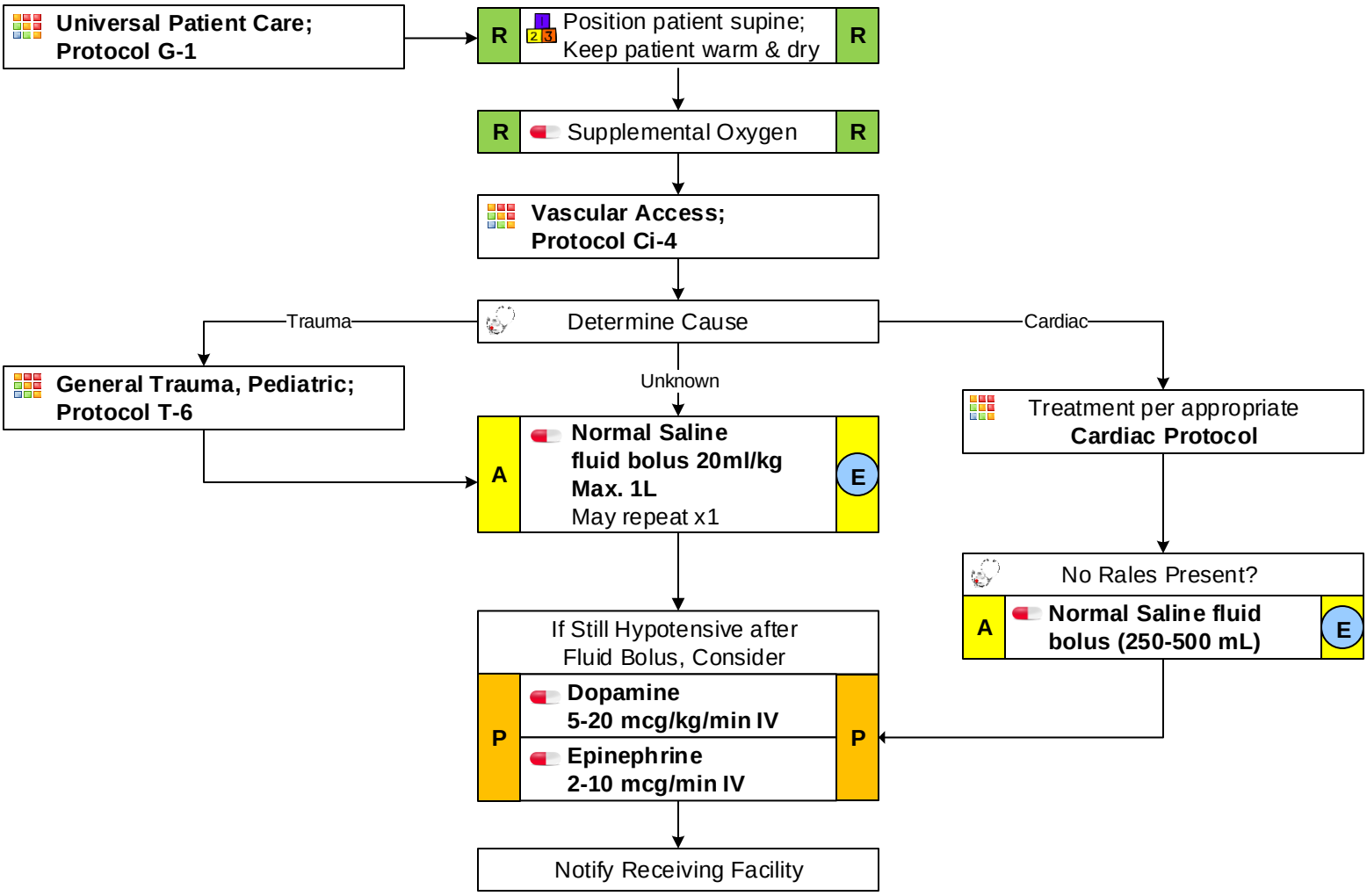
Performance Improvement Suggestions
- Patient assessment after each fluid bolus
- Documentation of lung sounds

Hypotension/Shock, Pediatric

History
- Blood loss
- Fluid loss (vomiting, diarrhea, fever)
- Infection
- Cardiac history (Congenital, CHF)
- Medications
- Allergic reaction
- History of poor oral intake
- Trauma history
- Age

Signs and Symptoms
- Restlessness, confusion
- Weakness, lightheadedness
- Weak, rapid pulse
- Pale, cool, clammy skin
- Delayed core capillary refill
- Declining BP
- Lethargy
- Flat/depressed Fontanels
- Decreased Blood Pressure

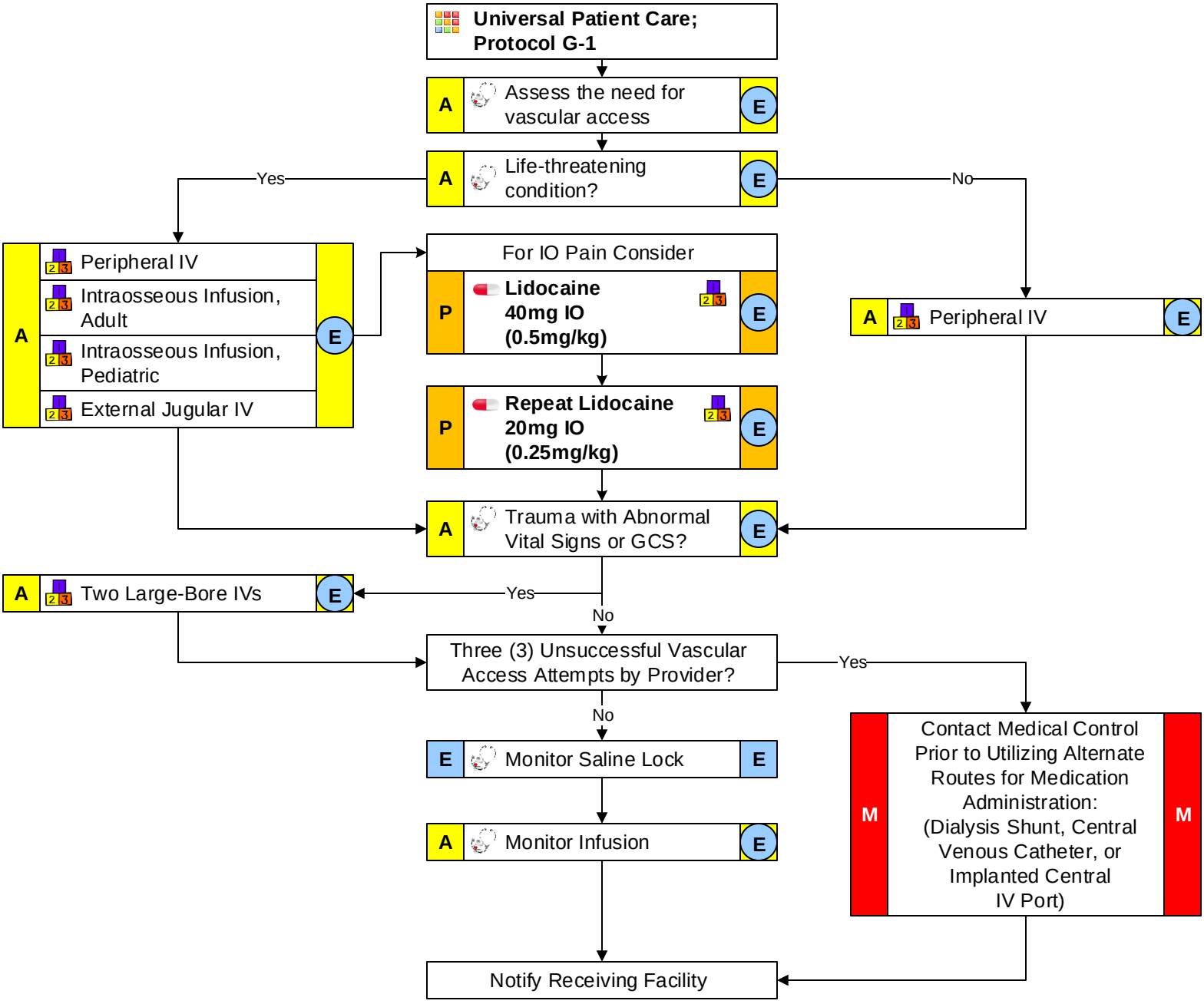
Differential
- Trauma
- Infection
- Dehydration (Vomiting, Diarrhea, Fever)
- Congenital Heart Disease
- Medication or Toxin
- Allergic Reaction



Pearls
- Consider performing orthostatic vital signs on patients in non-trauma situations if suspected blood or fluid loss.
- Anaphylactic shock may not always present with rash or wheezing.
- Shock is defined as decreased end-organ perfusion; Hypotension is not required for the assessment of shock.
- Differentiate dizziness, is it vertigo or pre-syncope (lightheadedness)?
- Trendelenberg & leg elevation are ineffective treatments for shock.
- Treat shock with SHOCK:
  Secure the airway. Heat conservation. Oxygenate the blood. Core perfusion improvements. Keep field time short.

Performance Improvement Suggestions
- Patient assessment after each fluid bolus
- Documentation of lung sounds

Vascular Access



Pearls

- In the setting of cardiac arrest, any preexisting dialysis shunt or external central venous catheters may be used.
- Any prehospital fluids or medications approved for IV use may be given through an intraosseous (IO) infusion.
- All IV rates should be a KVO (minimal rate to keep the vein open) unless administering a fluid bolus.
- External jugular and IO lines may be attempted initially in life-threatening events where no obvious peripheral sites are noted.
- Any venous catheter that has already been accessed prior to EMS arrival may be used.
- Upper extremity IV sites are preferable to lower extremity sites.
- Lower extremity IV sites are discouraged in patients with vascular disease or diabetes.
- In post-mastectomy patients, avoid IV initiations, blood draws, injections, or taking a blood pressure in the arm on the affected side.

Performance Improvement Suggestions

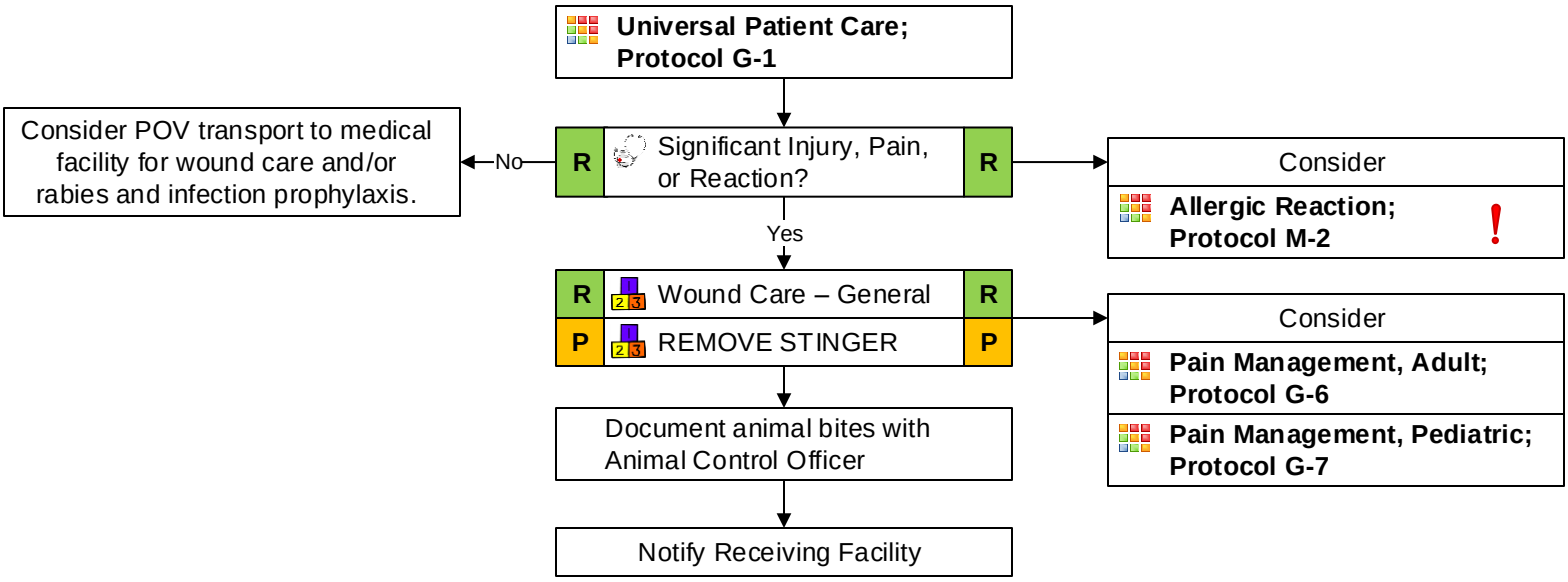
- Number of vascular access attempts and success rate

Bites & Envenomations

History
- Type of bite or sting
- Bring description / photo of animal
  - The actual animal, dead or alive
- Time, location, number, and size of bite(s) / sting(s)
- Previous reaction to bite / sting
- Domestic versus wild animal
- Tetanus and rabies risk
- Immunocompromised patient

Signs & Symptoms
- Rash, skin break, wound
- Pain, soft tissue swelling, redness
- Bleeding
- Retained foreign body / stinger
- Evidence of infection
- Shortness of breath, wheezing
- Allergic reaction, hives, itching
- Hypotension / shock

Differential
- Animal bite
- Human bite
- Snake bite (poisonous)
- Spider bite (poisonous)
- Insect sting / bite
- Infection risk
- Rabies risk
- Tetanus risk
- Predetermined severe allergic reaction (bees)



Pearls
- Bites from humans have higher infection rates than bites from animals due to normal bacteria in the human mouth; they will require antibiotics for infection prophylaxis. Ambulance transport is not necessarily required.
- In Idaho, bats are the most common carrier of rabies. If the patient awakes to find a bat in their bedroom, rabies prophylaxis is indicated, even in the absence of a bite. Likewise, incidental contact with a bat (e.g. children playing with a bat carcass) will also require rabies prophylaxis.
- In Idaho, the rattlesnake pit viper is the most common poisonous snake. However, exotic snakes are sometimes kept as pets.
  - Do not apply suction or electricity as first aid for snakebites.
  - Do not incise the wound.
  - The amount of envenomation is variable; it is generally worse with larger snakes and bites in early spring.
  - If the patient experiences no pain or swelling, envenomation is unlikely.
- In the absence of systemic symptoms, spider bites do not warrant emergency transportation. Note that some spider bites may delay presentation of systemic symptoms. Black widow bites tend to cause minimal pain but, over a few hours, can cause muscular pain and/or severe abdominal pain.

Performance Improvement Suggestions
- Documentation of previous allergic reaction(s) to bites or stings
- Documentation of contact with animal control entities

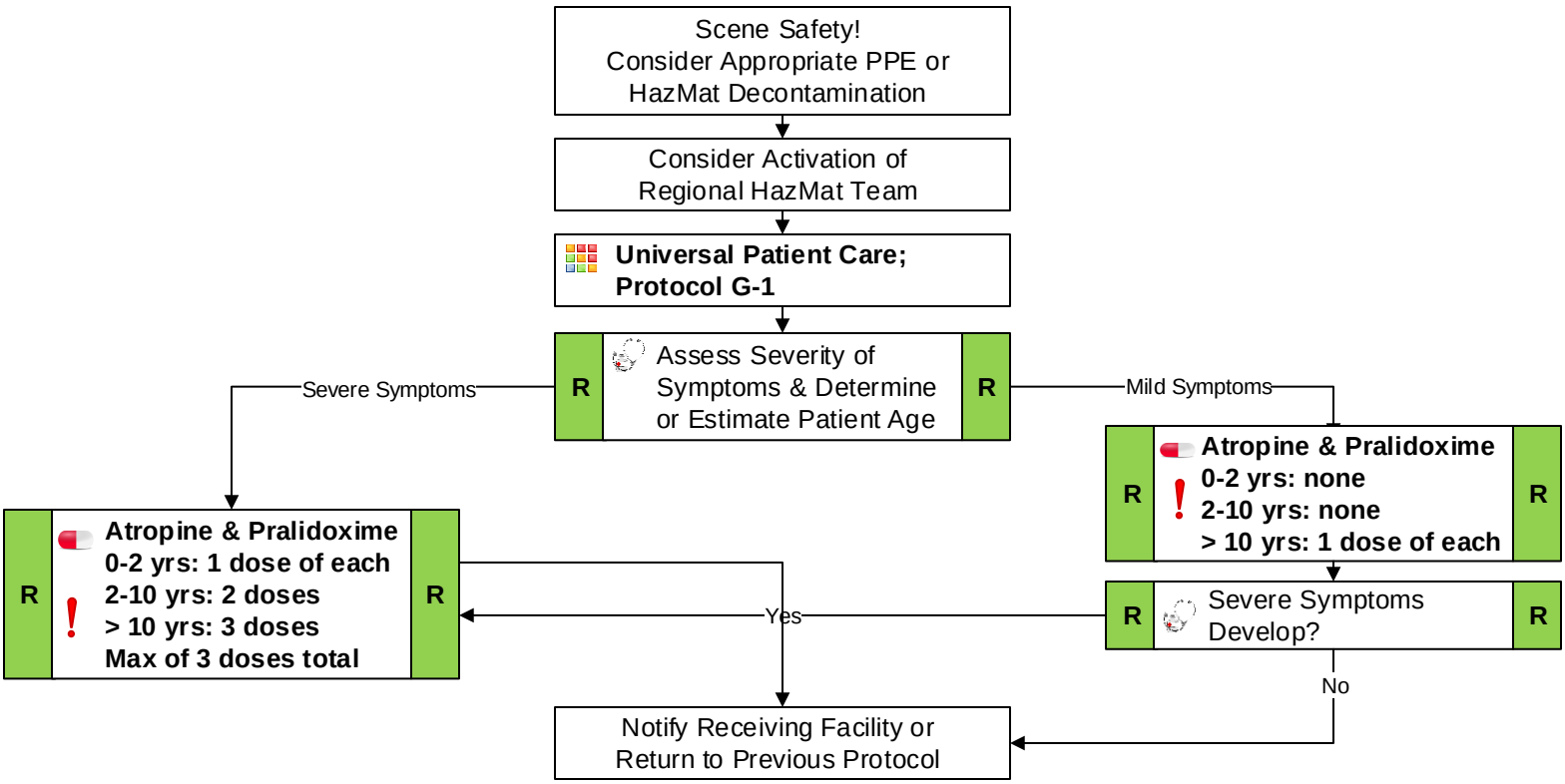
Required protocol for EMR
Atropine - Pralidoxime

Chempack

History
- An unexplained multi-casualty incident (MCI)
- Symptoms of nerve agent toxicity or organophosphate poisoning

Mild Signs & Symptoms
- Blurred vision, miosis (pinpoint pupils)
- Excessive, unexplained teary eyes
- Excessive, unexplained rhinitis
- Increased salivation / sudden drooling
- Chest tightness or dyspnea
- Tremors / muscular twitching throughout the body
- Nausea / vomiting
- Unexplained wheezing, coughing, or increased airway secretions
- Acute onset of stomach cramps
- Tachycardia or bradycardia

Severe Signs & Symptoms
- Strange or confused behavior
- Severe difficulty breathing or copious amount of secretions from lungs / airway
- Severe muscular twitching and general weakness
- Involuntary urination / defecation
- Convulsions
- Unexplained unconsciousness



Pearls
- Do not administer more than 3 autoinjectors per patient.
- If more than one dose of a MARK1 Kit or DuoDote are needed, give doses in rapid succession.
- At an MCI event, label the patient's forehead to indicate if they have received a MARK 1 Kit or DuoDote by writing "Mark 1" or "DuoDote" as appropriate. Indicate the number of doses and the time(s) of administration as well. If using triage tags, document the information on the tag.
- Auto-inject the lateral side of the patient's thigh, midway between the waist and the knee. Massage the injection site for several seconds.
- The auto-injector may inject through clothing; be careful to NOT hit buttons, zippers, etc. Make sure the patient's pockets are empty.
- Push the needle of the used auto-injector against a hard surface to bend the needle back against the auto-injector.
- Safely store and dispose of the used auto-injector (e.g. biohazard / sharps container).
- If the patient is potentially contaminated, contact the receiving facility to prepare them for possible decontamination.
- Each Chempack Kit contains 600mg Pralidoxime (2-PAM) and 2mg Atropine.

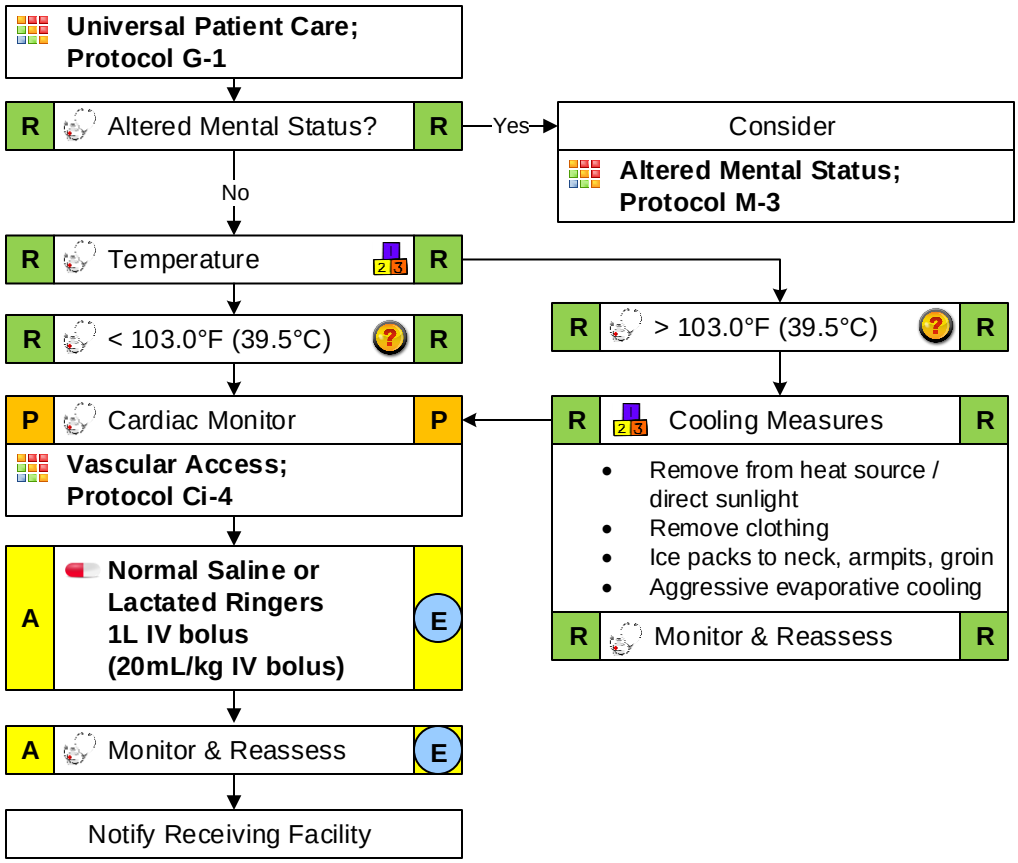
Performance Improvement Suggestions
- Documentation of symptom severity
- Assessment of scene safety

Environmental Hyperthermia

History
- Past medical history
- Medications
- Age
- Exposure to increased temperatures and / or humidity
- Time and length of exposure
- Extreme exertion
- Poor oral intake
- Fatigue

Signs & Symptoms
- Altered mental status
- Unconsciousness
- Hot and dry or sweaty skin
- Hypotension / shock
- Seizures
- Nausea / vomiting

Differential
- Heat cramps
- Heat exhaustion / stroke
- Agitated delirium
- Neuroleptic malignant syndrome
- Serotonin syndrome
- Thyrotoxicosis
- Delirium tremens
- Lesions / tumors of the central nervous system



Pearls
- Patients in extremes of age are more prone to heat-related emergencies.
- If the patient has had no environmental exposure, consider other causes such as infection (Fever / Infection Control; Protocol M-7).
- Hyponatremia can also mimic a heat emergency.
- Heat Cramps:
  - Consist of benign muscle cramping secondary to dehydration
  - Not associated with an elevated temperature
- Heat Exhaustion:
  - Consists of dehydration, salt depletion, dizziness, fever, headache, cramping, nausea, and vomiting
  - Indicative vital signs may include tachycardia, hypotension, and an elevated temperature
- Heat Stroke:
  - Consists of an altered mental status
  - Indicative vital signs may include tachycardia, hypotension, and a temperature > 104°F (39.5°C)

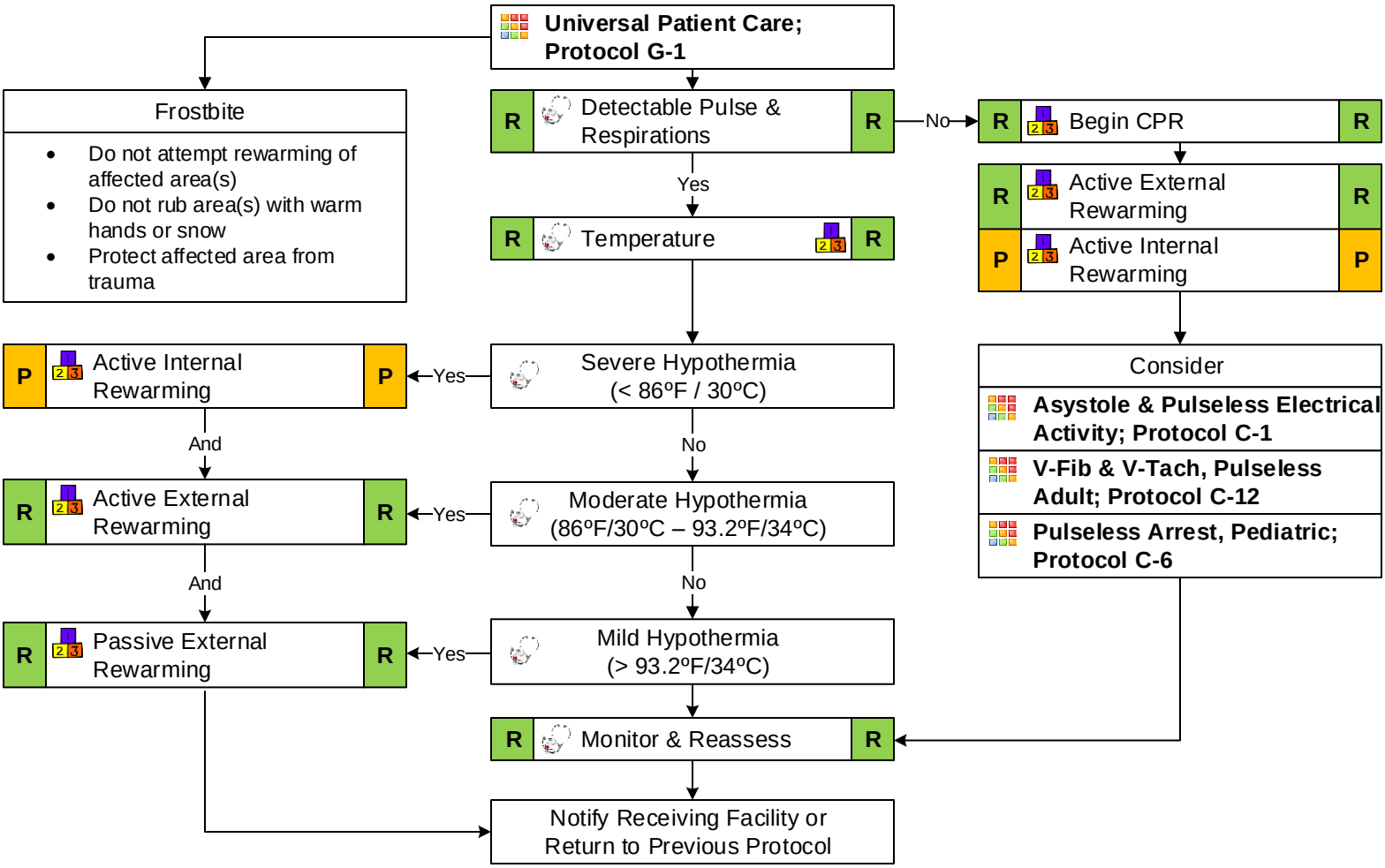
Performance Improvement Suggestions
- Documentation of effective cooling measures used, especially evaporative cooling
- Documentation of temperature trending

Hypothermia

History
- Past medical history
- Medications
- History of diabetes or thyroid disorder
- Exposure to extreme cold and recent environment (even in normal temperatures)
- Duration of exposure
- Drug / alcohol use

Signs & Symptoms
- Mild (> 93.2ºF / 34ºC):
  - Shivering
- Moderate (86ºF / 30ºC – 93.2ºF):
  - Confusion / stupor / apathy
  - Paradoxical undressing
  - Ataxia
- Severe (< 86ºF / 30ºC):
  - Comatose
  - Bradycardia
  - Prominent J wave (Osborn)

Differential
- Sepsis
- Environmental exposure
- Hypoglycemia
- Myxedema coma
- Stroke
- Head / spinal cord injury



Pearls
- NO PATIENT IS DEAD UNTIL THEY ARE WARM AND DEAD! Termination of resuscitation should not be considered if the patient's temperature is below 93ºF (33.9ºC).
- Cardiac irritability is increased with severe hypothermia and it may result in ventricular fibrillation. Be sure to handle these patients gently during repositioning, transfers, and intubation.
- Hypothermia may produce severe bradycardia – be sure to take at least 45 seconds to palpate for a pulse; in severe hypothermia, a patient may appear clinically dead.
- Standard ACLS protocol should be followed concurrent with re-warming efforts. Although ACLS may be less effective with patients suffering from severe hypothermia, do not delay ACLS drugs or repeat defibrillation until a certain temperature is reached.
- If available, hot packs should be placed in the armpits and groin – do not place heat packs directly against the patient's skin.

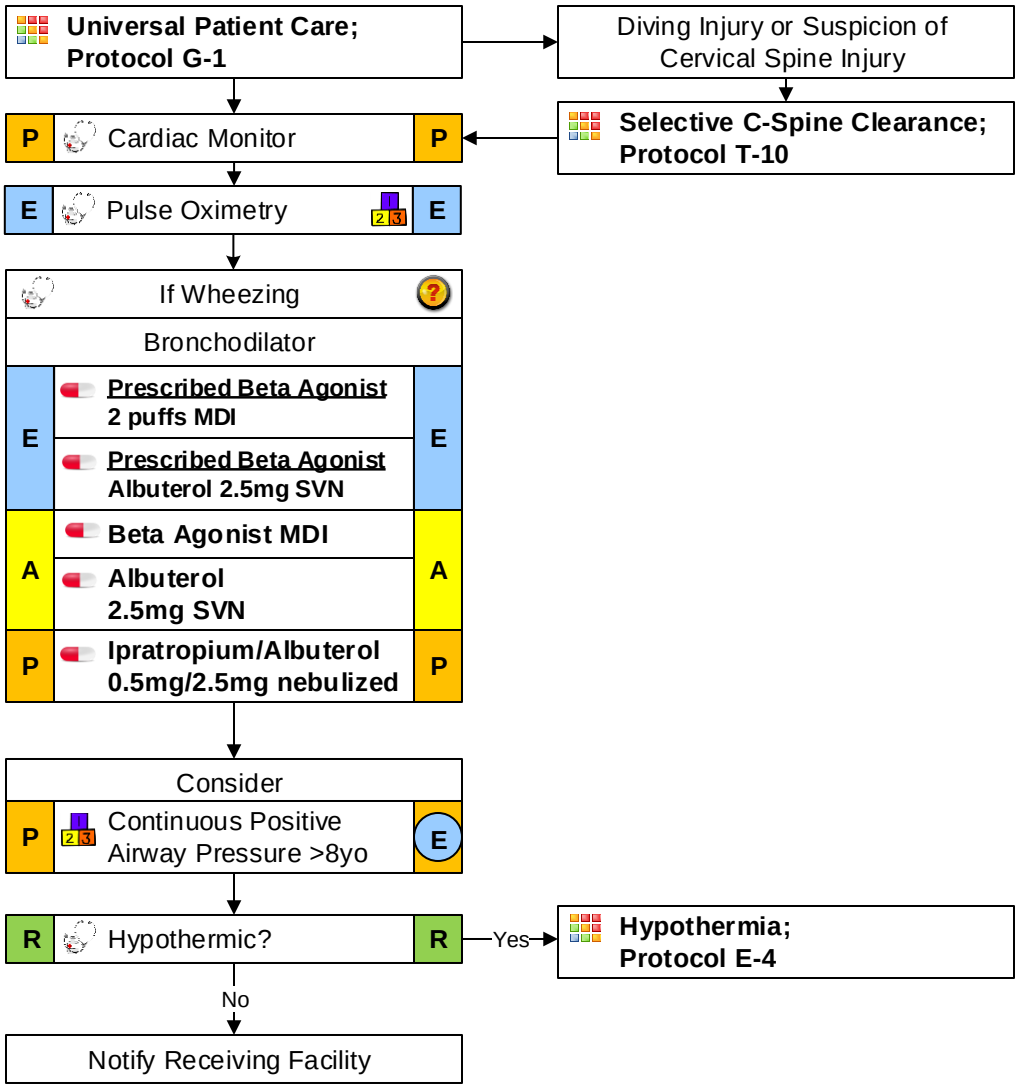
Performance Improvement Suggestions
- Documentation of measures taken for patient rewarming

Drowning

History
- Submersion in water (regardless of depth)
- Possible trauma to c-spine
- Possible mechanism of trauma:
  - Diving board
  - Underwater rocks
- Duration of immersion
- Temperature of water
- Age

Signs & Symptoms
- Unresponsive
- Change in mental status
- Decreased or absent vital signs
- Vomiting
- Coughing
- Apnea
- Stridor
- Wheezing
- Rales

Differential
- Trauma
- Intoxication
- Barotrauma
- Decompression sickness
- Post-immersion syndrome
- Hypothermia



Pearls
- Have a high index of suspicion for possible spinal injuries.
- In Idaho, all natural bodies of water are considered cold water.
- Survival after 1 hour of immersion in cold water is rare; consider transitioning from rescue to recovery.
- Respiratory distress may be delayed; therefore, all drowning patients should be transported for evaluation.
- Decompression illness may require hyperbaric therapy.

Performance Improvement Suggestions
- Documentation of immersion time
- Documentation of immersion mechanism

Toxic Inhalation

History
- Intentional use of inhalants: paint, amyl nitrate, huffing
- Carbon Monoxide exposure
- Toxic exposure
- Smoke inhalation
- CS spray Asthma; COPD – chronic bronchitis, emphysema, congestive heart failure

Signs and Symptoms
- Shortness of breath, wheezing, rhonchi
- Pursed lip breathing
- Decreased ability to speak, voice changes
- Increased respiratory rate and effort
- Use of accessory muscles
- Cough
- Tachycardia
- "SLUDGE" signs
- Face, Mouth burns

Differential
- Asthma, Anaphylaxis, Aspiration
- MI, CHF, COPD, Pneumonia, PE
- Pleural effusion
- Pneumo, pericardial tamponade
- Inhaled toxin, Cyanide
- Inhaled smoke, w/ burns
- CO Exposure
- HAZMAT
- Intentional inhalation

Consider
- **Altered Mental Status; Protocol M-3**
- **Bradycardia, Pediatric; Protocol C-3**
- **Respiratory Distress, Pediatric Protocol A-8**

Scene safety, consider PPE and HazMat decontamination

Consider activation of regional HazMat team

Universal Patient Care; Protocol G-1

E — Pulse Oximetry — E

R — Supportive care, monitor, reassess — R

A — Continuous ETCO2 ! — E

Suspected Cyanide Exposure

ALS Rendezvous; Protocol G-3

P — Cyanide Kit **Sodium Thiosulfate 12.5 grams IV 1-2 min (1.6ml/kg) Hydroxocobalamin 70mg/kg IV over 15min, max. 5g, may repeat once** — P

Wheezing

Respiratory Distress, Adult Protocol A-7

Respiratory Distress, Pediatric Protocol A-8

Seizures

Seizure, Adult; Protocol M-11

Seizure, Pediatric; Protocol M-12

P — Continuous Positive Airway Pressure >8yo — E

P — **Dopamine if Hypotensive 5-20 mcg/kg/min** — P

Symptomatic ?

Administer 100% O2 & transport to ED regardless of readings. Consider facility with hyperbaric chamber & follow local destination protocol.

Suspected CO Exposure

O — Measure SpCO, if available RAD-57 ! — O

SpCO > 25%

Transport to ED. With deceased LOC and neurological Impairment, consider facility with hyperbaric chamber & follow local destination protocol.

SpCO > 12%

Transport to ED with or without symptoms,

SpCO ≤ 12%

Without symptoms, no immediate treatment required. Consider source of exposure including smoking and other conditions that warrant ED evaluation and transport as needed

Notify Receiving Destination

Pearls
- Pulse oximetry monitors may give falsely normal readings in patients who have been exposed to CO.

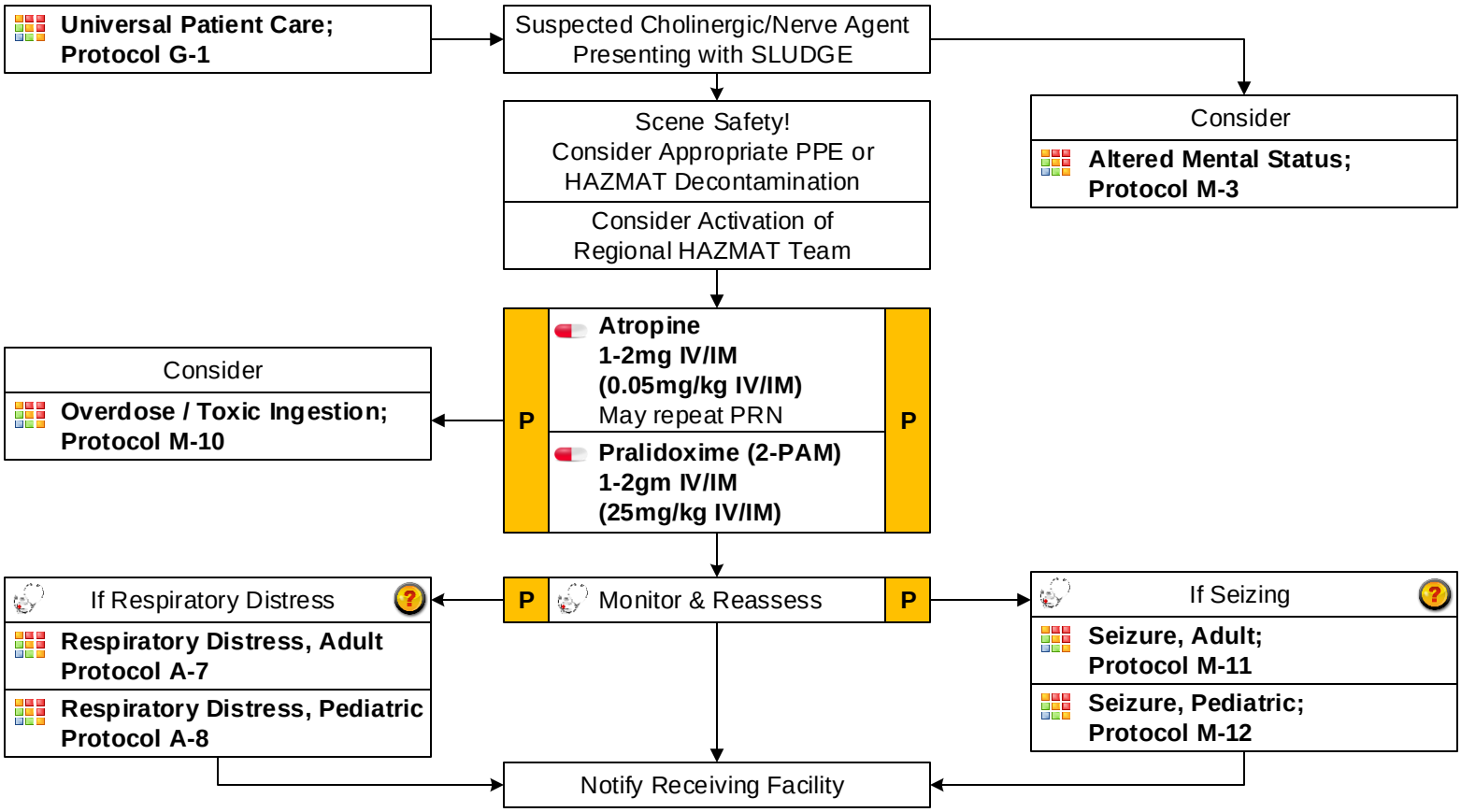
Performance Improvement Suggestions
- Documentation of exposure history
- Documentation of vital signs and mental status prior to administration of medications

Weapons of Mass Destruction: Nerve Agent

History
- Exposure to chemical, biologic, radiologic, or nuclear hazard(s)
- Potential exposure to unknown substance(s) / hazard(s)

Signs & Symptoms
- Visual disturbances, headache
- Diaphoresis
- Seizures
- Respiratory distress / arrest
- SLUDGE:
  - Salivation
  - Lacrimation (tears)
  - Urination
  - Defecation
  - Gastrointestinal upset
  - Emesis

Differential
- Nerve agent exposure: Sarin, Soman, VX, etc.
- Organophosphate (pesticide) exposure
- Vesicant exposure: mustard gas, etc.
- Respiratory irritant exposure: Hydrogen Sulfide, ammonia, chlorine, etc.



Pearls
- Follow local HAZMAT protocols for decontamination and use of personal protective equipment.
- Identification of the causal agent by the regional HAZMAT team may be delayed; initiate treatment based upon the patient's symptoms.
- For patients with severe SLUDGE symptoms, there is no limit for Atropine dosing; Atropine should be given until salivation improves.
- Each Chempack kit contains 600mg Pralidoxime (2-PAM) and 2mg of Atropine.

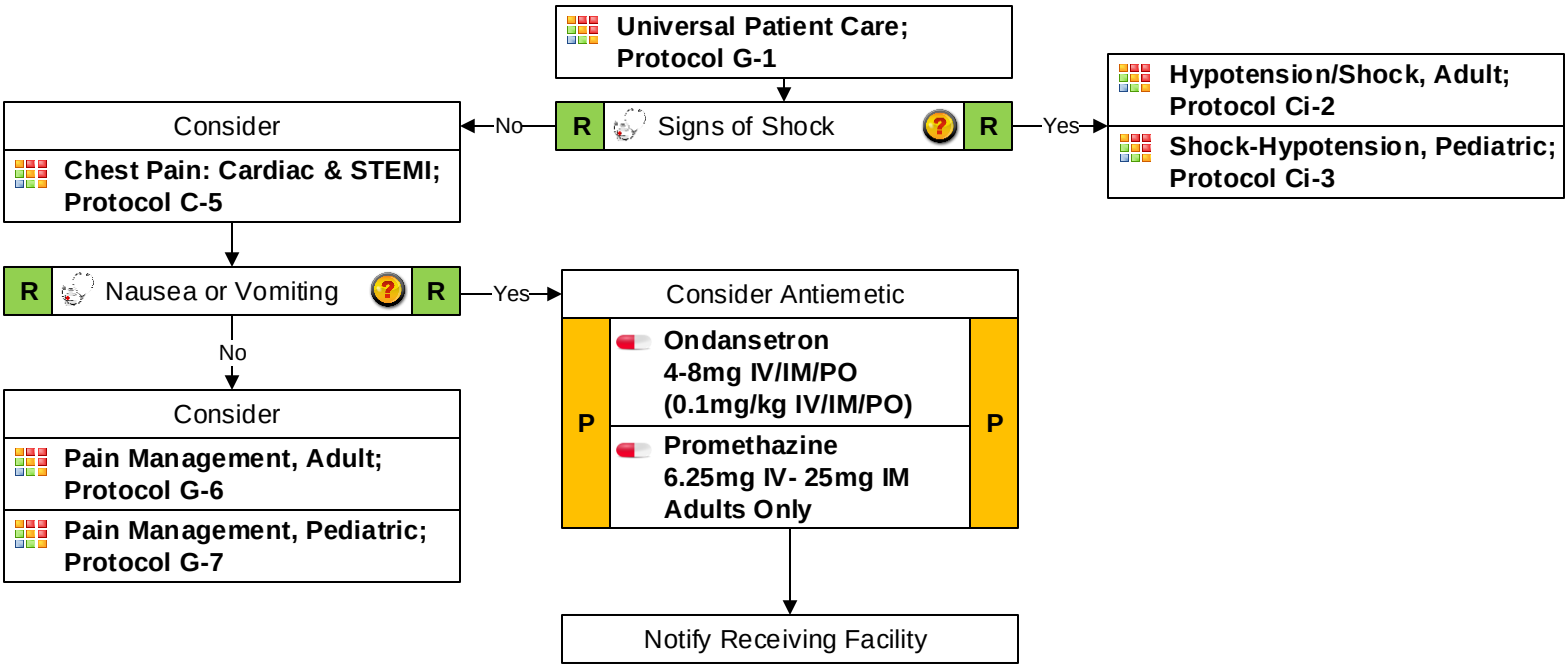
Performance Improvement Suggestions
- Documentation of decontamination procedures
- Documentation of SLUDGE symptom severity

Abdominal Pain

History
- Age
- Past medical history
- Past surgical history
- Medications
- Onset of pain / injury
- Palliation / provocation
- Quality (constant, sharp, dull, etc.)
- Region / radiation / referred
- Severity (pain scale)
- Time (duration, repetition)
- Fever
- Last meal eaten
- Last bowel movement / emesis
- Menstrual history (pregnancy)

Signs & Symptoms
- Pain (location / migration)
- Tenderness
- Nausea
- Vomiting
- Diarrhea
- Dysuria
- Constipation
- Vaginal bleeding / discharge
- Pregnancy

Differential
- Pneumonia or pulmonary embolus
- Liver (hepatitis, CHF)
- Peptic ulcer disease / gastritis
- Cholecystitis (gall bladder)
- Myocardial infarction
- Pancreatitis
- Kidney stones
- Abdominal aneurysm
- Appendicitis
- Bladder / prostate disorder
- Pelvic (PID, ectopic pregnancy, ovarian cyst, etc.)
- Splenomegaly
- Diverticulitis
- Bowel obstruction
- Gastroenteritis (infectious)



Pearls
- Abdominal pain in female patients of childbearing age should be treated as an ectopic pregnancy until proven otherwise.
- An abdominal aneurysm should be considered in patients over 50 years of age complaining of abdominal pain.
- Ondansetron (Zofran) is the primary medication for the treatment of nausea. Promethazine (Phenergan) may result in excessive sedation and may cause soft tissue necrosis when given via IV.

Performance Improvement Suggestions
- Documentation of vital signs and mental status prior to administration of anti-emetics

Required protocol for the use of Adrenaline or epi auto-injector designated as 4,OM

Allergic Reaction

History
- Onset and location of reaction
- Insect sting or bite
- Food allergy / exposure
- Medication allergy / exposure
- New clothing, soap, detergent, etc
- Past history of reactions
- Past medical history
- Any medications recently taken (Benadryl, Epi-Pen, etc)

Signs & Symptoms
- Itching or hives
- Coughing, wheezing, or respiratory distress
- Chest or throat constriction
- Difficulty swallowing (dysphagia)
- Hypotension or shock
- Edema
- Rate of onset of symptoms
- Nausea, vomiting, GI upset

Differential
- Urticaria (rash / hives)
- Anaphylaxis (systemic effect)
- Shock (vascular effect)
- Angioedema (drug-induced)
- Aspiration / airway obstruction
- Vasovagal event
- Asthma or COPD
- Congestive heart failure

Universal Patient Care; Protocol G-1

R — Shock or Respiratory Distress? — R

No → R — Urticaria without Respiratory Distress? — R

Yes → P — **Diphenhydramine 25-50mg IV/IM/PO (1mg/kg IV/IM/PO)** — P

No → R — Observe for Changes — R

Yes → Vasopressor

E — **Epi Auto-injector 1 adult dose (< 30kg, use pediatric auto-injector)** May repeat q 5-10 min. — R

A — **Epinephrine 1:1000 0.3mg IM (0.01mg/kg IM)** May repeat q 5-10 min. — R

P — **Methylprednisolone 125mg IV/IM (2mg/kg IV/IM)** — P

A — **Normal Saline or Lactated Ringers 1L IV bolus (20mL/kg IV bolus)** — E

If Wheezing

Bronchodilator

E — **Prescribed Beta Agonist 2 puffs MDI**
E — **Prescribed Beta Agonist Albuterol 2.5mg SVN** — E

A — **Beta Agonist MDI**
A — **Albuterol 2.5mg SVN** — A

P — **Ipratropium/Albuterol 0.5mg/2.5mg nebulized** — P

If Persistent Airway Edema

P — **Epinephrine 1:1000 5mL nebulized (2.5mL nebulized)** — P

If Persistent Shock

M — **Epinephrine 1:10,000 0.1mg IV (0.01mg/kg IV) May repeat q 5-10 min.**
M — **Epinephrine 1:1000 2-10mcg/minute drip (0.1-1mcg/kg/minute)** — M

Notify Receiving Facility

Pearls
- Anaphylaxis can occur without wheezes or rash.
- The lateral aspect of the thigh is the preferred site for IM epinephrine and the auto-injector.
- IV access should not delay the administration of IM epinephrine.
- Epinephrine is the primary treatment for anaphylaxis / allergic reactions.
- Patients who receive epinephrine that are over the age of 50 or have a history of heart disease need a 12-lead EKG and should be monitored for cardiac ischemia.

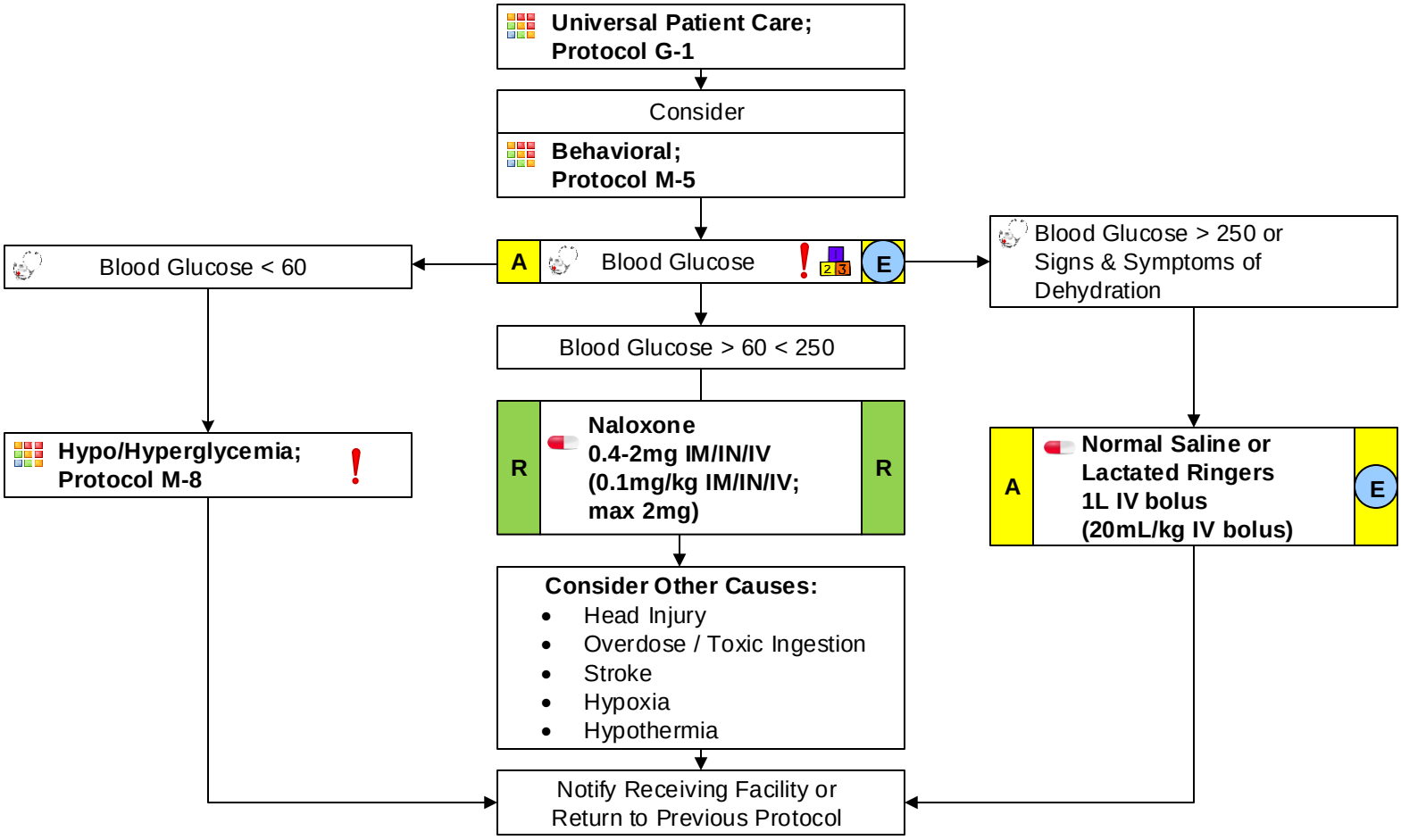
Performance Improvement Suggestions
- Failure to administer epinephrine
- Documentation of oropharyngeal swelling

Altered Mental Status

History
- Known diabetic (medical alert tag)
- Drugs or drug paraphernalia
- Evidence of drug or alcohol use or toxin ingestion
- Past medical history
- Medications
- History of trauma
- Changes in feeding / sleeping habits

Signs & Symptoms
- Decreased mental status or lethargy
- Change in baseline mental status
- Bizarre behavior
- Hypoglycemia (cool, diaphoretic skin)
- Hyperglycemia (warm, dry skin; fruity breath; signs of dehydration; Kussmaul respirations)
- Irritability

Differential
- A: allergies, alcohol, anoxia
- E: epilepsy, endocrine, environmental exposure
- I: infection
- O: overdose, opiates
- U: uremia
- T: trauma
- I: insulin-dependent diabetes mellitus
- P: psychosis, psychiatric, pulmonary
- S: sepsis, stroke, subarachnoid hemorrhage, space-occupying lesion



Pearls
- If unable to obtain blood glucometry, treat the altered mental status as hypoglycemia.
- Be aware that an altered mental status may present with signs of an environmental toxin or a hazardous material exposure.
- Never assume the patient is merely intoxicated; alcoholics often develop hypoglycemia and may have unrecognized injuries.
- Consider restraints if it is necessary to secure the protection of the patient and/or EMS personnel.
- Naloxone (Narcan) should be carefully titrated to reverse respiratory depression without inducing agitation or withdrawal.
- Consider the patient's core temperature; hypothermia and hyperthermia may present with an altered mental status.

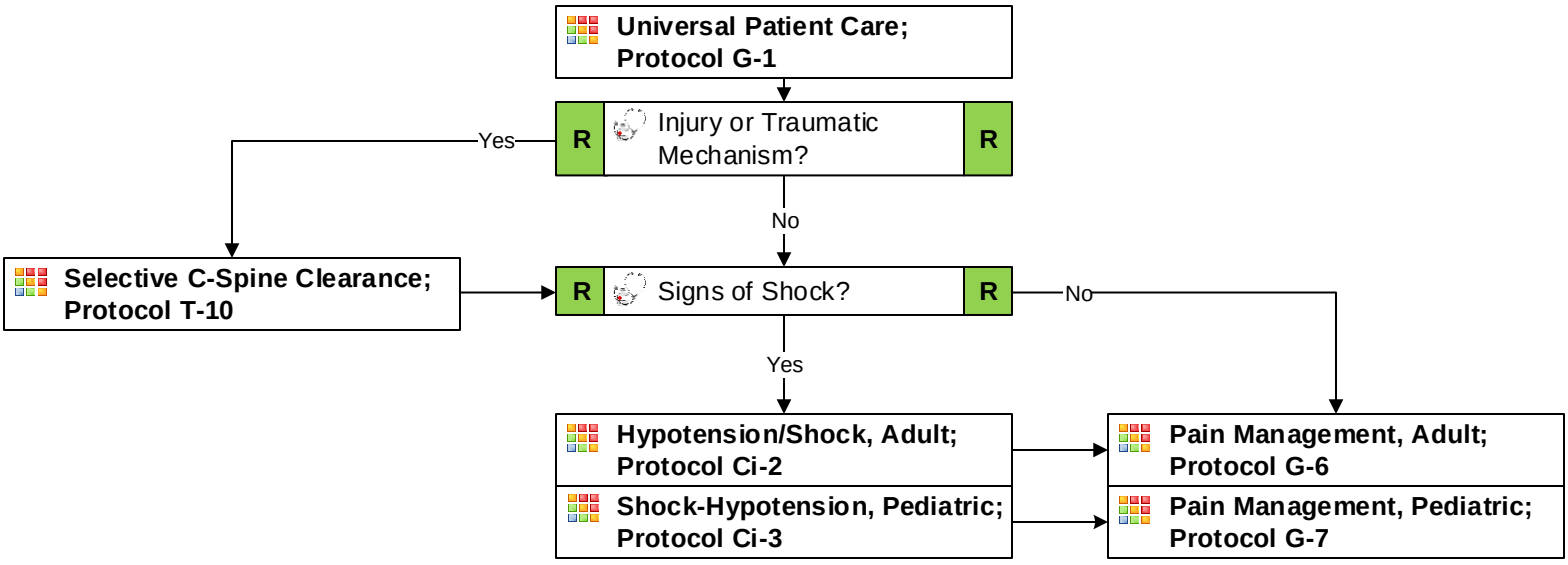
Performance Improvement Suggestions
- Documentation of respiratory rate and response to intervention
- Documentation of blood glucose

Back Pain

History
- Age
- Past medical history
- Past surgical history
- Medications
- Onset of pain / injury
- Previous back injury
- Traumatic mechanism
- Location of pain
- Fever
- Improvement or worsening with activity
- History of IV drug abuse

Signs & Symptoms
- Pain (paraspinous, spinous process)
- Swelling
- Pain with range of motion
- Extremity weakness
- Extremity numbness
- Bowel / bladder dysfunction
- Shooting pain into an extremity

Differential
- Muscle spasm / strain
- Herniated disc with nerve compression
- Sciatica
- Spine fracture
- Kidney stone(s)
- Pyelonephritis
- Aneurysm
- Pneumonia
- Spinal epidural abscess
- Metastatic cancer



Pearls
- Abnormal aneurysms are a concern in patients over the age of 50.
- Kidney stones typically present with an acute onset of flank pain that radiates forward to the groin area.
- Patients with midline pain over the spinous processes should be evaluated for spinally immobilizing. (Protocol T-10)
- Any bowel or bladder incontinence is a significant finding and requires immediate medical evaluation.
- In patients with a history of IV drug abuse, a spinal epidural abscess should be considered.

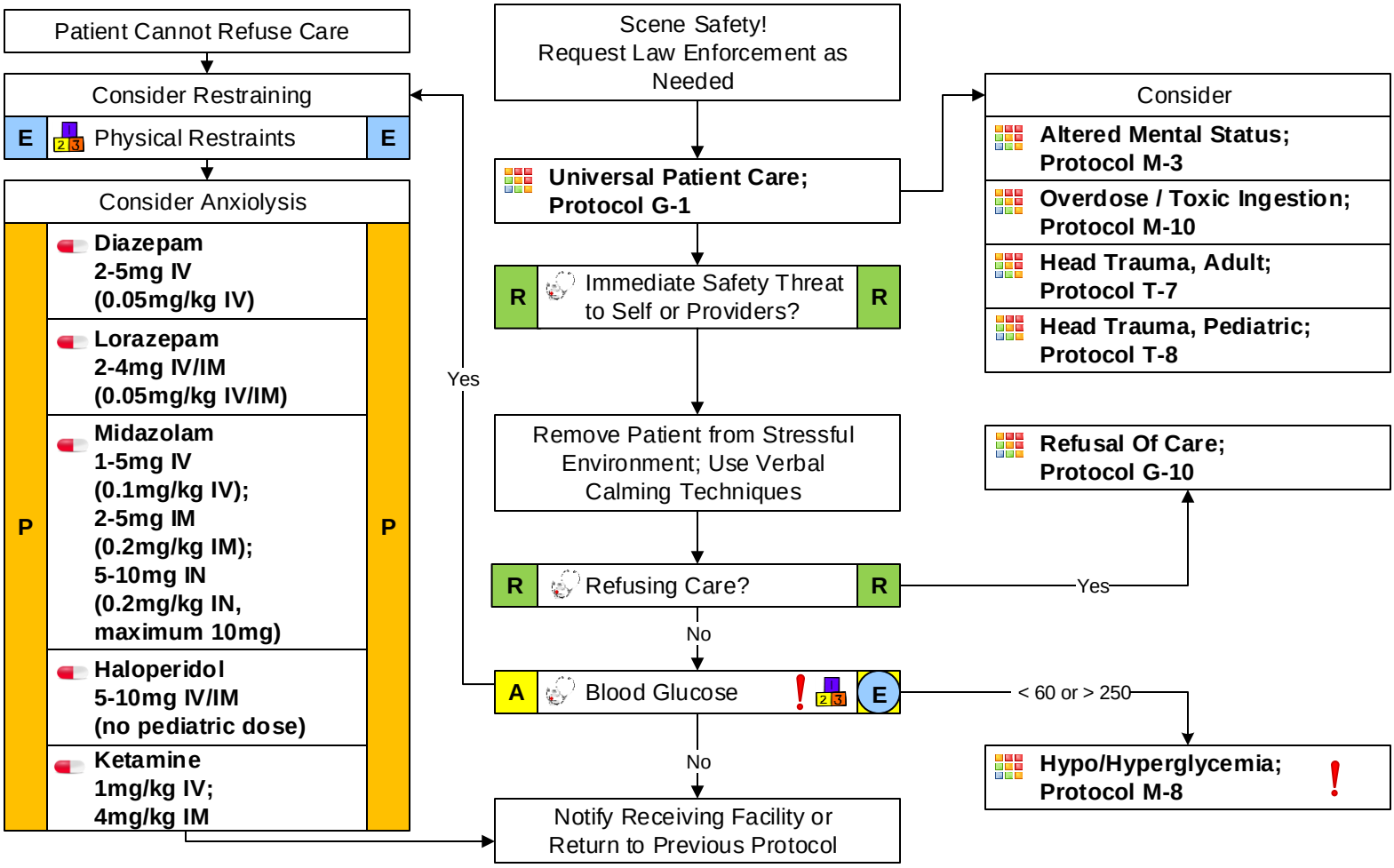
Performance Improvement Suggestions
- Documentation of the response to fluid bolus/challenge (if given)
- Documentation of the consideration for spinal immobilization in a trauma setting

Behavioral

History
- Situational crisis
- Psychiatric illness / medications
- Injury to self or threats to others
- Medic alert tag
- Substance abuse / overdose
- Diabetes

Signs & Symptoms
- Anxiety, agitation, confusion
- Affect change, hallucinations
- Delusional thoughts, bizarre behavior
- Combative, violent
- Expression of suicidal / homicidal thoughts

Differential
- Excited delirium
- Alcohol intoxication
- Toxin / substance abuse
- Medication effect / overdose
- Withdrawal syndromes
- Depression
- Bipolar (manic-depressive)
- Schizophrenia
- Anxiety Disorders



Pearls
- Your safety comes first! Have law enforcement search and clear patients who pose a threat. Be aware of hidden weapons.
- Be sure to consider all possible medical / trauma causes for behavior (hypoglycemia, overdose, substance abuse, hypoxia, head injury, etc.).
- Do not irritate the patient with a prolonged exam.
- Do not overlook the possibility of associated domestic violence or child abuse.
- If patients with suspected excited delirium suffer cardiac arrest, consider a fluid bolus and sodium bicarbonate early.
- All patients who are handcuffed or restrained by law enforcement and transported by EMS must be accompanied by law enforcement in the ambulance.
- Do not position or transport any restrained patients in such a way that could impact their respiratory or circulatory status.
- Limit IN medications to 1mL per nostril. If more than 2mL is required, additional medications may be given IN after 10 minutes.

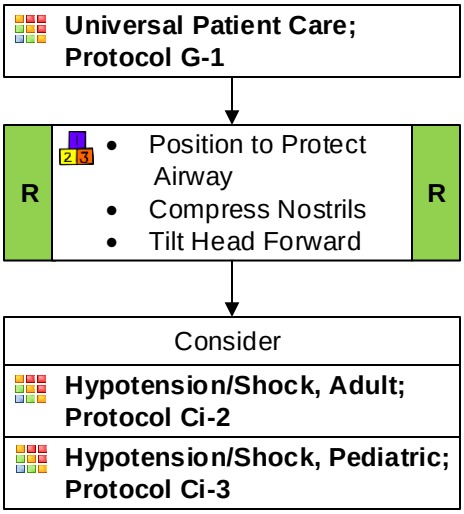
Performance Improvement Suggestions
- Documentation of the indication for physical or chemical restraint

Epistaxis

History
- Age
- Past medical history
- Medications
  - Anticoagulants
  - Aspirin
  - Clopidogrel
  - NSAIDs
- Previous episode of epistaxis
- Trauma
- Duration of bleeding
- Quantity of bleeding

Signs & Symptoms
- Bleeding from nasal passage(s)
- Pain
- Nausea / vomiting
- Dyspnea / respiratory distress

Differential
- Trauma
- Infection (viral upper-respiratory tract infection or sinusitis)
- Allergic rhinits
- Lesions (polyps, ulcers, tumors)
- Hypertension



Pearls
- Instruct the patient to not swallow blood; swallowed blood may cause nausea / vomiting.
- The majority of epistaxis is due to anterior bleeding and may be controlled by compressing the nostrils.
- Bleeding may also be occurring posteriorly; evaluate for posterior bleeding by examining the posterior pharynx.
- When compressing the nostrils, maintain constant pressure for at least ten minutes. Compression will be ineffective if it is not continuous. Note that allowing the patient to blow their nose may cause bleeding to restart.
- Packing the nose with tissue paper, cottonballs, tampons, etc. is less effective than compressing the nostrils.

Performance Improvement Suggestions
- Uninterrupted compression of nostrils
- Documentation of medication history, especially anticoagulants and/or antiplatelet agents

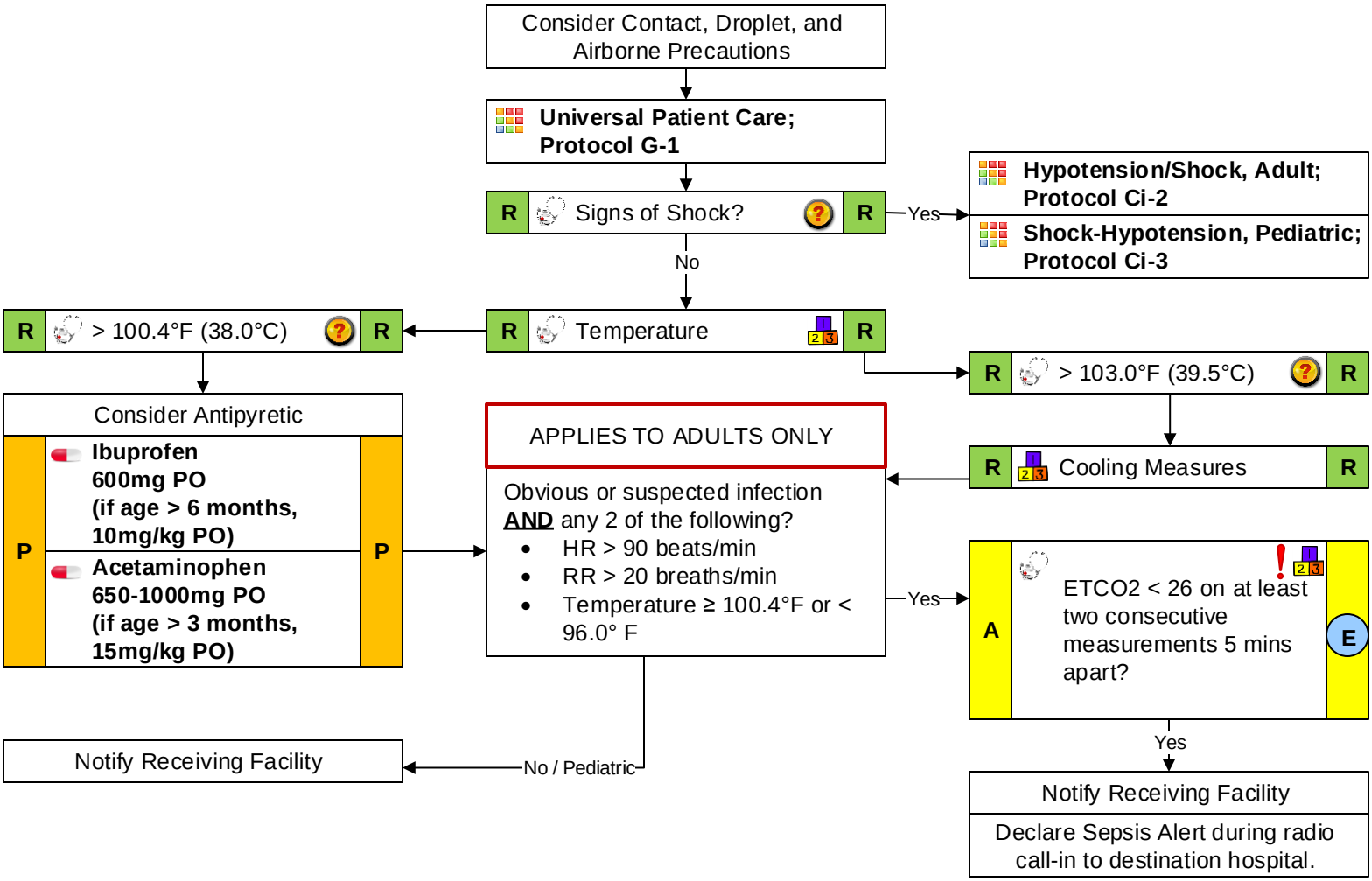
Fever / Suspected Sepsis

History
- Age
- Duration of fever
- Maximum temperature
- Past medical history
- Medications
- Immunocompromised (transplant, HIV, diabetes, cancer)
- Travel history
- Last acetaminophen or ibuprofen

Signs & Symptoms
- Warm
- Flushed
- Diaphoretic
- Chills / Rigors

Associated Symptoms (helpful to localize source)
- Myalgias, cough, chest pain, headache, dysuria, abdominal pain, rash, mental status changes

Differential
- Infections / sepsis
- Cancer / tumors / lymphomas
- Medication or drug interaction
- Connective tissue disease (arthritis, vasculitis)
- Hyperthyroidism
- Heat stroke
- Meningitis



Pearls
- **DO NOT** give aspirin to a child.
- Consider environmental hyperthermia if temperature is > 104-105°F.
- Utilize cooling measures:
  - passive cooling (removal of clothing)
  - active cooling (sponge patient's skin with tepid water)
  - do not use rubbing alcohol, cold water, or ice to cool

Performance Improvement Suggestions
- Documentation of temperature
- Assessment of end-organ perfusion

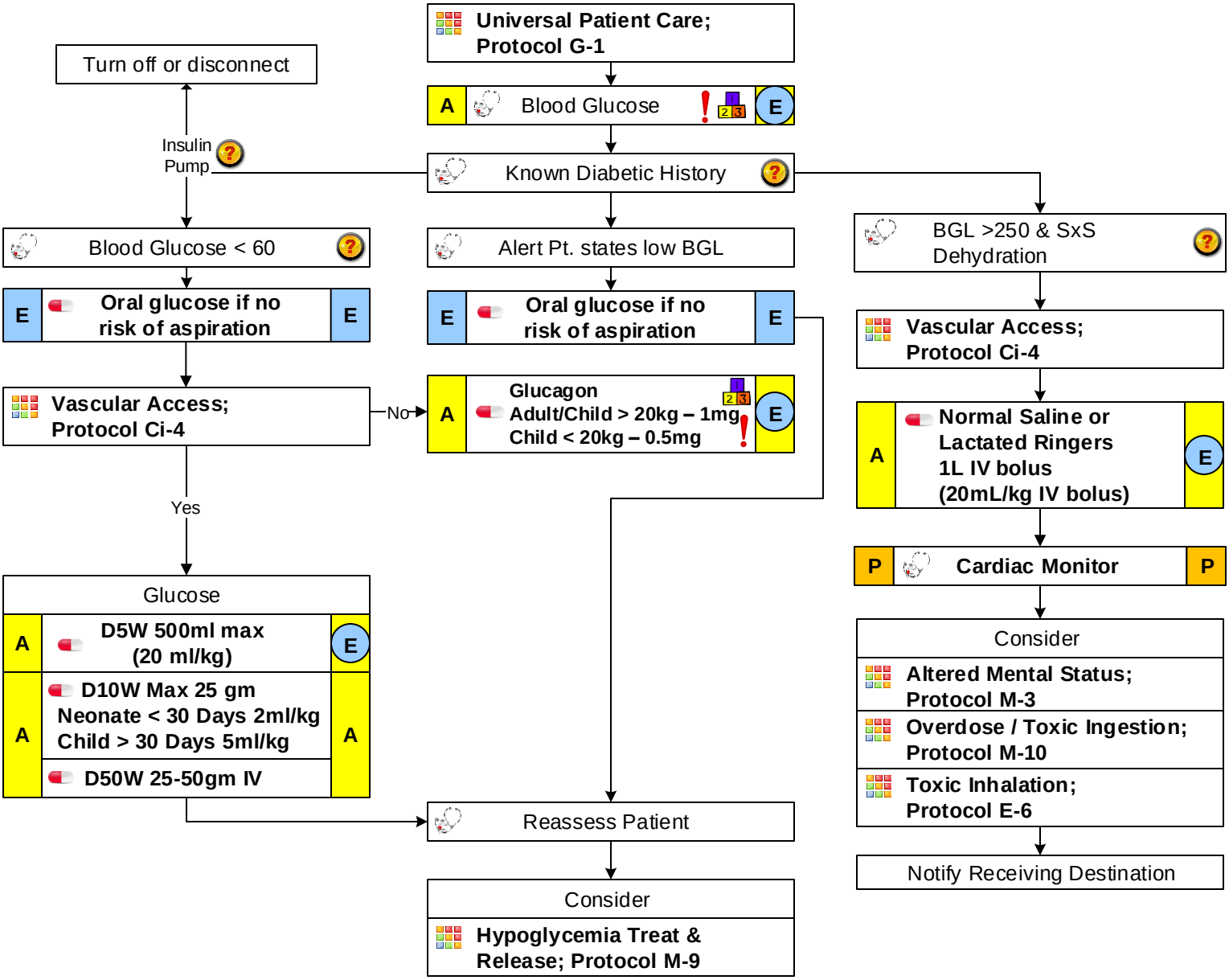
Required protocol for the use of Glucagon designated as 4,OM

Hypoglycemia / Hyperglycemia

History
- Known diabetic, bracelet, or necklace
- Drugs, drug paraphernalia
- Report of drug use or toxic ingestion
- Insulin dependent
- Oral Hypoglycemic Agents

Signs and Symptoms
- Decrease in mental status
- Change in baseline mental status
- Bizarre behavior
- Measured blood glucose
- Dehydration

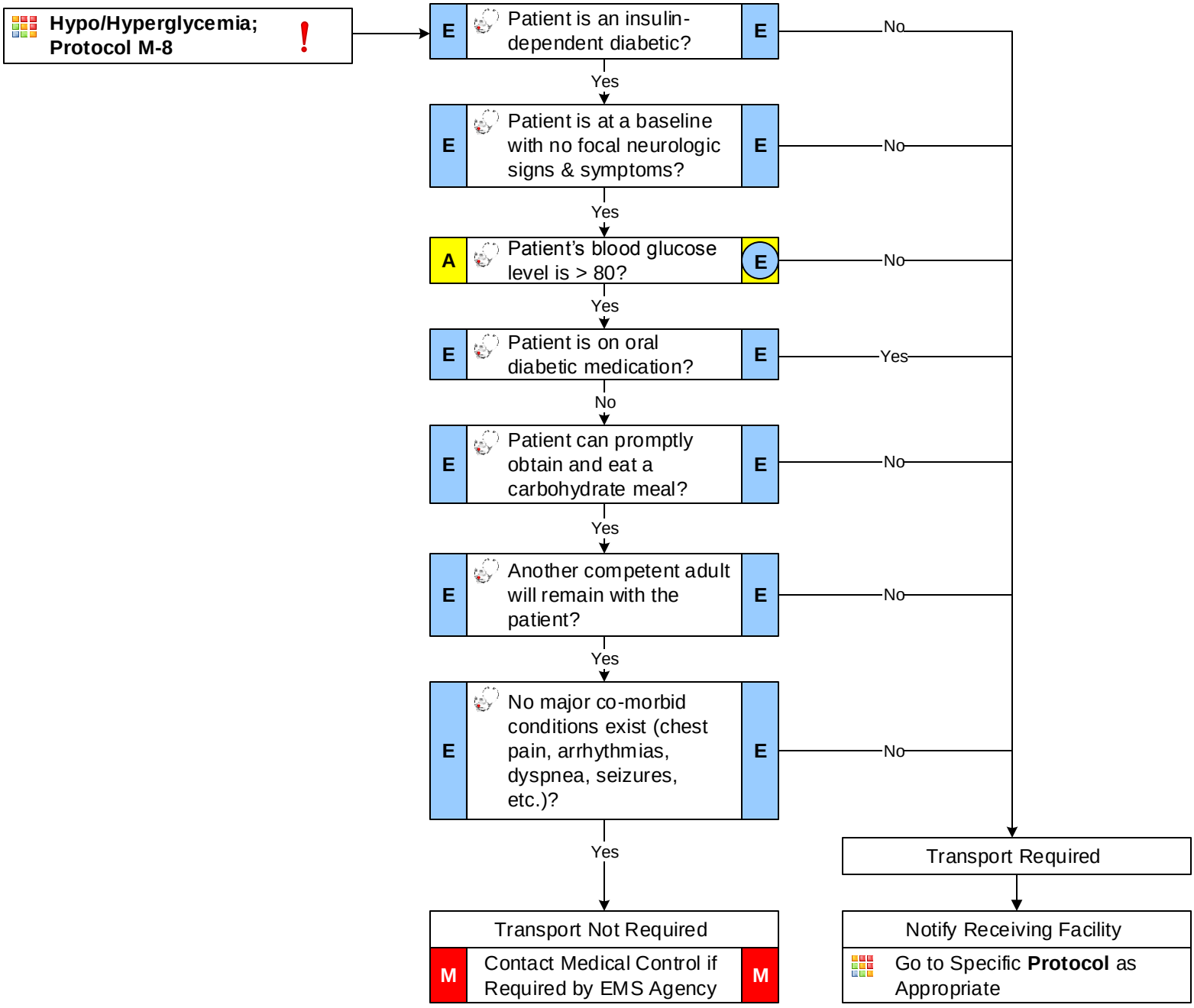
Differential
- Alcohol
- CNS (increased pressure, headache, stroke, CNS lesions, vestibular)
- Myocardial infarction
- Diabetes
- Sepsis
- Infections



Pearls
- Never assume the patient is merely intoxicated.
- If the patient has an altered mental status and blood glucometry is unable to be obtained, treat the patient for hypoglycemia.
- It may take 10-15 minutes for the patient to respond to IM Glucagon. When patient becomes alert, encourage oral carbohydrate intake.

Performance Improvement Suggestions
- Documentation of pre- and post-treatment blood glucometry
- Documentation of patient response to any treatment

Treat & Release, Hypoglycemia



Pearls

- Diabetic patients that are treated with sulfonylurea medications (Glipizide, Glyburide, etc.) may prolong hypoglycemia and usually require hospitalization.
- Some diabetic patients may develop recurrent hypoglycemia after treatment; consider remaining on-scene to recheck blood glucometry prior to releasing the patient.

Performance Improvement Suggestions

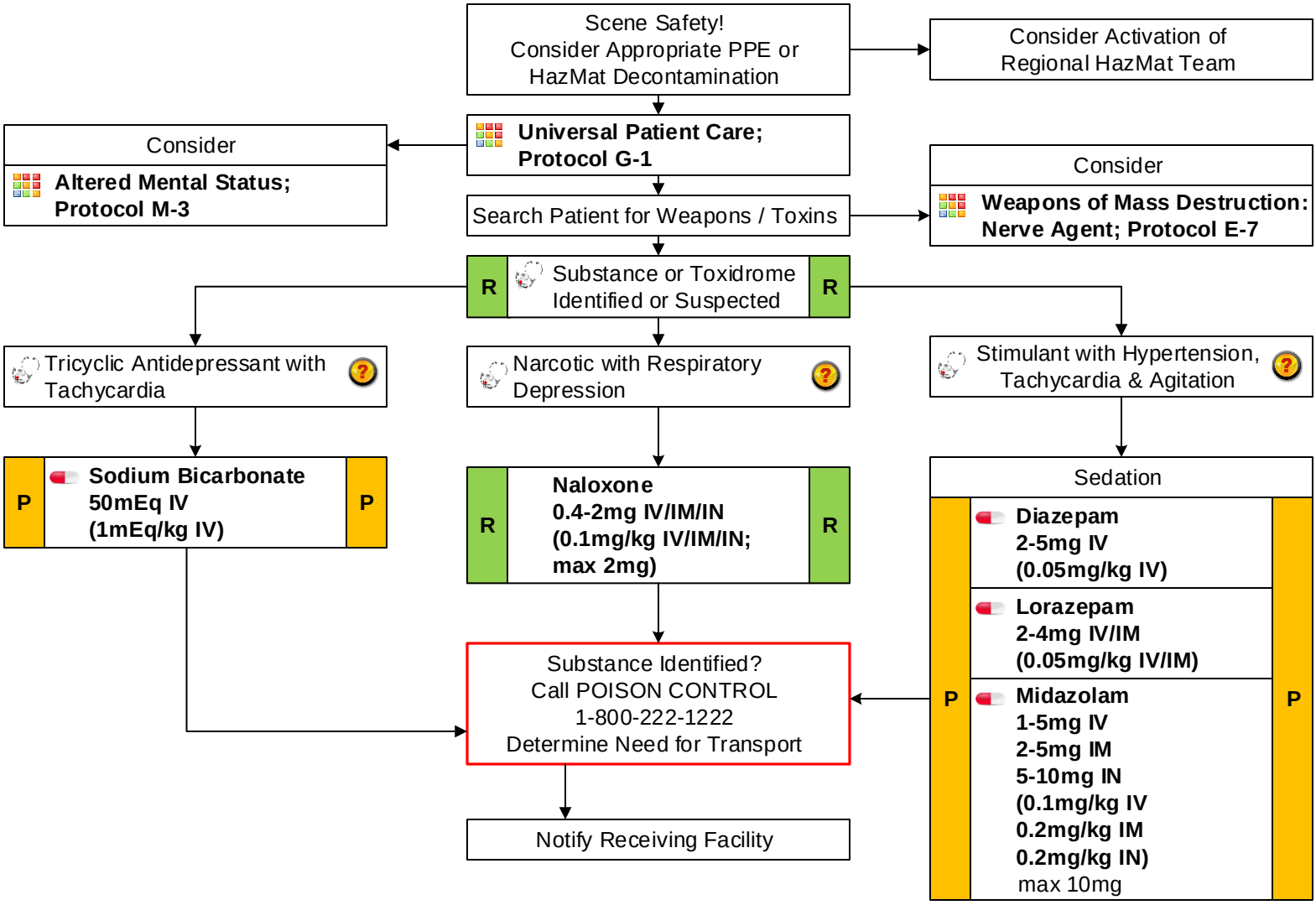
- Documentation of pre- and post-treatment blood glucometry
- Documentation of specific diabetic medications

Overdose / Toxic Ingestion

History
- Ingestion or suspected ingestion of a potentially toxic substance
- Quantity and route of substance ingested
- Time of ingestion
- Reason of ingestion (suicidal, criminal, accidental)
- Available medications in home
- Past medical history & medications

Signs & Symptoms
- Changes in mental status
- Hypotension or hypertension
- Decreased respiratory rate
- Tachycardia or bradycardia
- Dysrhythmias
- Seizures
- Mucosal burns
- Solvent odor

Differential
- Tricyclic antidepressants (TCAs)
- Acetaminophen or Aspirin
- Depressants
- Stimulants
- Anticholinergic agents
- Cardiac medications
- Solvents, alcohols, cleaning agents
- Insecticides or organophosphates



Pearls
- Do not rely on the patient's history of ingestion, especially in cases of attempted suicide.
- Make sure the patient is not carrying additional medications or weapons.
- Bring medication bottles, contents, and any emesis to the Emergency Department.
- Consider toxic gas if there are multiple patients in an enclosed space. Do not enter without proper training and equipment.
- Do not induce vomiting or administer Ipecac.
- In suspected tricyclic antidepressant (TCA) overdose, consider early intubation and hyperventilation.
- Notify the receiving facility to prepare for decontamination if the patient is potentially contaminated.

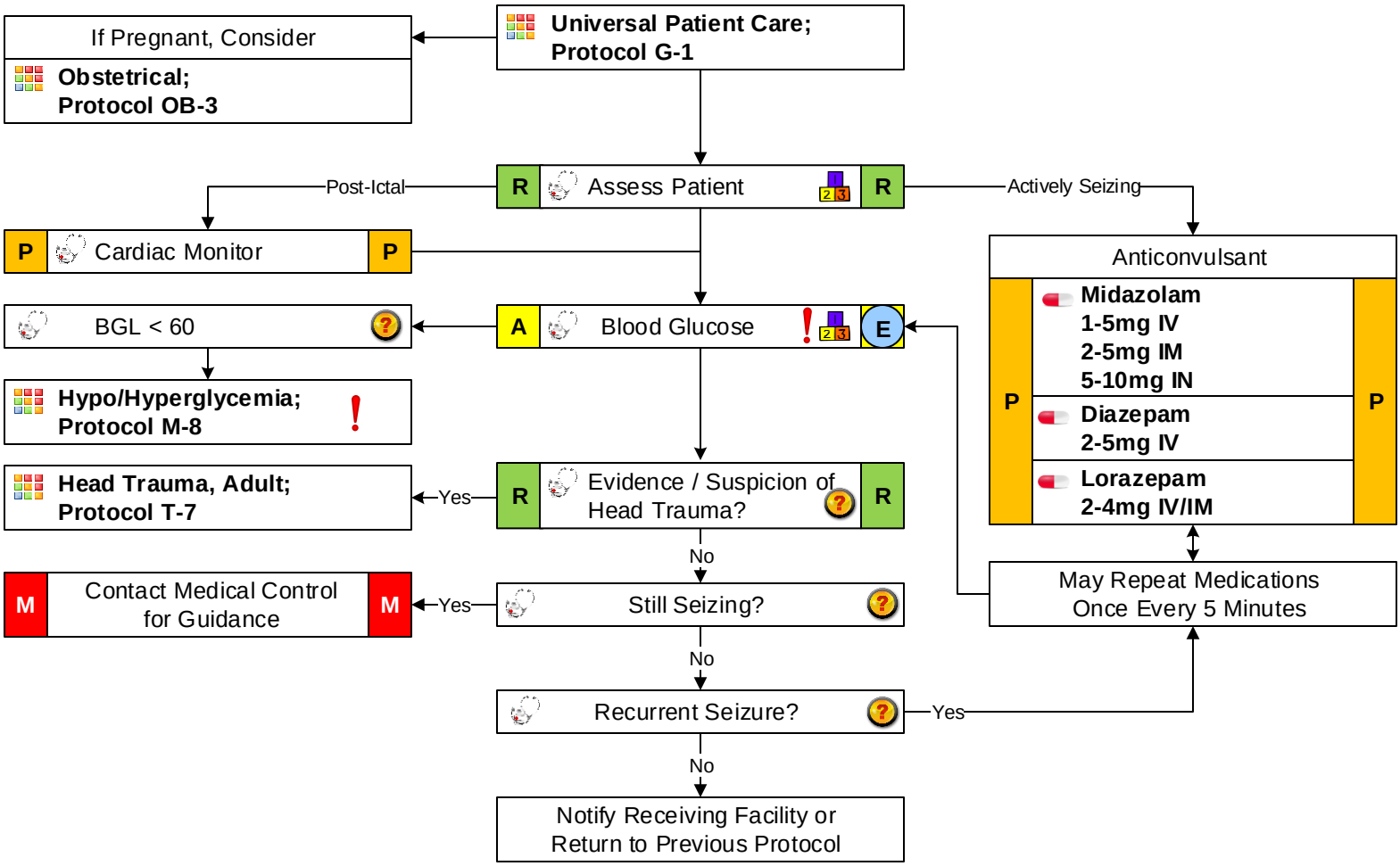
Performance Improvement Suggestions
- Documentation of utilization of antidotes
- Assessment of scene safety

Seizure, Adult

History
- Reported / witnessed seizure activity
- Previous history of seizures
- Medical alert tag information
- Seizure medications
- History of trauma
- History of diabetes
- History of pregnancy
- Substance abuse

Signs & Symptoms
- Decreased mental status
- Sleepiness
- Incontinence
- Observed seizure activity
- Evidence of trauma
- Unconscious

Differential
- Head trauma / tumor / stroke
- Metabolic, hepatic, or renal failure
- Hypoxia
- Electrolyte abnormality (Na, Ca, Mg)
- Hypoglycemia
- Substance abuse / withdrawal
- Medication non-compliance
- Infection / fever
- Eclampsia
- Dysrhythmia



Pearls
- Be prepared to assist ventilations, especially if a benzodiazepine is used.
- Seizures may be secondary to head trauma. Seizures may also be the cause of a head or c-spine injury.
- The preferred route for Midazolam is IM or IN if IV access is not available.
- Recheck glucometry after giving Dextrose or Glucagon; in the case of hypoglycemia, recheck glucometry if seizure reoccurs.

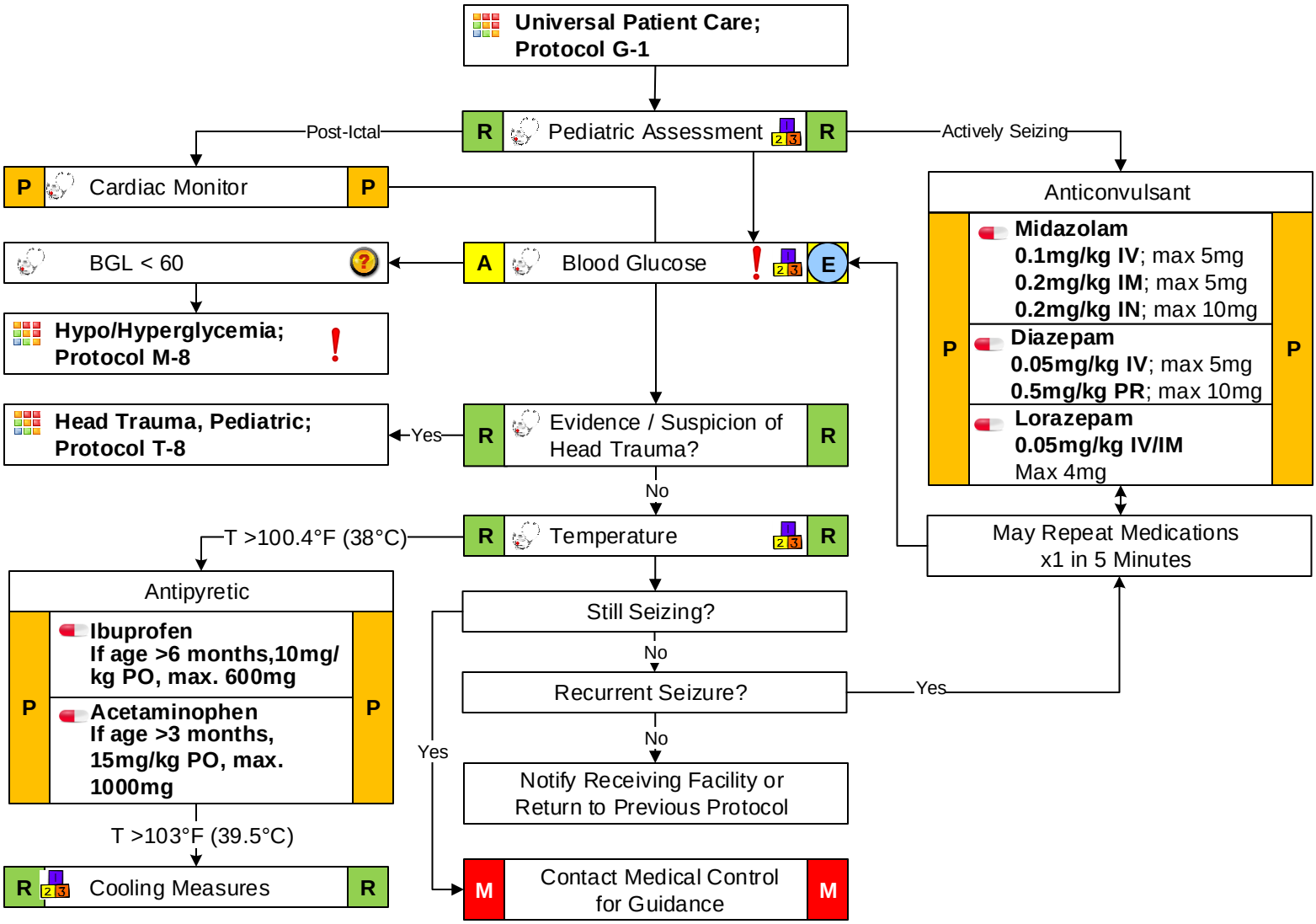
Performance Improvement Suggestions
- Documentation of glucometry
- Description of witnessed seizure activity

Seizure, Pediatric

History
- Fever
- Reported / witnessed seizure activity
- Previous history of seizures
- Medical alert tag information
- Seizure medications
- History of head trauma
- History of diabetes
- Congenital abnormality

Signs & Symptoms
- Decreased mental status
- Sleepiness
- Observed seizure activity
- Evidence of trauma
- Hot, dry skin or elevated body temperature
- Unconscious

Differential
- Fever / infection
- Head trauma / tumor
- Medication / toxin
- Hypoxia / respiratory failure
- Electrolyte abnormality (Na, Ca, Mg)
- Hypoglycemia



Pearls
- Addressing the ABCs and hypoglycemia is more important than stopping the seizure.
- Be prepared to assist ventilations, especially if a benzodiazepine is used.
- Seizures may be secondary to head trauma. Seizures may also be the cause of a head or c-spine injury.
- In infant patients, a seizure may be the only evidence of a closed head injury.
- The preferred route for Midazolam is IM or IN if IV access is not available.
- Recheck glucometry after giving Dextrose or Glucagon; in the case of hypoglycemia, recheck glucometry if seizure reoccurs.

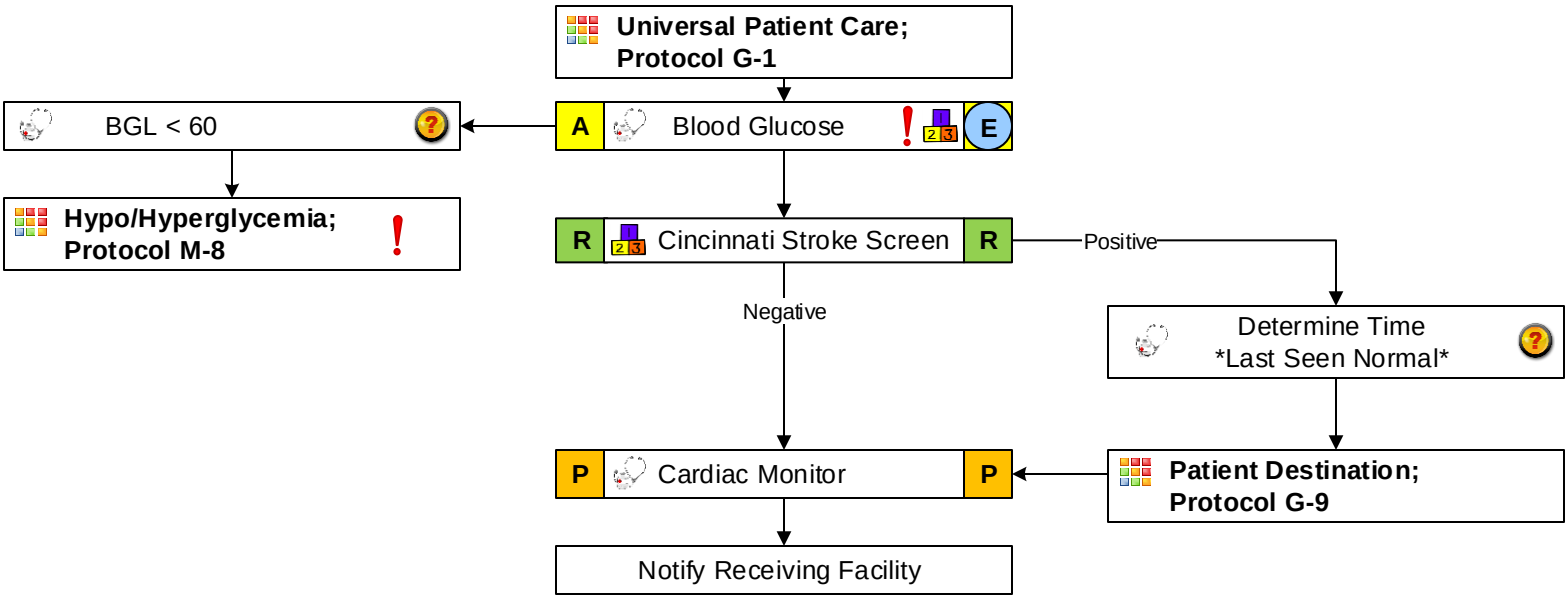
Performance Improvement Suggestions
- Documentation of glucometry & temperature
- Description of witnessed seizure activity

Suspected Stroke

History
- Previous cerebrovascular accident or transient ischemic attack
- Previous cardiac or vascular surgery
- Associated diseases:
  - Diabetes
  - Hypertension
  - Coronary artery disease
- Atrial fibrillation
- Medications (anticoagulants)
- History of trauma

Signs & Symptoms
- Altered mental status
- Unilateral weakness / numbness
- Visual field deficit / cortical blindness
- Aphasia / dysarthria
- Vertigo / ataxia
- Vomiting / headache
- Seizures
- Hypertension / hypotension

Differential
- Transient ischemic attack
- Seizure / Todd's paralysis
- Hypoglycemia
- Stroke:
  - Thrombotic or Embolic ~85%
  - Hemorrhagic ~15%
- Tumor
- Trauma
- Migraine headache



Pearls
- The window for tissue Plasminogen Activator (TPA) is typically 3 hours but may be extended to 4.5 hours for certain brain attack patients. The window for intra-arterial TPA (IA TPA) is typically 6 hours. The window for mechanical thrombectomy is 8 hours. Consult with your local stroke center for specific patient criteria and the facility's brain attack capabilities.
- The phrase *last seen normal* is defined as the last witnessed time the patient was symptom-free. For example, a patient who wakens with stroke symptoms has a *last seen normal* time of the previous night when the patient was symptom-free, not when the patient awoke.
- Hypertension is commonly present with a stroke and is not generally treated unless severe or thrombolytic therapy is anticipated.
- Be alert for airway problems (dysphagia, vomiting, aspiration).
- Hypoglycemia can present as a localized neurologic deficit, especially in the elderly. Once hypoglycemia is corrected, be sure to return to this protocol.

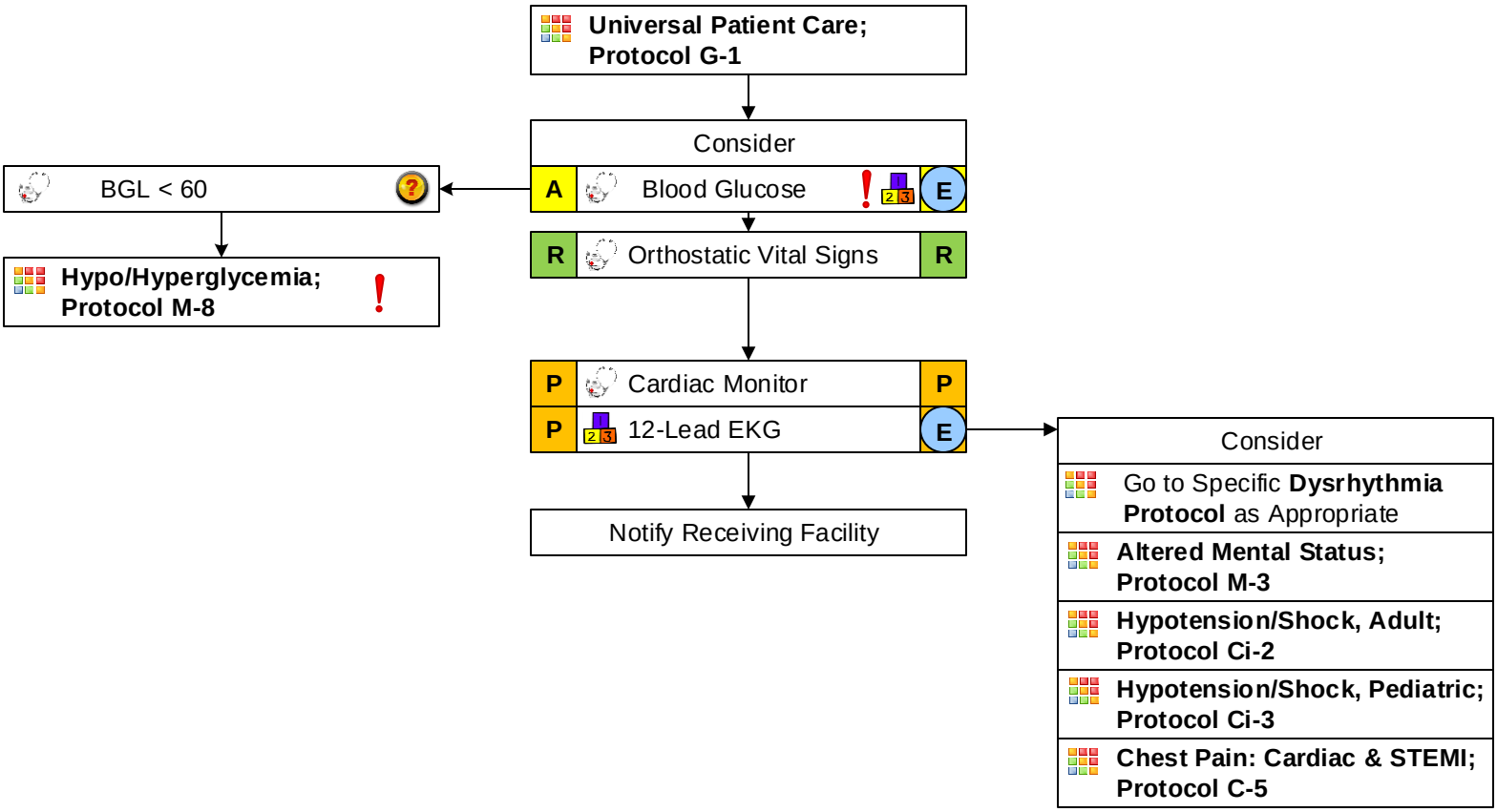
Performance Improvement Suggestions
- Documentation of Cincinnati stroke screen results and, if applicable, time *last seen normal*
- Documentation of blood glucometry

Syncope

History
- History of cardiac problems, stroke, seizures
- Occult blood loss: gastrointestinal or ectopic
- Female patients: nausea, vomiting, diarrhea
- Any medications
- Past medical history

Signs & Symptoms
- Loss of consciousness with recovery
- Lightheadedness, dizziness
- Palpitations, slow or rapid pulse
- Pulse irregularity
- Decreased blood pressure

Differential
- Vasovagal
- Orthostatic hypotension
- Cardiac syncope
- Micturition / defecation syncope
- Psychiatric
- Pulmonary embolism
- Hypoglycemia
- Seizure
- Shock
- Toxicologic (alcohol)
- Medication side effect: hypertension
- Ectopic pregnancy



Pearls
- Assess for signs and symptoms of trauma if patient is associated with or had a questionable fall with syncope.
- Consider dysrhythmias, gastrointestinal bleeds, ectopic pregnancy, and seizure as possible causes of syncope.
- Although the patient may appear well at the time of EMS arrival, the patient should still be transported, even if no obvious cause of syncope is apparent.
- More than 25% of syncope in geriatric patients is cardiac dysrhythmia based.

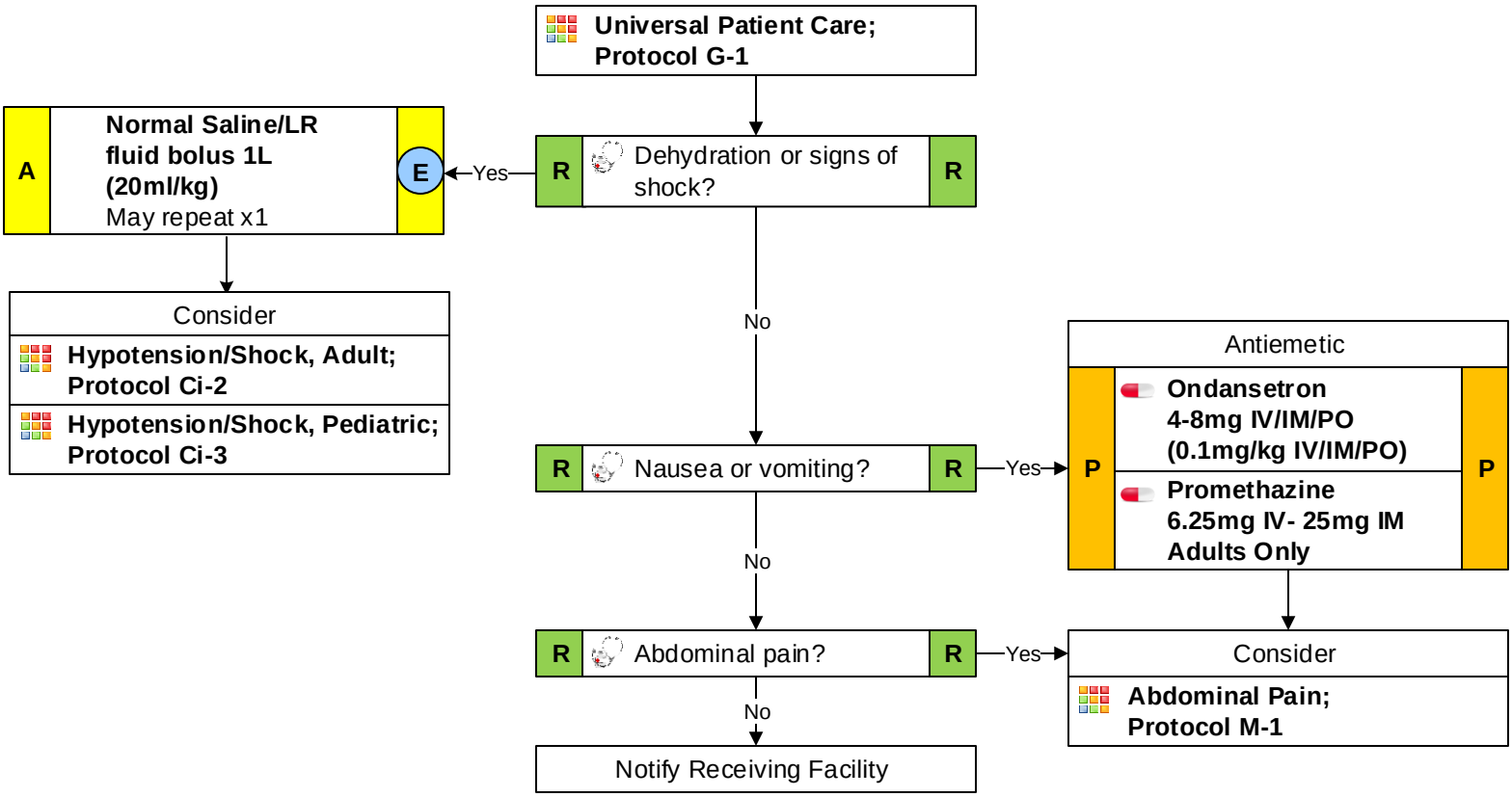
Performance Improvement Suggestions
- Documentation of cardiac rhythm
- Consideration of cervical spine injury in case / setting of fall

Vomiting & Diarrhea

History
- Severity: frequency, quantity, duration
- Recent travel history
- Recent contact with ill persons
- Recent antibiotics / NSAIDs
- Previous abdominal surgery
- Alcohol abuse
- Possible pregnancy
- Abdominal pain

Signs & Symptoms
- Distention
- Abdominal tenderness
- Bilious, bloody, or coffee ground-like emesis
- Hematochezia or melena
- Fever
- Vertigo

Differential
- CNS (increased pressure, headache, stroke, CNS lesions, vestibular)
- Myocardial infarction
- Diabetic ketoacidosis
- Appendicitis, bowel obstruction, pyloric stenosis, gastritis / PUD, pancreatitis
- OB/GYN (pregnancy, ovarian cyst, PID)
- Infections (pyelo, colitis, pneumonia)
- Gastroenteritis (viral, bacterial, toxin)
- Renal failure



Pearls
- Promethazine (Phenergan) may cause sedation, especially in the elderly, as well as other undesirable effects. Ondansetron (Zofran) is preferred over Promethazine.
- Consider cardiac ischemia when the patient presents with vomiting and upper abdominal pain.
- In pediatric patients, assure an appropriate weight-based volume of intravenous fluids is given.

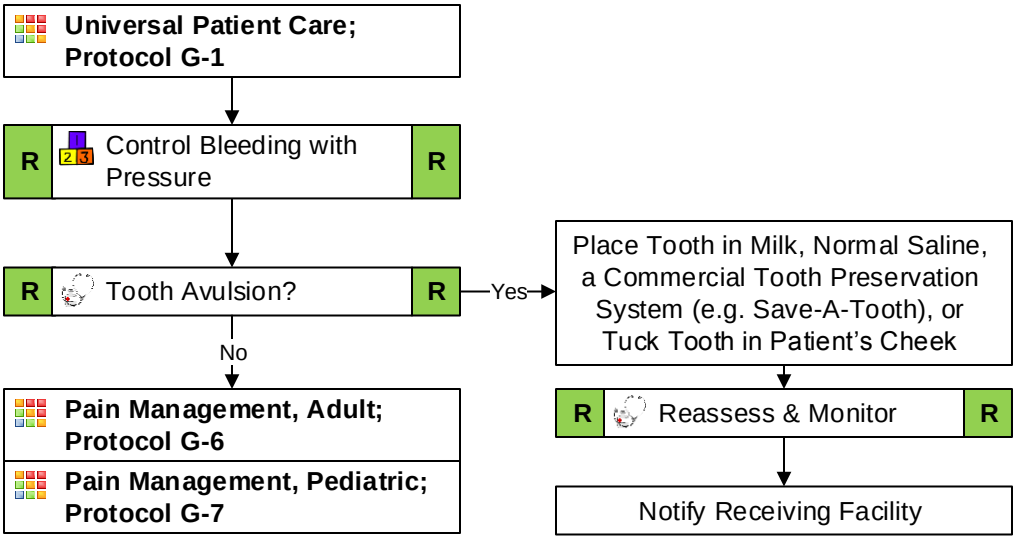
Performance Improvement Suggestions
- Documentation of pain severity, if present

Dental Problems

History
- Age
- Past medical history
- Medications
- Onset of pain or injury
- Trauma involving the teeth
- Location of tooth
- Whole versus partial tooth injury

Signs & Symptoms
- Bleeding
- Pain
- Fever
- Swelling
- Missing or fractured tooth / teeth

Differential
- Decay
- Infection
- Fracture
- Avulsion
- Abscess
- Facial cellulitis
- Impacted teeth (wisdom teeth)
- Temporomandibular Joint Disorder (TMJ) syndrome
- Myocardial infarction



Pearls
- Do not tuck an avulsed tooth into the patient's cheek if there is a possibility of aspiration.
- Significant soft tissue swelling to the face or oral cavity may represent cellulitis or an abscess.
- On-scene and travel times should be minimized for patients with complete tooth avulsions; re-implantation is possible within four hours if the tooth is handled properly.
- Avulsed teeth may be gently rinsed if grossly contaminated, but should not be scrubbed or brushed.
- Pain associated with the teeth should be assessed for sensitivity to cold or heat and tenderness to touch or tapping.
- Occasionally, cardiac chest pain may radiate to the jaw.

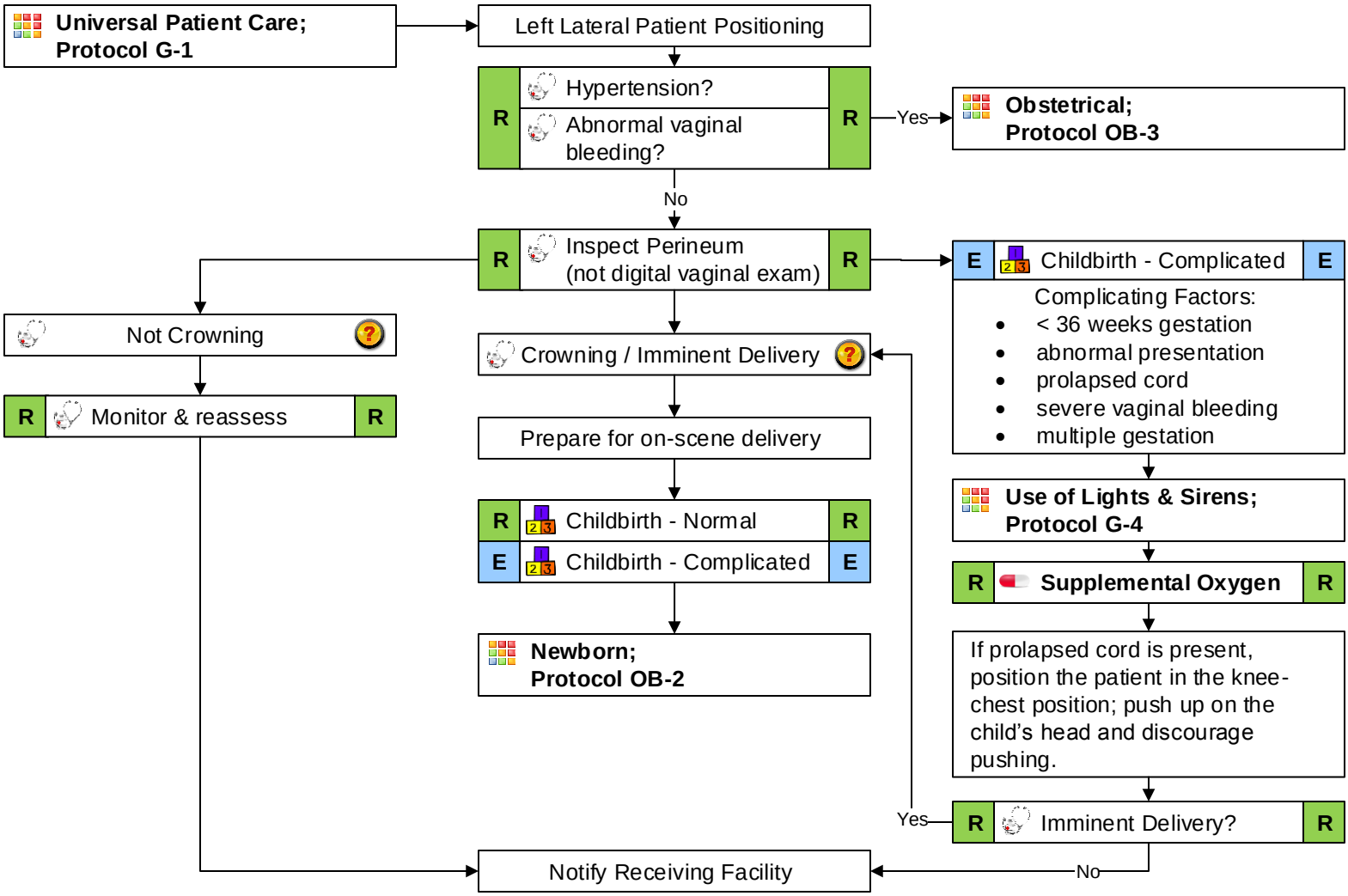
Performance Improvement Suggestions
- Proper handling of avulsed teeth
- Documentation of pain management

Childbirth & Labor

History
- Due date
- Time contractions started & interval
- Rupture of membranes
- Duration & amount of any vaginal bleeding
- Sensation of fetal activity
- Past medical & delivery history
- Medications
- Gravida / Para status
- High-risk pregnancy
- Twins, triplets, etc.
- Trauma

Signs & Symptoms
- Contractions / pain
- Vaginal discharge or bleeding
- Crowning or mother's urge to push
- Meconium

Differential
- Normal childbirth
- Abnormal presentation:
  - Buttocks
  - Foot / hand
- Prolapsed cord
- Placenta previa
- Abruptio placenta



Pearls
- If maternal seizures occur, refer to the Obstetrical Emergencies; Protocol OB-3.
- Some perineal bleeding is normal with any childbirth. Large quantities of blood or free bleeding are abnormal. After delivery, massaging the uterus (lower abdomen) will promote uterine contraction and help to control post-partum bleeding.
- In trauma, best care of the baby is best care of the mother.

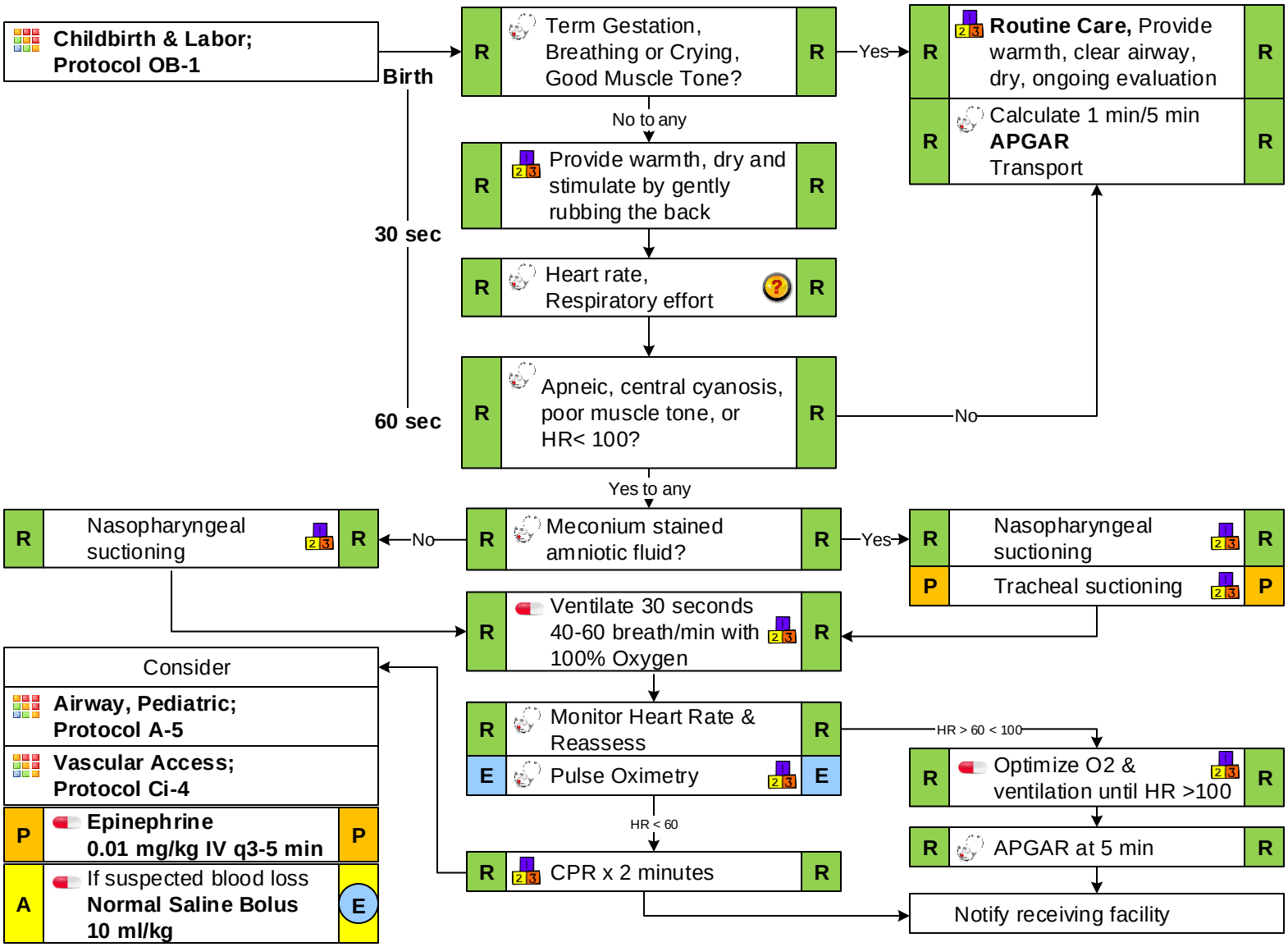
Performance Improvement Suggestions
- Documentation of frequency and duration of contractions, if applicable
- Documentation of the presence or absence of complicating factors

Newborn Child Care

History
- Due date and gestational age
- Multiple gestation (twins etc.)
- Meconium
- Delivery difficulties
- Congenital disease
- Maternal medications
- Maternal risk factors
  - substance abuse
  - smoking

Signs and Symptoms
- Respiratory distress
- Peripheral cyanosis or mottling (normal)
- Central cyanosis (abnormal)
- Altered level of responsiveness
- Bradycardia

Differential
- Airway failure
  - Secretions
  - Respiratory drive
- Hypothermia
- Maternal medication effect
- Hypovolemia
- Congenital heart disease
- Infection



Pearls
- CPR in infants is 120 compressions/minute with a 3:1 compression to ventilation ratio.
- Avoid hypothermia. Cover infant's head and maximize ambulance temperature.
- Maternal medications may sedate the infant.
- Focus should be on newborn appearance, not the presence of meconium.

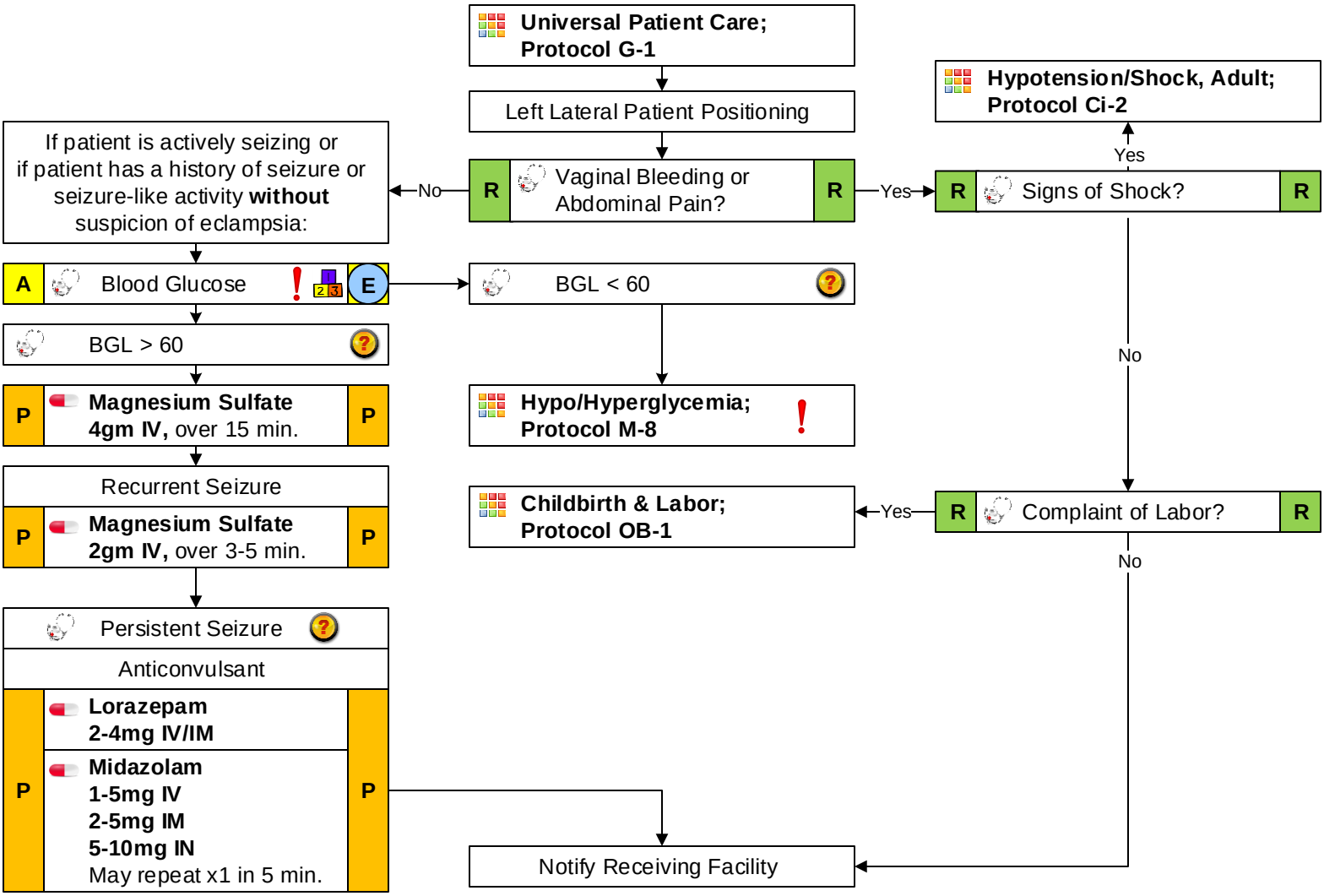
Performance Improvement Suggestions
- Initial infant temperature at receiving facility
- Documentation of heart rate, central cyanosis and muscle tone

Obstetrical Emergency

History
- Past medical history
- Hypertension medications
- Prenatal care
- Prior pregnancies / births
- Gravida / para status
- Last menstrual period (LMP) and estimated due date (EDD)

Signs & Symptoms
- Vaginal bleeding
- Abdominal pain
- Seizures
- Hypertension
- Severe headache
- Visual changes
- New onset of peripheral edema

Differential
- Pre-eclampsia / eclampsia
- Placenta previa
- Placenta abruptio
- Spontaneous abortion



Pearls
- Maintain the mother in a left lateral position to increase venous return and to minimize the risk of supine hypotensive syndrome.
- With a pregnant patient, hypertension is defined as a blood pressure greater than 140 (systolic) or greater than 90 (diastolic).
- The most common complaint prior to an eclamptic seizure is a severe headache.
- If a pregnant patient > 20 weeks has no pre-existing seizure disorder and presents with a seizure, consider eclampsia – even in the absence of hypertension. Treat non-eclamptic seizures in accordance with Seizure, Adult; Protocol M-11.
- All pregnant patients involved in a motor vehicle collision should be seen immediately by a physician for evaluation and fetal monitoring.
- Magnesium Sulfate may cause hypotension and a decreased respiratory drive. Loss of deep tendon reflexes (areflexia) is usually the first sign of magnesium toxicity which may be reversed with Calcium. Contact Medical Control prior to administering Calcium.

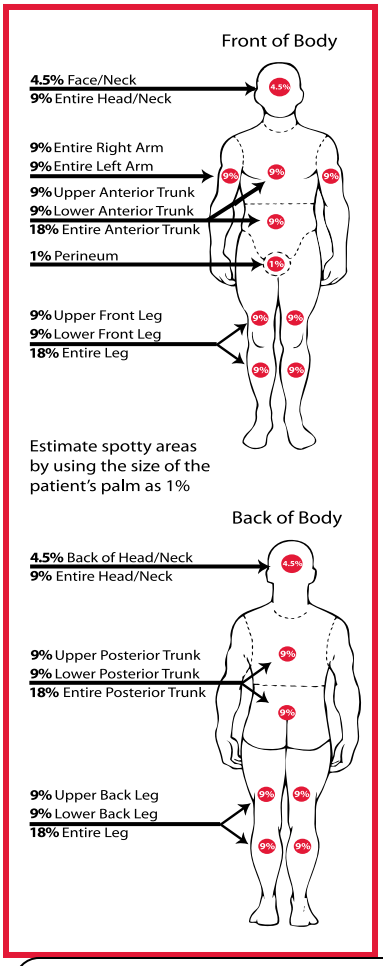
Performance Improvement Suggestions
- Documentation of blood glucometry in seizure patients
- Documentation of last menstrual period and estimated due date

Burns, Thermal

History
- Type of exposure (heat, gas, exposure)
- Inhalation / airway injury
- Time of injury
- Past medical history
- Medications
- Associated injury (blunt, blast, penetrating)
- Loss of consciousness

Signs & Symptoms
- Pain, swelling
- Hypotension / shock
- Airway compromise / distress
- Singed facial or nasal hair
- Hoarseness / wheezing

Differential
- Superficial (1st degree): red, painful
- Partial thickness (2nd degree): blistering
- Full thickness (3rd degree): painless charred / leathery skin
- Thermal burns
- Chemical burns
- Electrical burns
- Radiation burns



Universal Patient Care; Protocol G-1

STOP THE BURNING PROCESS

R — Determine Body Surface Area & Assess Severity — R

- Remove rings, bracelets, other constricting items
- Cool wound(s) with lactated ringers, normal saline, sterile water, or tap water
- Beware of hypothermia
  - Do not apply cold fluids to patients with burns > 10% BSA
- Cover burns with dry, sterile sheets or dressings

Consider
Toxic Inhalation; Protocol E-6

R — Hypotension / Signs of Shock? / 2nd or 3rd Degree Burns > 20% BSA? — R

Yes → A — **Normal Saline/LR fluid bolus 1L (20ml/kg)** May repeat x1 — E

No

Consider
Pain Management, Adult; Protocol G-6
Pain Management, Pediatric; Protocol G-7

Hypotension/Shock, Adult; Protocol Ci-2
Hypotension/Shock, Pediatric; Protocol Ci-3

Notify Receiving Facility

Pearls
- Burn patients are trauma patients! Evaluate for multisystem traumas and consider transport to the locally designated trauma center.
- STOP THE BURNING PROCESS!
- Be sure to maintain a high index of suspicion for airway / inhalation injury. Isolated skin burns are not immediately life-threatening.
- Early intubation is required when the patient experiences significant airway / inhalation injury.
- Circumferential burns to the patient's extremities are dangerous due to the potential vascular compromise secondary to soft tissue swelling and compartment syndrome.
- Burn patients are prone to hypothermia. Never apply ice to cool burns. Avoid overcooling; if available, administer warm intravenous fluids to help maintain a normal body temperature.
- Consider the possibility of child abuse in pediatric patients.

Burn Center Criteria
- Partial thickness (second degree) burns greater than 10% of the total body surface area (BSA)
- Full thickness (third degree) burns of patients in any age group
- Any airway / inhalation injury
- Burns that involve the face, hands, feet, genitalia, perineum or major joints
- Electrical burns (including lightning injury) and chemical burns

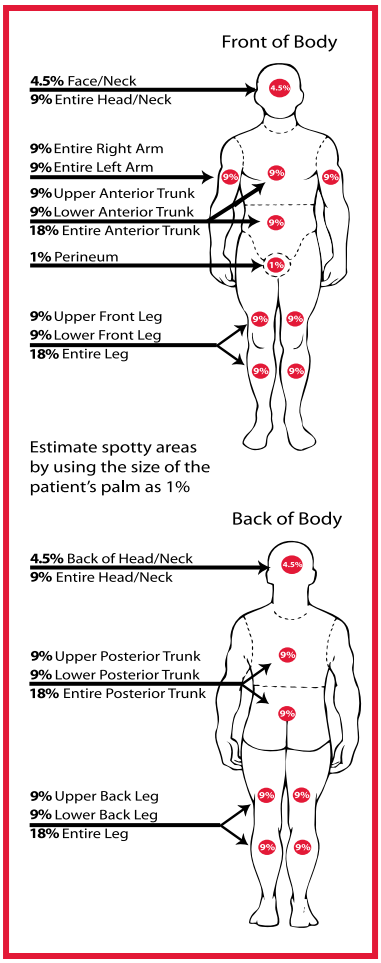
Performance Improvement Suggestions
- Documentation of airway and inhalation exposure
- Documentation of pain assessment and management

Burns, Chemical & Electrical

History
- Type of exposure (heat, gas, exposure)
- Inhalation / airway injury
- Time of injury
- Past medical history
- Medications
- Associated injury (blunt, blast, penetrating)
- Loss of consciousness

Signs & Symptoms
- Pain, swelling
- Hypotension / shock
- Airway compromise / distress
- Singed facial or nasal hair
- Hoarseness / wheezing
- Dysrhythmias
- Entry and exit wounds

- **Differential**
- Superficial (1st degree): red, painful
- Partial thickness (2nd degree): blistering
- Full thickness (3rd degree): painless / charred / leathery skin
- Thermal burns
- Chemical burns
- Electrical burns
- Radiation burns



Scene Safety!
Consider Appropriate PPE or HazMat Decontamination

STOP THE BURNING PROCESS

→ **Universal Patient Care; Protocol G-1**

R — Determine Body Surface Area & Assess Severity — R

P — Cardiac Monitor — P

Consider Eye Involvement

R — Eye Irrigation — R

P — **Tetracaine Ophthal. 1-2gtts in affected eye** — P

P — **Proparacaine Ophthal. 1-2gtts in affected eye** — P

P — Morgan Lens Irrigation — P

- Remove rings, bracelets, other constricting items
- Immediately flush chemical burns with closest water source until burning stops (minimum 15 min.)
- Expose the patient to identify entry and exit sites
- Cover burns with dry, sterile sheets or dressings

R — Hypotension / Signs of Shock?
2nd or 3rd Degree Burns > 20% BSA? — R

Yes → E — A — **Normal Saline/LR fluid bolus 1L (20ml/kg)** May repeat x1

No

Hypotension/Shock, Adult; Protocol Ci-2

Shock-Hypotension, Pediatric; Protocol Ci-3

Notify Receiving Facility

Consider

Pain Management, Adult; Protocol G-6

Pain Management, Pediatric; Protocol G-7

Pearls
- Burn patients are trauma patients! Evaluate for multisystem traumas and consider transport to the locally designated trauma center.
- STOP THE BURNING PROCESS!
- Chemical Burns:
  - If possible, identify the chemical agent.
  - Do not attempt to neutralize the chemical agent.
  - If the patient is potentially contaminated, notify receiving facility that the patient may need decontamination.
- Electrical Burns:
  - Do not touch the patient until you are certain the electrical source has been disconnected.
  - Do not forget the cardiac monitor – anticipate ventricular or atrial irregularity (to include V-tach, V-fib, heart blocks, etc.)
  - Attempt to identify the nature of the electrical source (AC vs. DC), the amount of voltage, and the amperage the patient may have been exposed to during the electrical shock.

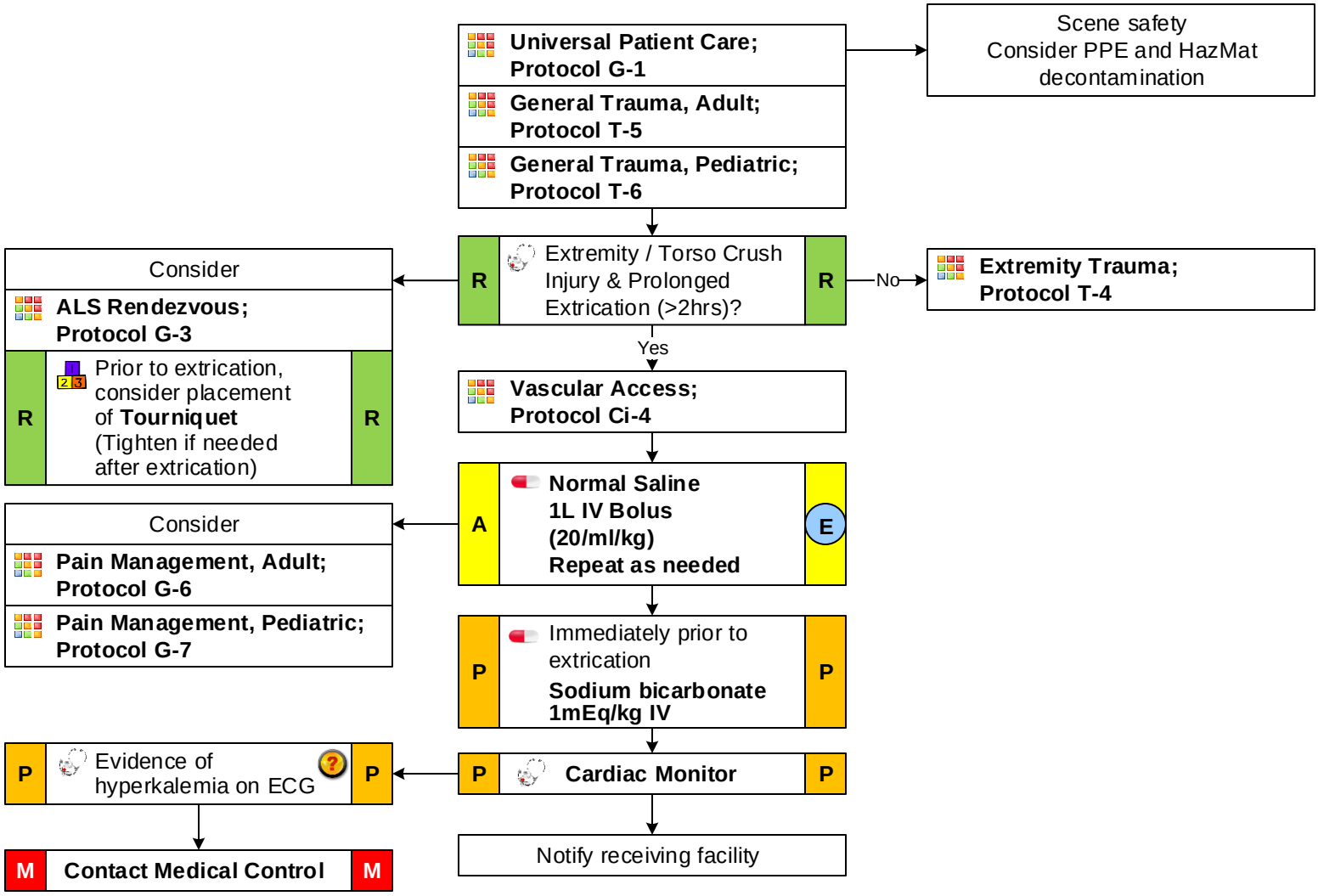
Performance Improvement Suggestions
- Identification of chemical or electrical source
- Documentation of pain assessment and management

Crush Injury Syndrome

History
- Mechanism of injury
- Time of onset / duration of entrapment
- Environmental / biological hazards

Signs & Symptoms
- Pain
- Swelling
- Deformity
- Neurologic deficits (paralysis, parasthesia)
- Vascular deficits (pallor, pulse deficit)
- Poikilothermia

Differential
- Contusion(s)
- Laceration(s)
- Fracture(s) / dislocation
- Amputation / partial amputation
- Compartment syndrome
- Crush injury / crush injury syndrome



Pearls
- Crush injury refers to local tissue damage caused by direct injury and prolonged compression. In contrast, crush injury syndrome (CIS) refers to the systemic effects of potassium, myoglobin, and other toxins released from damaged tissue upon reperfusion.
- The likelihood of CIS increases with compression time and the patient's muscle mass.
- Consider respiratory, hearing, and eye protection for the patient during extrication; prevent hypothermia.
- Signs of hyperkalemia include peaked T-waves, a wide QRS, absent P-waves, bradycardia, and sinusoidal shape.
- Hyperkalemia is treated with Calcium, Sodium Bicarbonate, Insulin / Dextrose, and Albuterol. Calcium and Sodium Bicarbonate should be given in separate IV lines to avoid precipitation.
- Lactated Ringers contains potassium and, therefore, should be not be given to CIS patients.
- Normal Saline fluid resuscitation prior to and after extrication will help prevent renal failure in CIS patients.

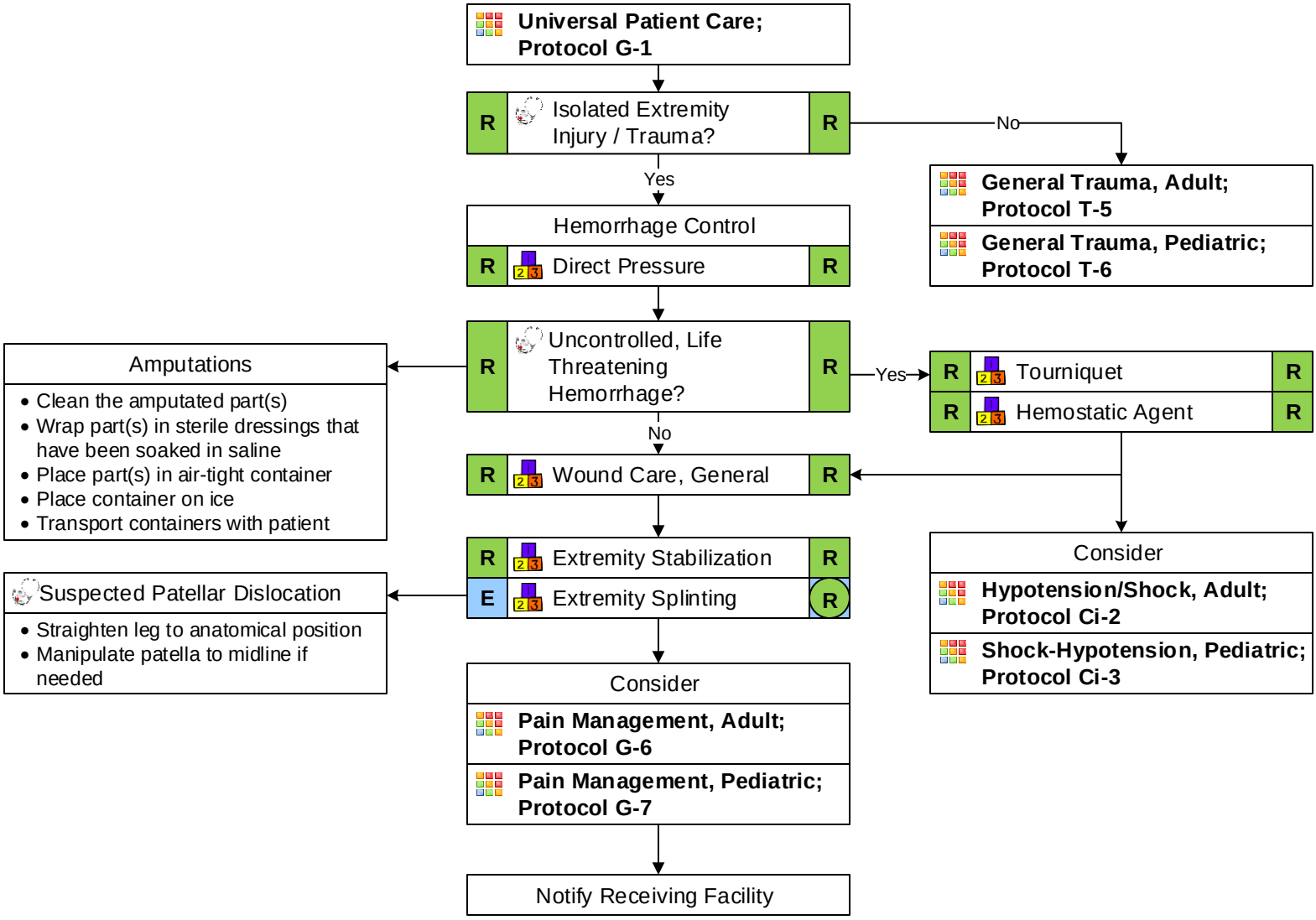
Performance Improvement Suggestions
- Documentation of presence/absence of hyperkalemia signs on EKG
- Documentation of entrapment duration

Extremity Trauma

History
- Type of injury
- Mechanism: crush / penetrating / amputation
- Time of injury
- Open vs. closed fracture(s)
- Wound contamination
- Past medical history
- Medications

Signs & Symptoms
- Pain, swelling
- Deformity
- Altered sensation / motor function
- Diminished pulse / capillary refill
- Decreased peripheral extremity temperature
- Bony crepitus

Differential
- Abrasions
- Contusions
- Lacerations
- Sprains
- Dislocations
- Fractures
- Amputations
- Crush syndrome



Pearls
- With amputations, time is critical! Notify receiving facility as soon as feasible. Consider contacting Medical Control to help determine an appropriate destination.
- Knee dislocations and elbow dislocations / fractures have a high incidence of vascular compromise.
- Blood loss may be concealed or not apparent with extremity injuries.
- Lacerations should be evaluated for repair as soon as possible.
- Rapid transport is indicated for amputations and vascular compromise.

Performance Improvement Suggestions
- Documentation of distal neurovascular status
- Care of amputated appendage(s)
- Documentation of pain severity

General Trauma, Adult

History
- Time and mechanism of injury
- Height of any falls
- Damage to structures or vehicles
- Location in structure or vehicle
- Others injured or dead-on-scene
- Vehicle speed and details of motor vehicle accident
- Restraints / protective equipment
  - Helmet / pads
- Ejection from vehicle
- Weapon type
- Blast / explosion
- Past medical history
- Medications

Signs & Symptoms
- Pain
- Swelling
- Deformities
- Lesions / bleeding
- Altered metal status
- Unconsciousness or loss of consciousness
- Hypotension or shock
- Respiratory arrest
- Cardiac arrest

Differential
- Tension pneumothorax
- Flail chest syndrome
- Pericardial tamponade
- Open chest wound(s)
- Hemothorax
- Intra-abdominal bleeding
- Pelvis / femur fracture
- Spinal fracture / spinal cord injury
- Head injury
- Extremity fracture / dislocation
- Airway obstruction
- Hypothermia
- Domestic violence / abuse

Universal Patient Care; Protocol G-1

R — Adult Assessment — R

R — Identify and control significant external hemorrhage — R

Airway, Adult; Protocol A-1

R — Vital Signs — R

R — Glasgow Coma Scale — R

Consider
- **Head Trauma, Adult; Protocol T-7**
- **Hypotension/Shock, Adult; Protocol Ci-2**

Within Normal Limits

Abnormal

Patient Destination: Trauma Triage; Protocol T-9

Consider
- E — Pelvic Immobilization Device — E
- E — Extremity Splinting — R
- P — Needle-Chest Decompression — P
- P — TXA — P

Vascular Access; Protocol Ci-4

A — **Normal Saline or Lactated Ringers 1L IV bolus** May repeat x1 for S/S hypotension or shock — E

Consider
- E — Extremity Splinting — R
- R — Hemorrhage Control — R
- **Extremity Trauma; Protocol T-4**

R — Monitor & Reassess — R

Notify Receiving Facility

Pearls
- Geriatric patients should be examined with a high level of suspicion. The elderly have limited physiologic reserve and may decompensate with little warning.
- Examine all restraints and protective equipment for damage.
- Prolonged extrications or patients with serious trauma require early activation of air medical resources.
- Scene departure should not be delayed for procedures. If possible, procedures should be performed en route – rapid transport of the unstable trauma patient is the goal.
- Do not overlook the possibility of domestic violence or abuse.
- Bag-Valve-Mask is an acceptable method of managing the patient's airway if pulse oximetry is maintained above 90% SPO_2.

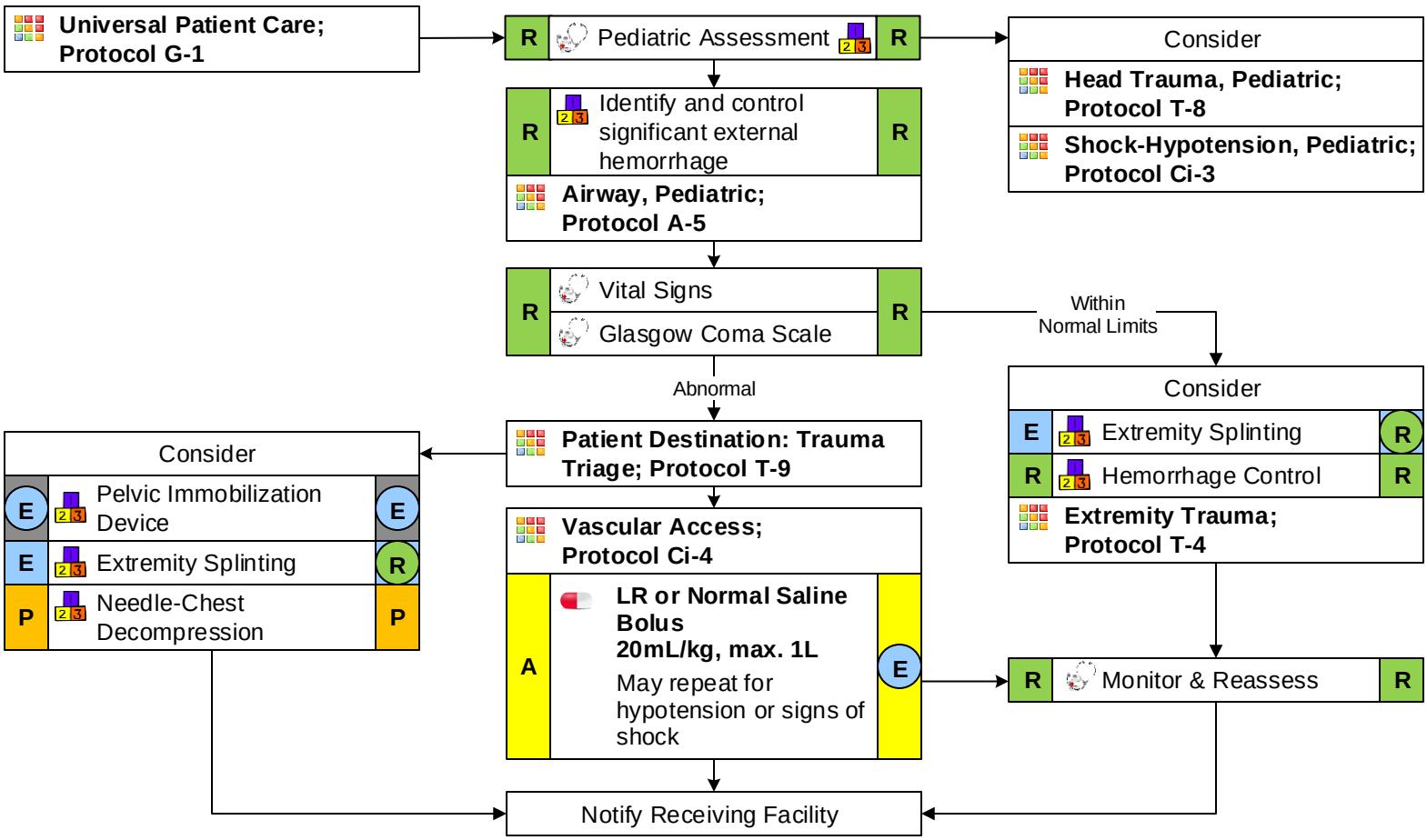
Performance Improvement Suggestions
- Documentation of air medical utilization, appropriate destination of patient, and scene times with consideration of mitigating factors

General Trauma, Pediatric

History
- Time and mechanism of injury
- Height of any falls
- Damage to structures or vehicles
- Location in structure or vehicle
- Others injured or dead-on-scene
- Vehicle speed and details of motor vehicle accident
- Restraints / protective equipment
  - Car seat
  - Helmet / pads
- Ejection from vehicle
- Weapon type
- Blast / explosion
- Past medical history
- Medications

Signs & Symptoms
- Pain
- Swelling
- Deformities
- Lesions / bleeding
- Altered metal status
- Unconsciousness or loss of consciousness
- Hypotension or shock
- Respiratory arrest
- Cardiac arrest

Differential
- Tension pneumothorax
- Flail chest syndrome
- Pericardial tamponade
- Open chest wound(s)
- Hemothorax
- Intra-abdominal bleeding
- Pelvis / femur fracture
- Spinal fracture / spinal cord injury
- Head injury
- Extremity fracture / dislocation
- Airway obstruction
- Hypothermia



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- Prolonged extrications or patients with serious trauma require early activation of air medical resources.
- Scene departure should not be delayed for procedures. If possible, procedures should be performed en route – rapid transport of the unstable trauma patient is the goal.
- Do not overlook the possibility of child abuse.
- Bag-Valve-Mask is an acceptable method of managing the patient's airway if pulse oximetry is maintained above 90% SPO_2.

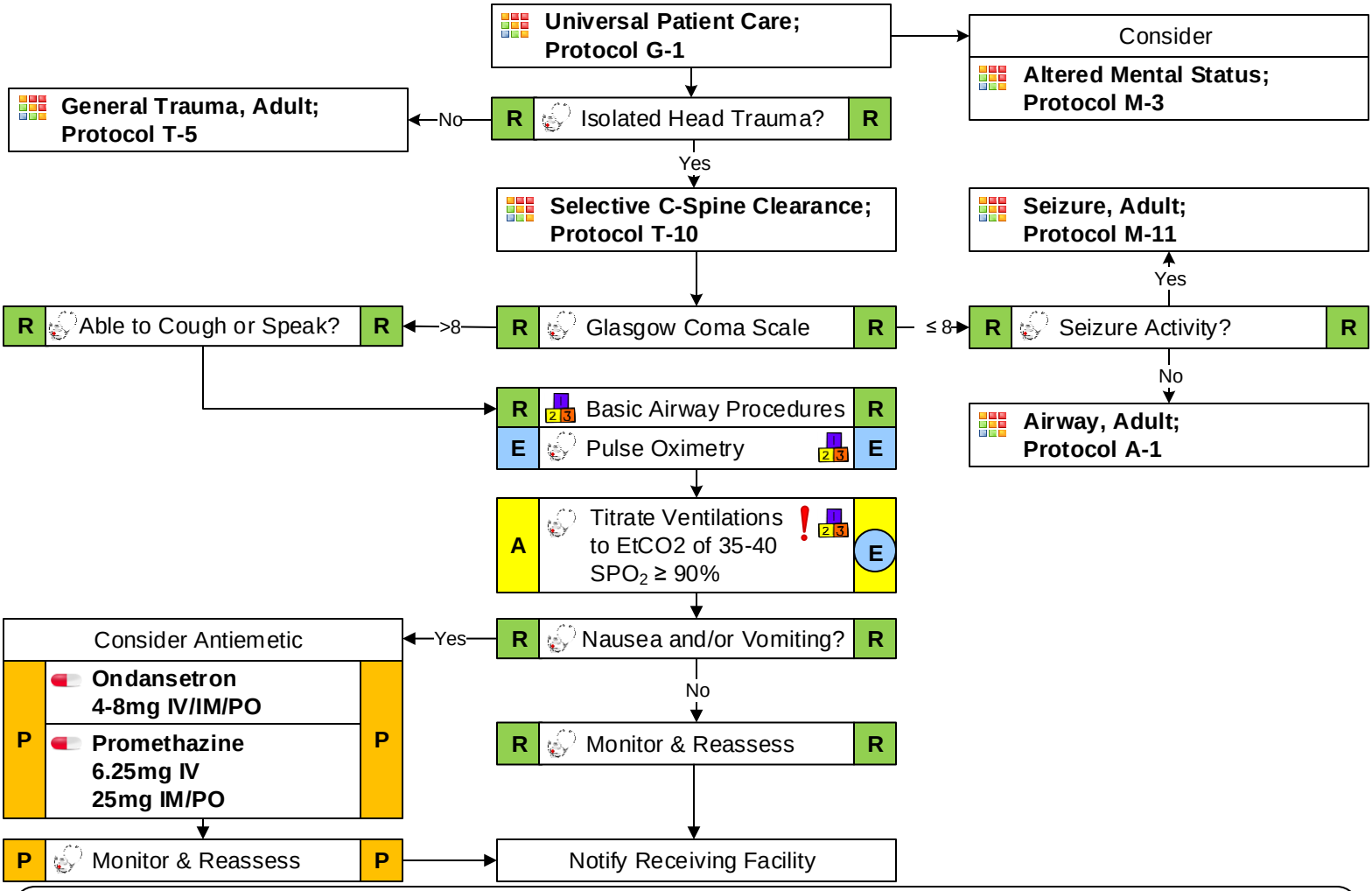
Performance Improvement Suggestions
- Documentation of air medical utilization, appropriate destination of patient, and scene times with consideration of mitigating factors

Head Trauma, Adult

History
- Time of injury
- Mechanism (blunt v. penetrating)
- Loss of consciousness
- Past medical history
- Medications
- Evidence for multi-systems trauma

Signs & Symptoms
- Pain, swelling, bleeding
- Altered mental status
- Unconsciousness
- Respiratory distress / failure
- Vomiting
- Seizure activity

Differential
- Skull fracture
- Brain injury (concussion, contusion, hemorrhage, laceration)
- Epidural / subdural hematoma
- Subarachnoid hemorrhage
- Spinal injury
- Physical abuse



Pearls
- If Glasgow Coma Scale (GSC) is < 12, consider air or rapid transport. If GSC is ≤ 8, intubation should be anticipated.
- Avoid hyperventilation, except in cases of impending herniation (blown pupil, decorticate or decerebrate posturing, bradycardia). For impending herniation, maintain $EtCO_2$ between 25-30. In the absence of $EtCO_2$, hyperventilate at a rate of 25 breaths per minute.
- Increased intracranial pressure (ICP) may cause hypertension and bradycardia (Cushing's response).
- Hypotension usually indicates injury or shock unrelated to the head injury and should be treated aggressively.
- Limit intravenous fluids, unless the patient is hypotensive.
- A change in the patient's level of consciousness is the most important item to monitor and document.
- Concussions are periods of confusion associated with trauma and may resolve by the time EMS arrives. If the patient experiences any loss of consciousness or any prolonged confusion or mental status abnormality that does not return to normal within 15 minutes of injury, they should be evaluated by a physician as soon as possible.
- In areas with short transportation times, intubation is not recommended in patients who are spontaneously breathing and who have oxygen saturations greater than 90% with supplemental oxygen.

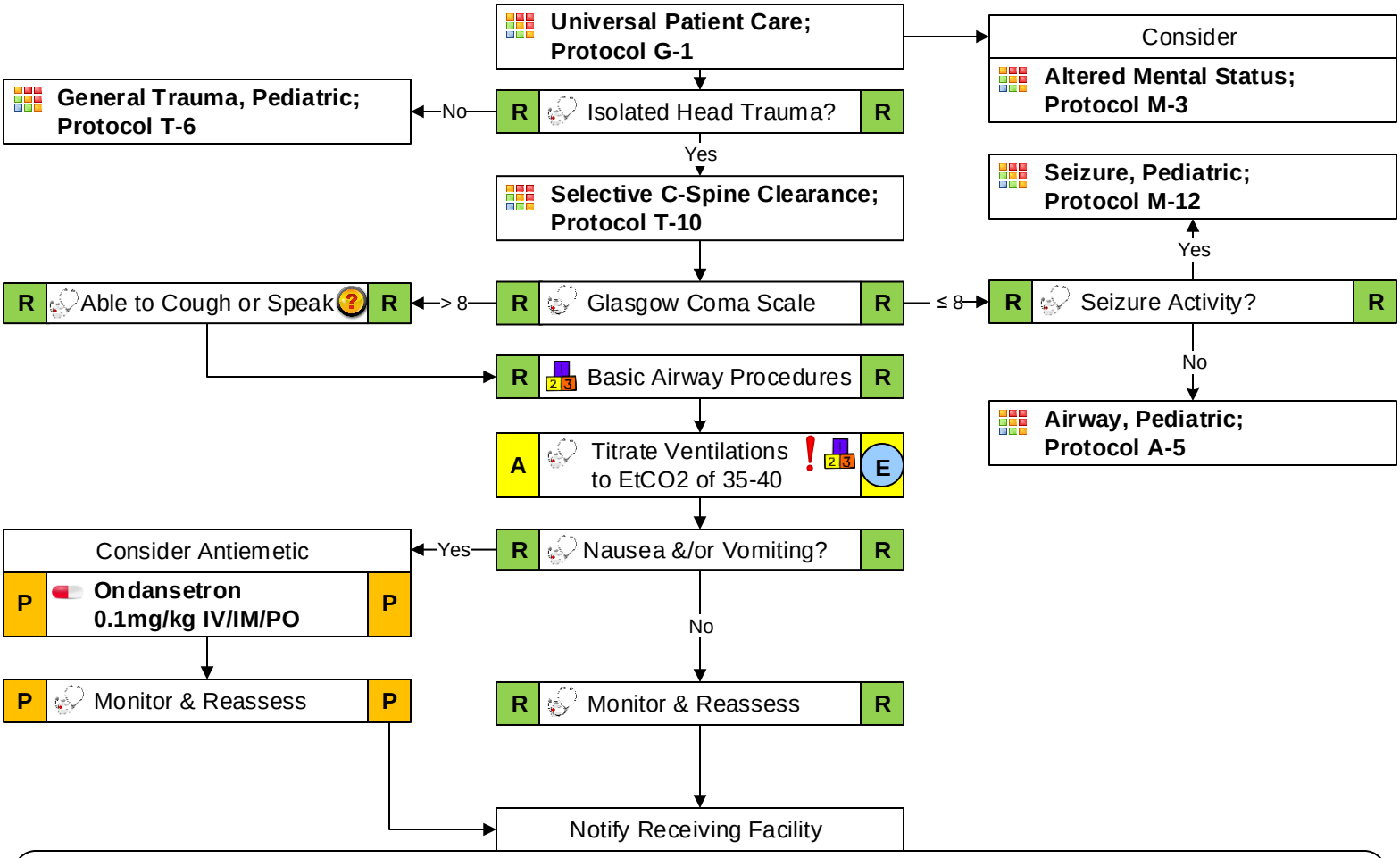
Performance Improvement Suggestions
- Documentation of frequency of GCS assessment
- Intubation in a short time of transportation

Head Trauma, Pediatric

History
- Time of injury
- Mechanism (blunt v. penetrating)
- Loss of consciousness
- Past medical history
- Medications
- Evidence for multi-systems trauma

Signs & Symptoms
- Pain, swelling, bleeding
- Altered mental status
- Unconsciousness
- Respiratory distress / failure
- Vomiting
- Seizure activity

Differential
- Skull fracture
- Brain injury (concussion, contusion, hemorrhage, laceration)
- Epidural / subdural hematoma
- Subarachnoid hemorrhage
- Spinal injury
- Child abuse



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- Avoid hyperventilation, except in cases of impending herniation (blown pupil, decorticate or decerebrate posturing, bradycardia). For impending herniation, maintain $EtCO_2$ between 25-30. In the absence of $EtCO_2$, hyperventilate at a rate of: 35 breaths per minute (age < 1 year); 30 breaths per minute (age 1-5 years); 25 breaths per minute (age 5-12 years).
- Increased intracranial pressure (ICP) may cause hypertension and bradycardia (Cushing's response).
- Hypotension usually indicates injury or shock unrelated to the head injury and should be treated aggressively.
- Limit intravenous fluids, unless the patient is hypotensive.
- A change in the patient's level of consciousness is the most important item to monitor and document.
- Concussions are periods of confusion associated with trauma and may resolve by the time EMS arrives. If the patient experiences any loss of consciousness or any prolonged confusion or mental status abnormality that does not return to normal within 15 minutes of injury, they should be evaluated by a physician as soon as possible.
- In areas with short transportation times, intubation is not recommended in patients who are spontaneously breathing and who have oxygen saturations greater than 90% with supplemental oxygen.
- Consider the possibility of child abuse in all pediatric trauma victims.

Performance Improvement Suggestions
- Documentation of frequency of GCS assessment
- Intubation in a short time of transportation

Patient Destination: Trauma Triage

Patient Destination; Protocol G-9

R Priority 1 R

- Systolic BP <90, RR <10 or >30,
- Tachycardia HR >130 AND meets Priority 2 or 3 criteria
- Age specific hypotension in children
  - <70 mmHg + 2 x age
  - HR >200 or <60
- Respiratory compromise/obstruction
- Intubation
- Inter-facility transfer patients receiving blood to maintain vital signs
- GCS 8 or less with mechanism attributed to trauma
- Major limb amputation
- Pregnancy >20 weeks gestation with leaking fluid or bleeding or abdominal pain that also meets Priority 3 criteria
- Open skull fracture
- Paralysis of an extremity
- Penetrating injury to abdomen, head, neck, chest, or proximal limbs including the knee and elbow
- Provider Discretion*

No

R Priority 2 R

- GCS 9 to 13
- Chest tube/needle thoracotomy
- Pelvic fracture (suspected)
- Two obvious long bone fractures (femur/humerous)
- Flail chest
- Drowning
- Ejection from ENCLOSED vehicle
- Burns >20% BSA OR involvement of face, airway, hands, or genitalia
- Sensory deficit of an extremity
- Provider Discretion*

No

R Priority 3 R

- Death of same car occupant
- Extrication time > 20 minutes
- Fall 2 x patient's height
- Auto vs. bike OR auto vs. pedestrian
- Non-enclosed wheeled or mechanized transport > 20 mph
- Horse ejection or rollover
- 12" intrusion into occupant space or vehicle
- "Star" any window or windshield
- Rollover
- Broken/bent steering wheel
- Trauma mechanism w/ change in LOC
- Amputation of one or more digits
- 10-20% TBSA (second or third degree)
- Provider Discretion*

Yes

Transport to Closest Appropriate Trauma Center (need not be the highest level of care in regional trauma system) or refer to regional/ local facility bypass policy

No

R Assess Special Patient or System Considerations R

<u>Older Adults (age >55yrs)</u>

- Risk of injury/death increases after age 55yrs
- SBP <110 might represent shock after age 65 years
- Low impact mechanisms (e.g., ground level falls) might result in severe injury

<u>Children</u>

- Should be triaged preferentially to pediatric-capable trauma centers

<u>Anticoagulation and Bleeding Disorders</u>

- Patients with head injury are at high risk for rapid deterioration

<u>Burns</u>

- Without other trauma mechanism: Triage to burn facility
- With trauma mechanism: Triage to trauma center

<u>Pregnancy >20wks</u>

<u>EMS Provider Judgment</u>

Yes

M Contact Medical Control. Consider Transport to a Trauma Center or Specific Resource Hospital **M**

No

Transport to Closest Appropriate Facility

Yes

Transport to Trauma Center (highest level of care in regional trauma system) or refer to regional/local facility bypass policy

Use of Lights & Sirens; Protocol G-4

Consider

- **Air Medical; Protocol G-2**
- **ALS Rendezvous Protocol G-3**

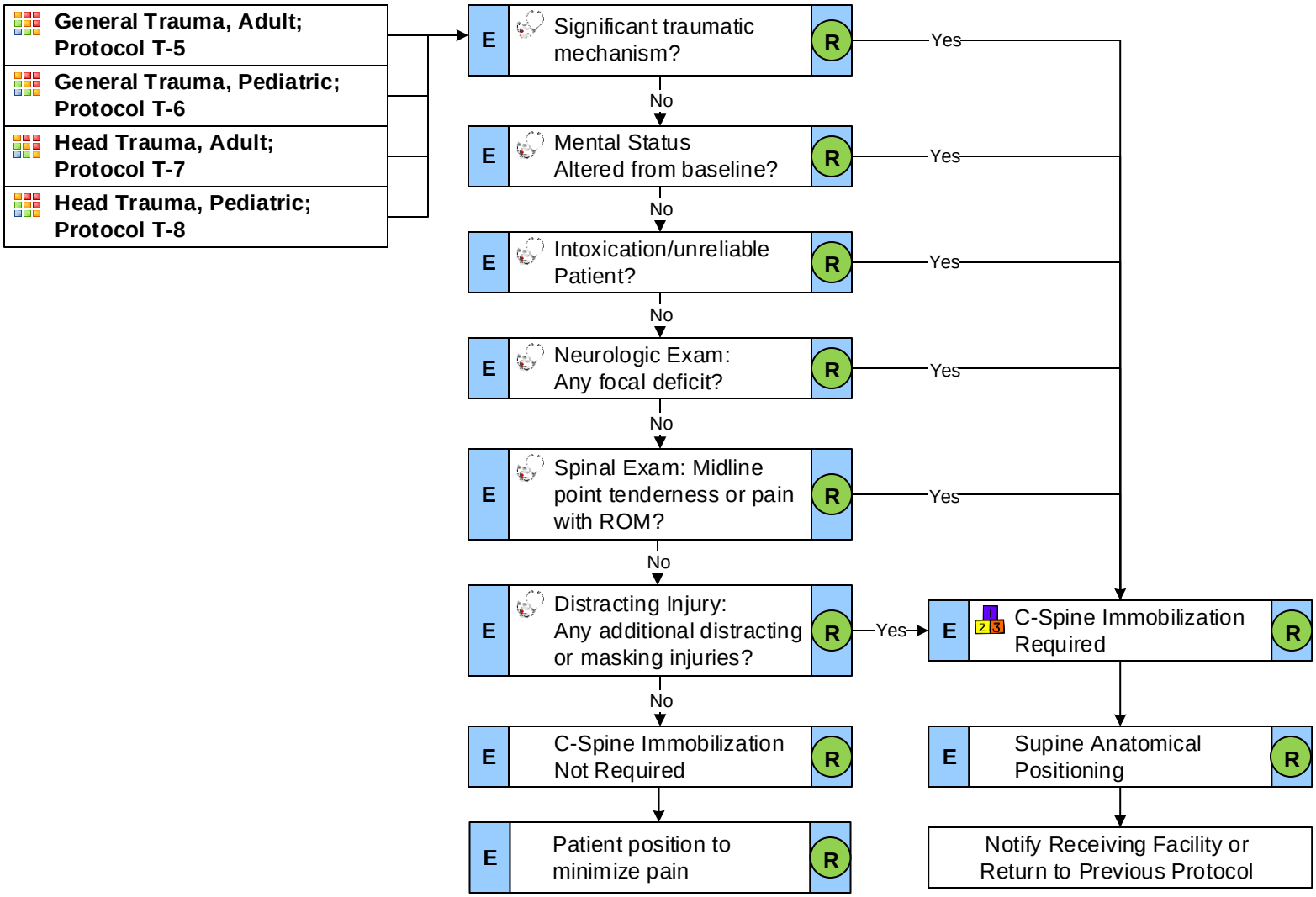
Pearls

- Priority 1 (physiologic criteria) and priority 2 (anatomic criteria) attempt to identify the most seriously injured patients.
- Depending on the local EMS system, the closest trauma center may not be the most appropriate for the patient.
- When in doubt, transport to a trauma center. Certain patients may benefit from air transport to a more distant trauma center.
- *Provider discretion factors include but not limited to: extremes in age, hypothermia/hyperthermia, presence of anticoagulants other than aspirin

Performance Improvement Suggestions

- Documentation of criteria used to determine patient destination.
- Documentation of GCS and vital signs.

Selective C-Spine Restriction



Pearls

- A significant mechanism includes high-energy events such as ejection, high falls, and abrupt deceleration crashes. In the setting of a significant mechanism or extremes of age, consider spinal injury, even in the absence of symptoms.
- Range of motion (ROM) should NOT be assessed if the patient has midline spinal tenderness.
- Allowing the appropriate patients to self extricate and position themselves on a stretcher appears to be the most effective way to protect the spine.
- C-Collars should be used with extreme caution with unstable mandible/facial fracture.
- Long spine boards and scoop stretchers are transfer/extrication devices and should be removed as soon as safely possible.
- Cervical collars can be used without the use of full body immobilization..

Performance Improvement Suggestions

- Documentation of selective criteria

Idaho EMS Ebola Guidelines

History
- Lived in or traveled from a country with widespread Ebola transmission within the past 21 days, or
- Had contact with an individual with confirmed Ebola within the past 21 days

Signs & Symptoms
- Fever
- Severe headache
- Weakness, fatigue
- Diarrhea, vomiting
- Abdominal pain
- Unexplained hemorrhage (bleeding or bruising)

Differential
- Other febrile illnesses

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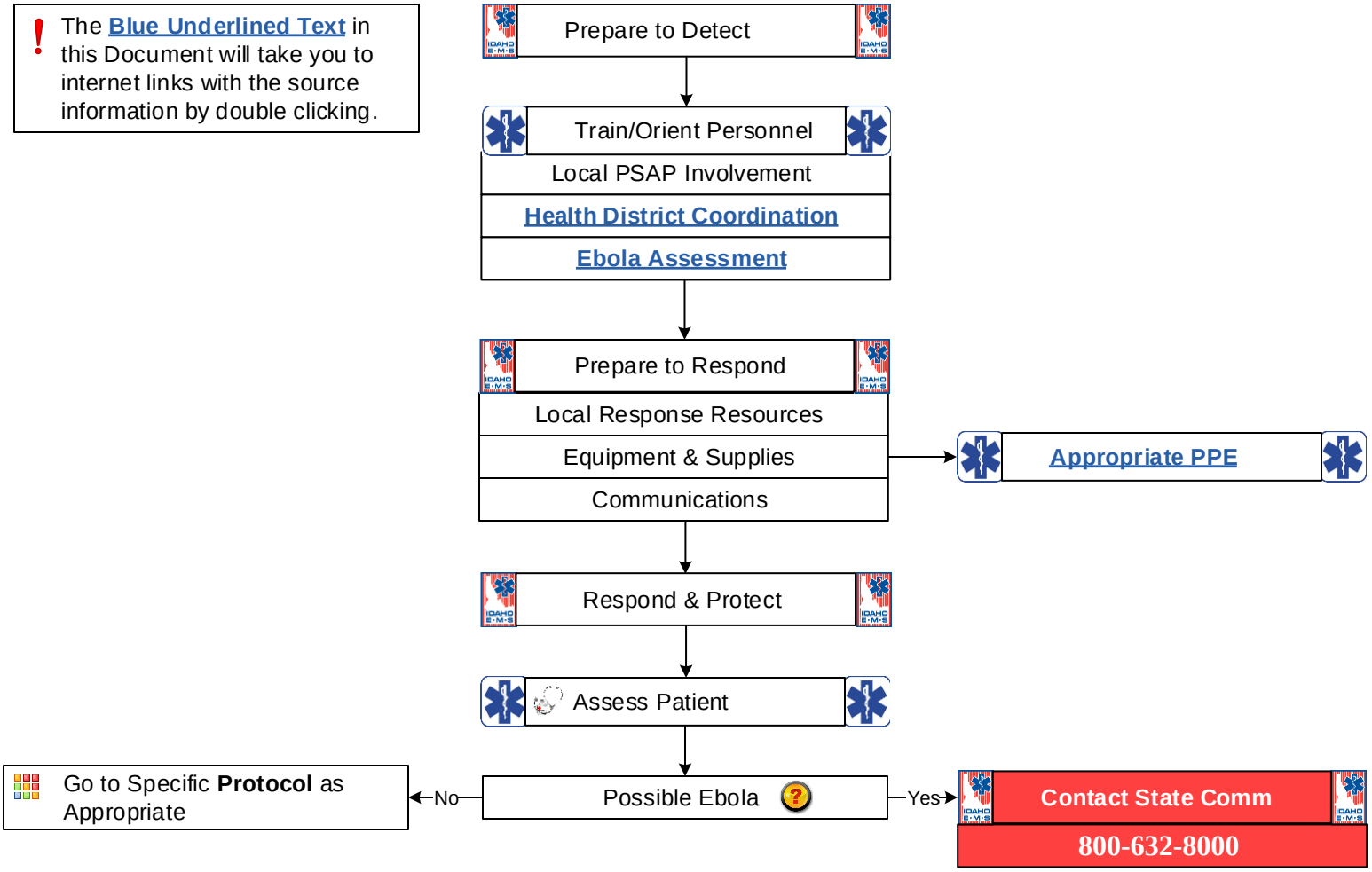

Pearls
- The Idaho State Communications Center acts as the Statewide coordinator for all suspected Ebola cases and should be the first contact for any suspected cases.
- The State Communications Center (State Comm) will assist with determining the appropriate resources and provide further instructions to responders.
- Regional resources and protocols are in place that will direct who will do this transport with specially prepared vehicles, higher level PPE, and specially trained staff.
- The CDC is continually updating resources as the Ebola outbreak evolves. Keep abreast of changes by coordinating efforts with your local health district.
- Symptoms may appear anywhere from 2-21 days after exposure but the average is 8 to 10 days.
- Ebola Virus Disease (Ebola) is a rare and deadly viral illness which is reportable to the National Notifiable Disease Surveillance System (NNDSS) in all U.S. states and territories. Early recognition of Ebola is critical for infection control. Health-care providers should be alert for and evaluate any patients suspected of having Ebola.
- The likelihood of contracting Ebola in the United States is extremely low unless a person has direct contact with the blood or body fluids (like urine, saliva, vomit, sweat, breast milk, semen and diarrhea) of a person who is infected with Ebola virus.