

**Provincial Protocol Guidelines**

**Emergency Medical Responder**  **(EMR)**

EMA Licensing Branch

Ministry of Health

Revised: February 2007

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**INTRODUCTION**

Important information - Please read carefully.

This document incorporates the most up-to-date information and protocols. For the purposes of licensure and licensing examination, the information contained within this document supersedes

any and all previous applicable protocols and procedures, as of February 2007.

Research and development in regard to CPR/AED actively continues. Amendments to the Provincial Protocol Guideline may be made based on the results of this work. No specific time line

has been established for these amendments but we are hopeful that it will be completed as soon as possible. Please watch for updates to this material, which will be posted on our web site when available.

For the purpose of clarification: An EMR is an attendant who has completed an approved EMR certification program (with all endorsements). A PCP is an attendant that has completed the

Paramedic 1 certification-training program or was previously an IV restricted EMA 2. PCP – IV is an attendant who has completed the PCP certification training, a previously licensed EMA 2 or a previously licensed Paramedic 1 that has completed an approved IV course.

This document is now available through the EMA Licensing Branch intranet web site at [http://admin.moh.hnet.bc.ca/emaintra. Please access this site to obtain updates and to print](http://admin.moh.hnet.bc.ca/emaintra)

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**GUIDELINES TO QUALIFICATIONS**



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| **PATIENT CARE SKILLS** |  |  |  | |  |  | | | |  |  |
|  | EMR |  | | PCP | ITT | | | | ACP |  |
|  |  |  | | Endorsement | X | | | | Endorsement |  |
| Bladder catheterization |
| Central & Parenteral Line Management |
| Collect blood samples (Venous/arterial) |
| Lab & X-ray interpretation |
| Transvenous Pacing |
| 12 lead ECG |
| Venous pressure monitoring |
| Arterial & Central Line Monitoring |
| Chest tube management |
| Infuse IV blood products |
| Mechanical Ventilation |
| Out of scope drugs ordered by TA |
| Cardioversion |
| Combitube |
| ETT - CO2 monitors |
| External Jugular Vein Cannulation |
| External Pacing |
| IV colloid/crystalloid volume expanders |
| Nasopharyngeal Airway |
| Needle Thoracentesis |
| Surgical & needle Cricothyrotomy |
| ECG rhythm interpretation |
| Drug Admin – ET, IO, Rectal |
| F/B removal with Laryngoscope |
| Intraosseous IV |
| Incubator use/monitoring |
| IV infusion devices |
| IV with medication maintenance |
| Manual Defibrillation |
| Nasogastric Tube insertion & suctioning |
| Drug Admin. – IV |
| Endotracheal Intubation |
| Peripheral IV |
| Wound management & fracture  immobilization  Basic airway, wound & fracture management | X  X  X | | X  X  X | | | X  X  X | | X  X  X | | | |
| CPR |  | X |  |  | X |  | X |  |  | X |  |

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Endorsement

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Drug Admin. – IM, SC, Nebulized

Glucometer

Endorsement

Chest Auscultation

Endorsement

Drug Admin. – SL, Inhalation

Endorsement

IV Maintenance

Endorsement

Pulse Oximetry

Endorsement

Blood pressure auscultation/palpation

Drug Admin. – Oral

Emergency childbirth

OPA, Suction, BVM, Oxygenation

Spinal management/immobilization

Assessment: primary & secondary



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| **DRUGS** |  |  |  | |  |  | |  |  | |  |  |
|  | EMR |  | | PCP |  | | ITT |  | | ACP |  |
|  |  |  | | Endorsement |  | | X |  | | Endorsement |  |
| IV Nitroglycerin |
| Meperidine HCL (Demerol) |
| Nitroglycerin Paste |
| Pancuronium Bromide (Pavulon) |
| Adenosine |
| Calcium Chloride |
| Dextrose 50% |
| Dimenhydrinate (Gravol) |
| Furosemide (Lasix) |
| Heparin |
| Ipratropium Bromide (Atrovent) |
| Lidocaine HCL |
| Morphine Sulphate |
| Procainamide (Pronestyl) |
| Acetaminophen |
| Atropine Sulphate |
| Magnesium Sulphate |
| Midazolam (Versed) |
| Sodium Bicarbonate |
| IV Normal Saline |
| Dextrose 10% IV |
| Thiamine (Betaxin) |
| Diphenhydramine (Benadryl) |
| Epinephrine HCL |
| Glucagon |
| Naloxone HCL (Narcan) |
| Oxygen |  | X |  |  | X |  |  | X |  |  | X |  |

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Endorsement

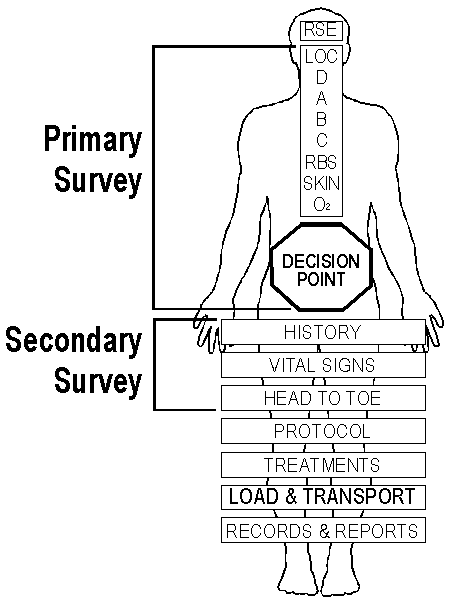
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Salbutamol (Ventolin)

Nitroglycerin

Glucose (Oral)



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**PATIENT ASSESSMENT MODEL**

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  | |
|  |  |  | Rescue Scene Evaluation   |  Primary Survey   |  Secondary Survey, consisting of:   History  Vital signs   Head-to-toe examination  |   Protocols  |   Treatments  Load and Transport   |  Records and Reports |
|  |  |

1. This model depicts a generic management approach without consideration for patient condition. Depending upon patient condition (i.e. stable vs unstable) and the ability to provide definitive care, as outlined in protocols, load and transport may be appropriate any time after the “decision

point”.

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| COMPONENT | STEPS | PURPOSE |
|  |  |  |
| Rescue Scene Evaluation | • Environment  • Hazards  • Mechanism of injury | The purpose of the RSE is to ensure that  the scene is safe for the crew and patient  and to provide information about the nature  and extent of the patient's injuries or  condition. |
| Primary Survey | • LOC  • Delicate spine  • Airway  • Breathing  • Circulation  • Rapid Body  • Survey interventions  • Skin  • Oxygen  • Decision | The purpose of the primary survey is to  identify and manage life- and limb-  threatening injuries and conditions. |
| Secondary Survey | • History  • Vital signs  • Head-to-toe examination | The purpose of the secondary survey is to  identify the patient's chief complaint,  establish a baseline set of vital signs and  gather information about the patient's  injuries and condition. |
| Treatments | • Wound Care  • Fracture management  • Spinal management  • Burn management  • Management of specific   injuries and conditions | Treatments are non-medical procedures  that do not require direct physician  supervision. |
| Protocols | • Various | Protocols allow the EMA to perform medical  procedures that are normally in the domain  of a physician. |
| Load and Transport | • Stretcher  • Reassessment  • Equipment  • Transport mode  • Notification |  |
| Records and Reports | • Forms  • Reports | Reports are used to gather or give  information regarding the patient's status  and treatment. Forms are used to record  assessment and treatment of a patient. |

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**PATIENT ASSESSMENT MODEL**

**GUIDELINES**

The Patient Assessment Model consists of seven components, each of which has a number of steps. The following table lists the steps and the purpose of each component.

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| PRIMARY SURVEY  INTERVENTION | INDICATIONS | |
|  |  |  |
| Cervical spine stabilization | • Mechanism of injury in which injury to the head and neck is possible  • Obvious injury above the level of the clavicles  • Unconscious patients where trauma cannot be reasonably ruled out | |
| Obstructed airway procedures | • Absence of respiration  • Inability to ventilate the patient | |
| Airway maintenance and  suctioning | • Decreased level of consciousness (LOC)  • Presence of fluids or potential obstructions in upper airway | |
| Ventilating the non-breathing  patient | • Absence of respirations | |
| Assisting inadequate or failing  respirations | • Abnormally fast or slow respirations  • Distressed respirations  • Shallow or laboured respirations, especially in the presence of decreasing   LOC or cyanosis | |
| Sealing open chest wounds | • Open chest wounds | |
| Performing CPR | • Absence of carotid pulse | |
| Controlling hemorrhage | • Major hemorrhage | |
| Stabilizing fractures | • Suspected fractures | |
| Realigning limb fractures | • Fractured limbs that are grossly deformed or with no distal pulses | |
| Initiating cooling of burns | • Major burns | |
| Oxygen | • Altered LOC  • Respiratory distress  • Pain  • Trauma  • Evidence of shock (e.g., tachycardia, tachypnea, pallor, cyanosis) | |

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**PATIENT ASSESSMENT MODEL**

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**BLOOD PRESSURE – INFORMATION**

Some Reasons for Errors in Measuring: **1**  **Biological Factors**

***Activity*** - Patient should rest for 5 min to minimize the effects of physical exertion on cardiac output.

Of course, in the pre-hospital setting this is not always possible.

***Position*** - Patient should be sitting/lying comfortably. Support the arm to avoid muscle contractions which may falsely elevate the reading.

***Stress*** - Anxiety about the reading or procedure can raise the reading. Other factors such as pain from an injury can also raise the reading.

**2**  **Environmental Factors**

***Noise*** - When taking blood pressure, try to eliminate surrounding noise. Obviously you cannot stop all traffic on the street, but you can move the patient inside the ambulance to get an accurate

reading. In a person's home you can ask for a few moments of silence.

***Surrounding Objects*** - Move furniture and jump bag etc. so that the blood pressure cuff and stethoscope tubing hangs free.

***Temperature*** - Try to avoid cold temperatures as this may cause constriction of the small arterioles, thereby influencing the reading.

**3**  **Equipment**

***Sphygmomanometer*** - A blood pressure cuff that is not calibrated to zero or one that has tubing leaks will not give accurate readings. The roller valve should be smooth to operate, not sticky and

difficult to "bleed off air".

***Cuff*** - Incorrect cuff size accounts for most errors. Too large a cuff for a child or light adult or too small a cuff for an obese patient are all too often used. A cuff that is too narrow will give a false high

reading. A bulging air bladder through a tear or cut in the cuff also makes the reading inaccurate. ***Stethoscope*** - Cracked or kinked tubing will not transmit sound well. Ear pieces should fit snugly

and comfortably in ears. Diaphragm and bell must be intact. **4**  **Technique**

***Poor technique*** is usually due to inadequate training and/or the development of poor habits. Selection of wrong sized cuff, improper placement of the stethoscope and deflating the cuff too

quickly are common problems. Leaving an inflated cuff in place too long and repeating the procedure with less than 2 minutes between will also lead to inaccurate measurements.

**5**  **Interpretation**

***Digital Preference*** - Individuals have a preference for rounding to certain numbers. This practice has been documented as being common because the incidence of recorded blood pressures ending

in zero, i.e.: 130/70, 120/70, etc. is greater than one would expect by chance. Other people tend to use figures that end in a 5.

***Observer Bias*** - Paramedics and other health care professionals may have an unconscious prejudice about what the reading is going to be. For example, on a call where the patient is an

obese 58 year old on the top floor of a four story walk up, one might expect a higher blood pressure reading. A thin 22 year old female patient would be expected to have a lower reading. The paramedic may also expect a lower blood pressure when rechecking vital signs following administration of Nitroglycerin, when there may be no change or even an increase.

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**BLS TREATMENT - INTRODUCTION**

The intent of the Treatment section is to provide algorithms for many of the treatments that are carried out on a regular basis where protocols do not normally exist. If you require further

information or detail you should refer to the appropriate training manual or reference.

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**WOUND CARE**

**INDICATIONS**

Open and closed wounds.

**IN THE PRIMARY SURVEY**

Expose and examine |

Cover with sterile dressing

|

Control major hemorrhage |

Stabilize injured limb |

Assess distal circulation |

Continue with assessment and treatment

**IN THE TREATMENT COMPONENT**

Bandage major wounds (if not already done) |

Clean and dress minor wounds

|

Apply cold if required

Elevate, if appropriate

Methods of hemorrhage control, in order of preference, include:

Direct pressure

Positioning the part (elevation of the injured part). Should be done only if it will not aggravate other injuries or conditions. Positioning the patient (at rest and supine if other injuries and conditions permit)

Pressure pointsTourniquets

Absence of distal circulation may indicate a limb-threatening injury or condition. Consider managing the patient as unstable and initiating rapid transport.

Cold may be applied if the distal circulation is not impaired. Cold may be applied earlier (i.e. at the end of the primary survey) provided the attendant has checked and compared the circulation in the injured limb with the circulation in the uninjured limb.

Embedded objects should be stabilized in place. Immobilize limbs if there are large wounds or wounds over joints.

attendant has checked and compared the circulation in the injured limb with the circulation in the uninjured limb.

Absence of distal circulation may indicate a limb-threatening injury or condition. Manage the patient as unstable and initiate rapid transport

if distal circulation cannot be restored.

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**FRACTURE MANAGEMENT**

**INDICATIONS**

Suspected limb or joint fractures, dislocations, severe sprains.

**IN THE PRIMARY SURVEY**

Expose and examine |

Control major hemorrhage |

Stabilize fractured limbs

Check distal pulses |

Realign grossly deformed or pulseless limbs

**IN THE PROTOCOL COMPONENT**

Apply Entonox, if appropriate

**IN THE TREATMENT COMPONENT**

Check distal circulation, sensation and function

| Apply cold

|

Apply traction, if appropriate |

Realign angulated long-bone fractures, if appropriate

|

Immobilize the joints above and below the injury site

|

Reassess distal circulation, sensation and function

|

Reapply cold, if appropriate |

Elevate, if appropriate

Cold may be applied if the distal circulation is not impaired. Cold may be applied earlier (i.e., at the end of the primary survey) provided the

Commercially available splints or padded wooden splints as appropriate.

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**TRACTION SPLINT**

**INDICATIONS**

Suspected lower-limb fractures between the mid-shaft femur and the mid-shaft tibia/fibula.

**PROCEDURE**

Assess distal circulation, sensation and function.

Apply cold, if appropriate.

Ensure that patient is supine, with injured leg in line with the body.

Place splint beside injured leg.

Secure thigh strap/bandage.

Apply ankle harness above the malleoli.

7. Apply traction:

a. **Closed, mid-shaft fractures**: 10% of patient's body weight to a maximum of

15 lbs (7 kg).

b. **Open fractures or joint injuries**: Maximum of 5 lbs (2.3 kg).

Ensure adequate padding.

Stabilize limb and splint by applying three elasticized straps.

10. Reassess distal circulation, sensation and function.

**RECOMMENDED TRACTION AMOUNT**

How much traction should I apply? Apply the amount of traction recommended by your medical consultant, or that required by protocol. For adults, the American Academy of

Orthopedic Surgeons recommends gentle traction to a maximum of 7 kg (15 pounds). A general rule of thumb is 10% of the patients’ body weight. For example; if a patient weighing

45 kg (100 pounds) has a single fracture, the appropriate amount of traction would be 4.5 kg (10 pounds). For infants and children (≥ 1 year of age to puberty), the maximum recommended is 3.5 kg (7.5 pounds).

body is secured

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**SPINAL MANAGEMENT**

**INDICATIONS**

Patients where spinal injury is suspected or likely because of the mechanism or nature of injury, or unconscious patients where trauma cannot be reasonably ruled out.

**IN THE PRIMARY SURVEY**

Stabilize the head and neck

**IN THE TREATMENT COMPONENT**

Apply hard collar |

Place patient on spinal

immobilization device |

(If Required) Loosen hard collar and align head and neck

to neutral position |

(If Required) Re-apply hard collar

|

Secure patient's body to spinal immobilization device, if

appropriate |

Secure head to spinal immobilization device once

1. Patients should be placed in an approximation of the neutral position, without lifting the head off the ground if the patient is supine and a

hard collar should be applied. Once the patient is on the spinal immobilization device, the collar should be loosened and the head placed in the neutral position and padded as necessary. A properly sized and fitted hard collar should be applied. The anatomical (neutral)

position of the spine is a straight line from head to toe without flexion, extension or rotation.

|

After cooling is complete, cover wounds with dry, sterile, non-stick dressings (e.g., telfa, polygauze). Bandage as required.

(i.e. at the end of the primary survey), provided the attendant has checked and compared the circulation in the injured limb with the

circulation in the uninjured limb.

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**BURN MANAGEMENT**

**INDICATIONS** All burn injuries.

**IN THE PRIMARY SURVEY**

Expose and examine

| Initiate cooling

| High-flow oxygen

Calculate BSA

**IN THE TREATMENT COMPONENT**

Dress wounds |

Use pain control measures (e.g. cold, Entonox),

if appropriate

Cool major burns with water for a total of 10 minutes

Flush chemical burns with water for a minimum of 20 minutes to stop burning and remove the source of the burns.

Cold therapy should not be used on major burns. Cold may be applied if the distal circulation is not impaired. Cold may be applied earlier

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**HYPOTHERMIA**

**INDICATIONS**

Suspected hypothermia because of mechanism of injury, history, presentation of the patient or the rectal temperature.

**IN THE PRIMARY SURVEY**

Assess and maintain the ABCs as necessary |

Ventilate the non-breathing, severely hypothermic patient at a rate of 8 – 10 per minute

|

Take up to 60 seconds to determine pulselessness in the severely hypothermic patient

|

Remove wet and cold clothing and cover with blankets or dry clothing

| Oxygen

|

Rapid transport |

Take temperature |

**Mild hypothermia (≥30 C & <35 C)**  Actively rewarm patient:

Mild activity (if appropriate)

Preheat the interior of ambulance to 30 C Use hot packs wrapped in towels

Warm blankets |

**Severe hypothermia (<30 C)** Insulate patient to prevent further heat loss

Heat ambulance to 30 C Avoid rough handling

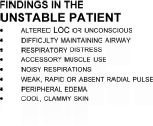
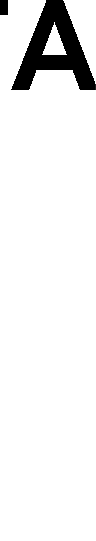
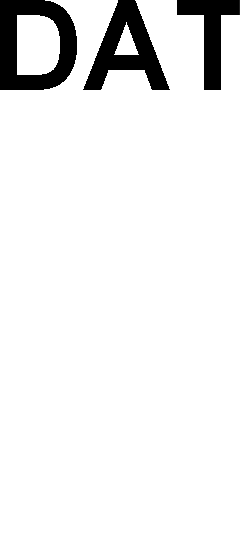
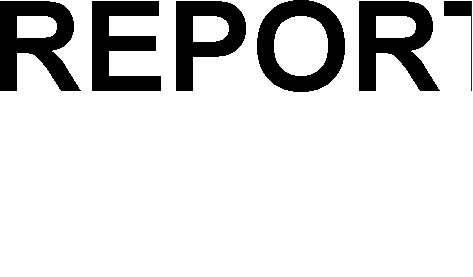
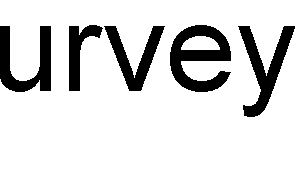
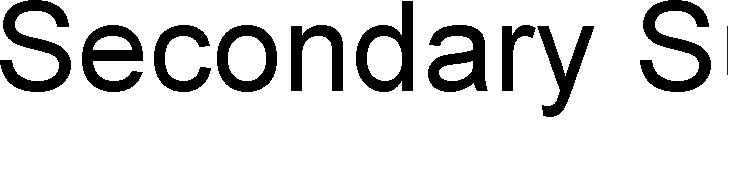
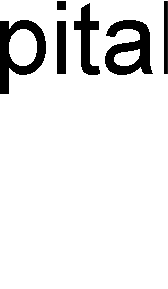
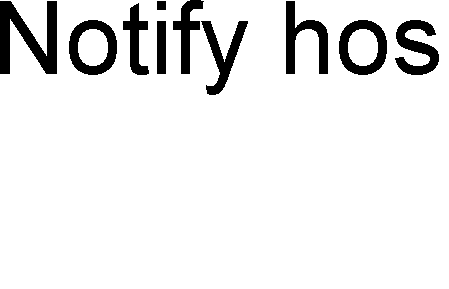
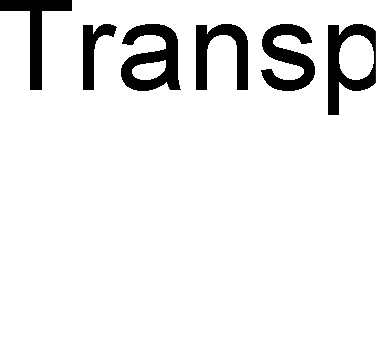
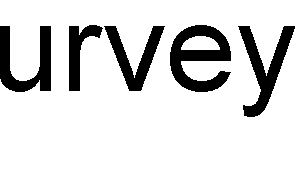
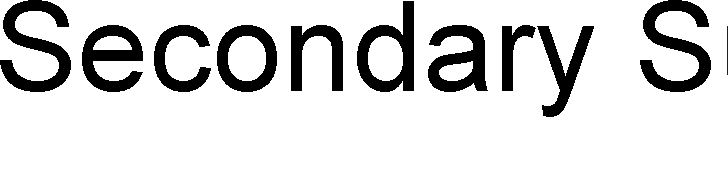
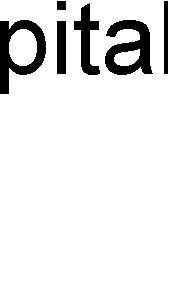
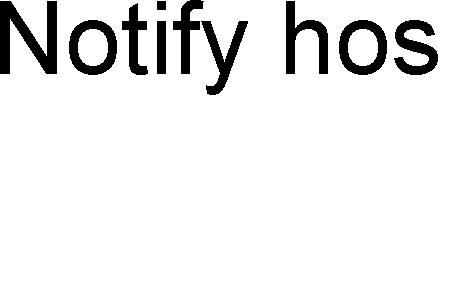
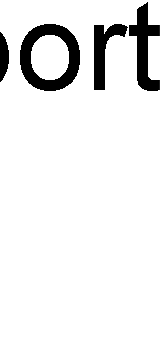
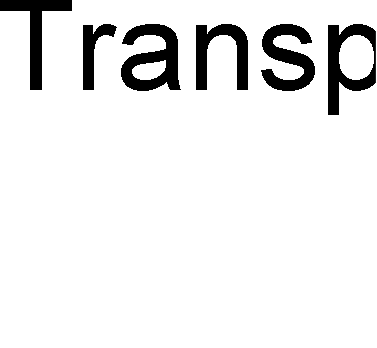
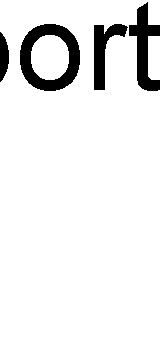
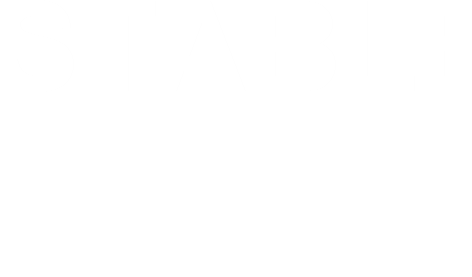
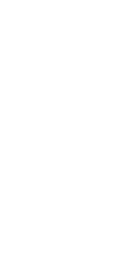
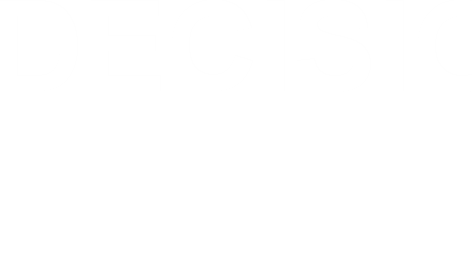
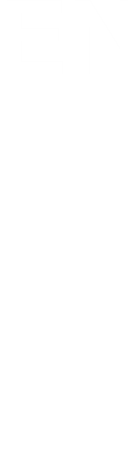
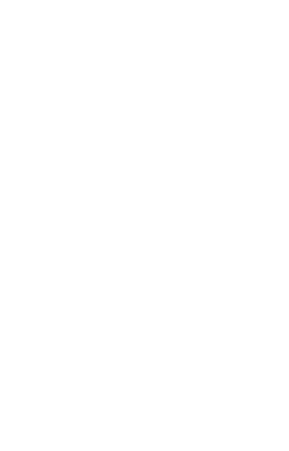
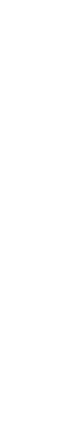
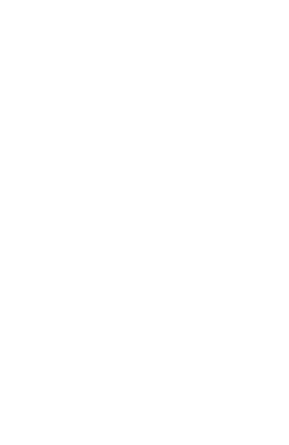
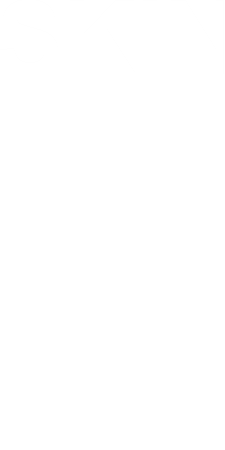
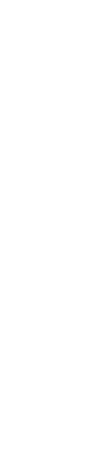
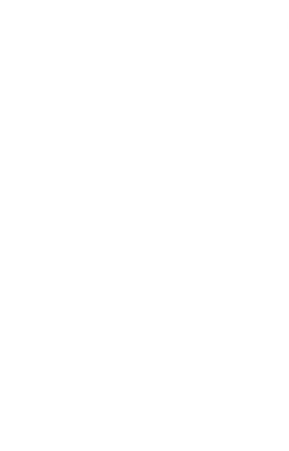
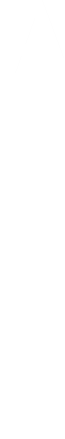
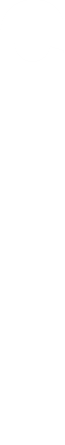
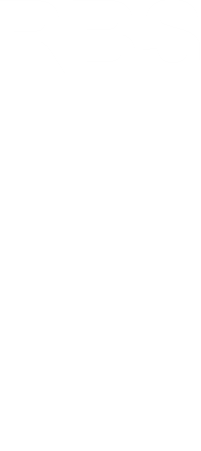
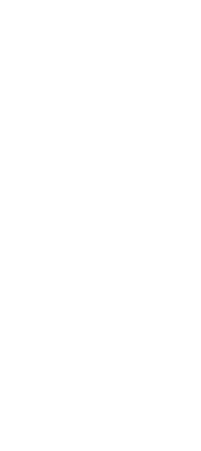
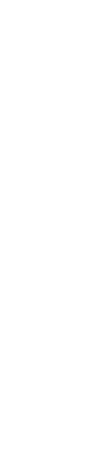
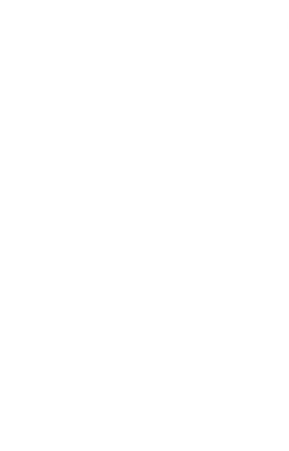
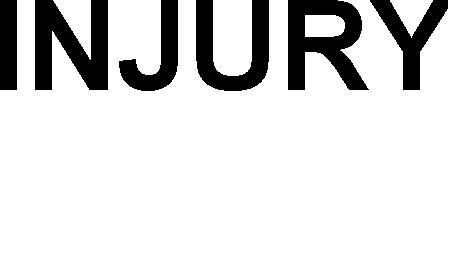
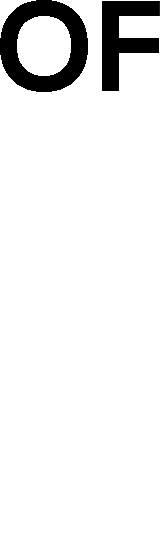
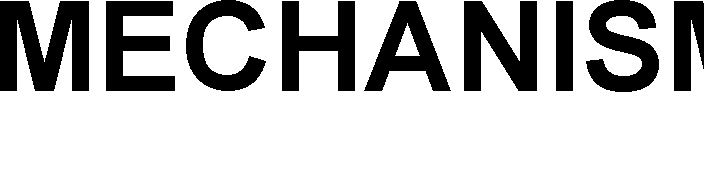
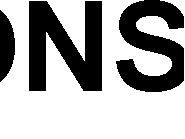
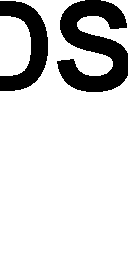
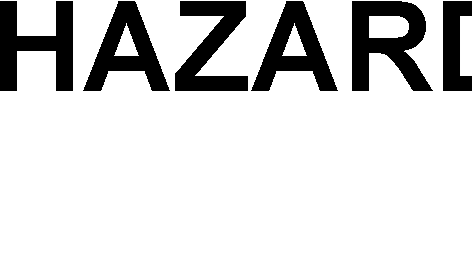
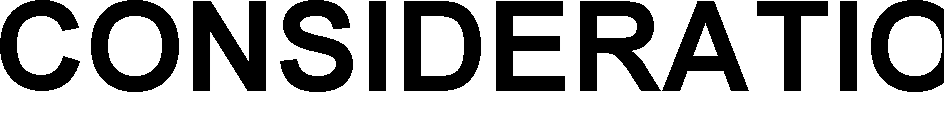
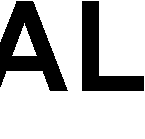
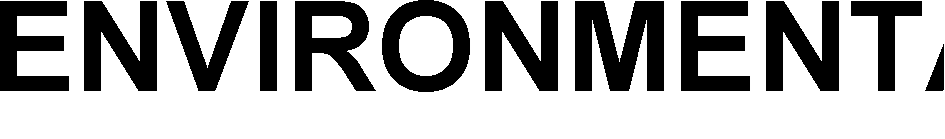
Do not actively rewarm

**IN THE PROTOCOL COMPONENT**

Maintain Basic Life Support measures and transport to hospital

Administer oxygen using caution in severe hypothermia regarding its potential cooling effects.

Take core (rectal) temperature if thermometer is available.

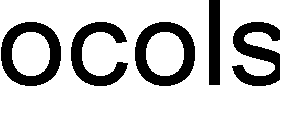
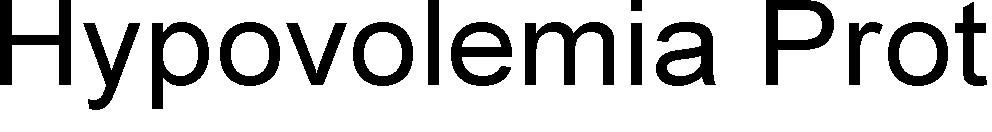
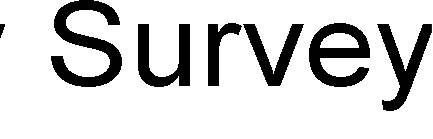
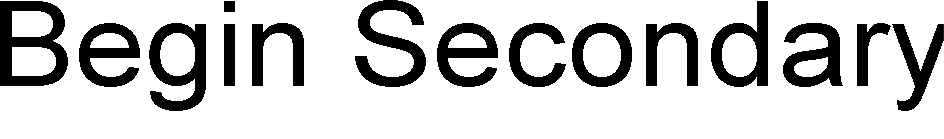
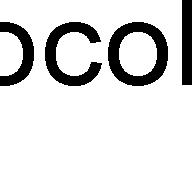
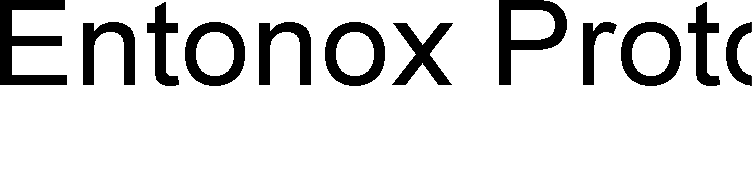
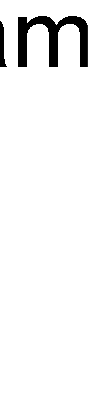
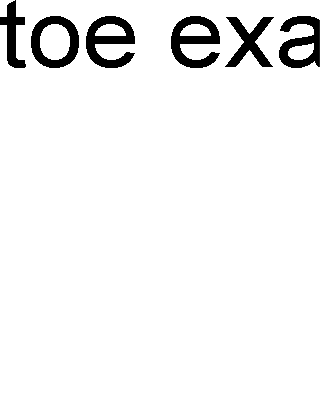
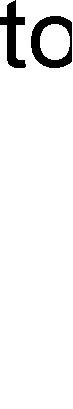
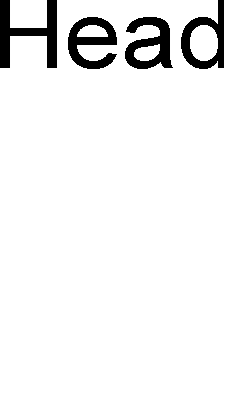
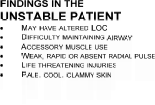
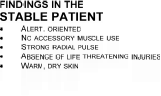
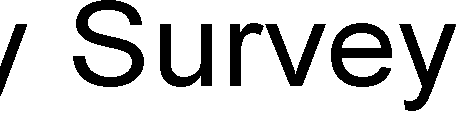
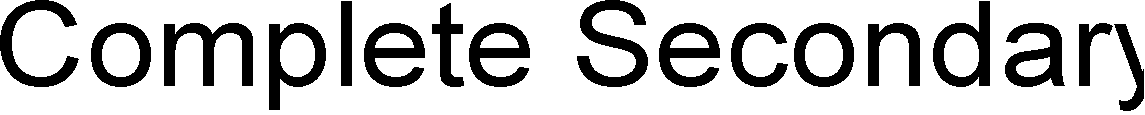
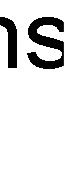
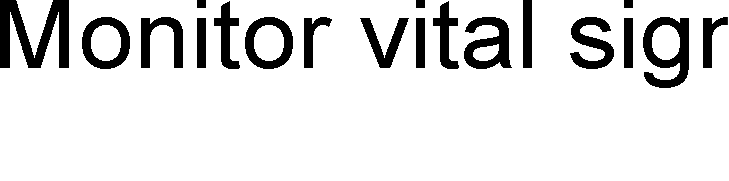
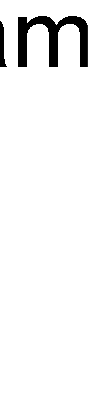
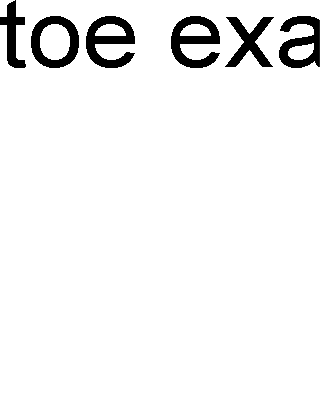
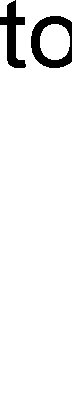
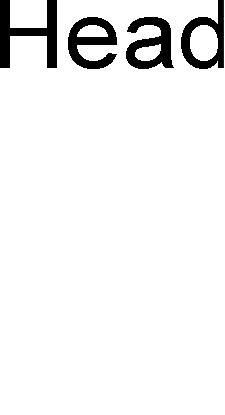
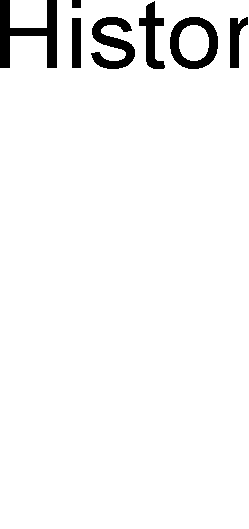
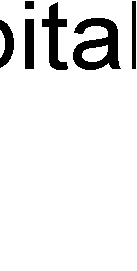
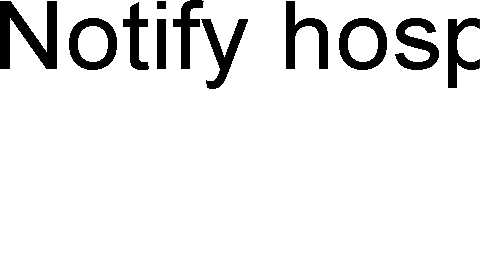
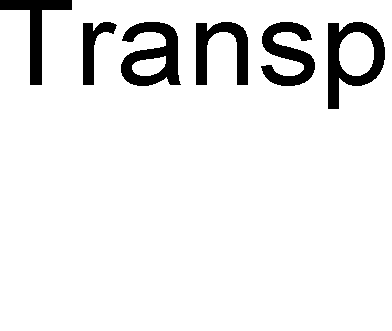
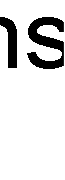
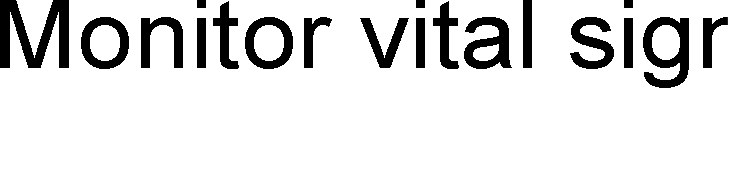
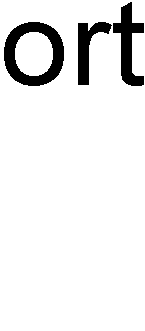
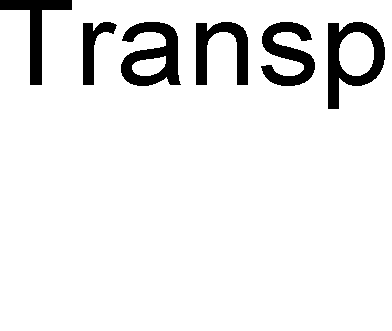
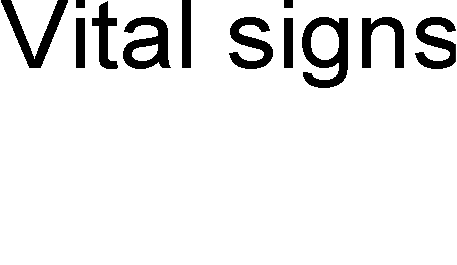
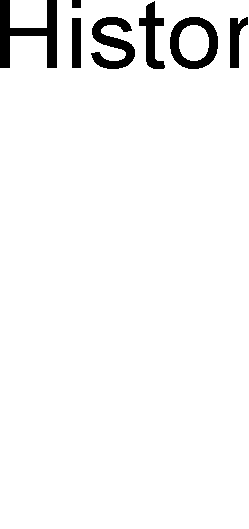
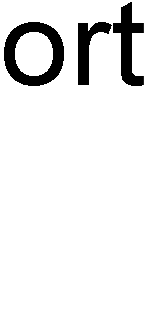
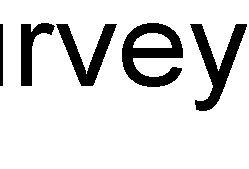
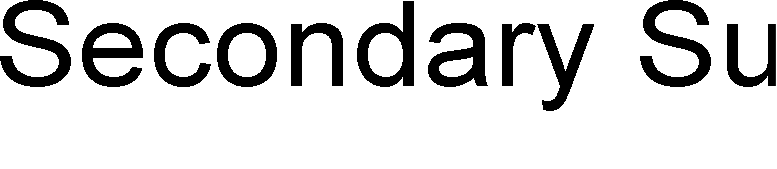
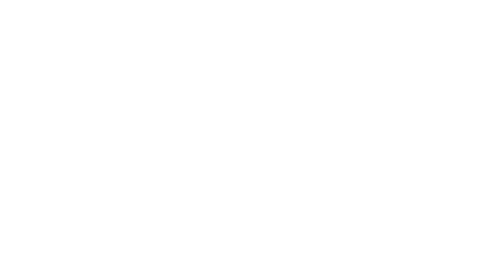
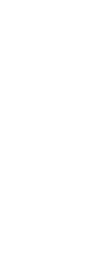
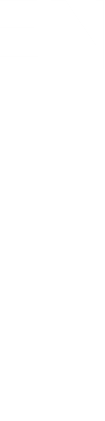
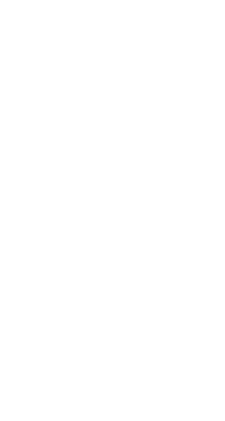
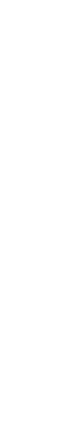
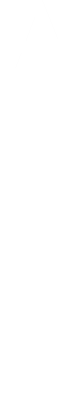
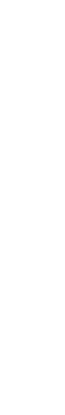
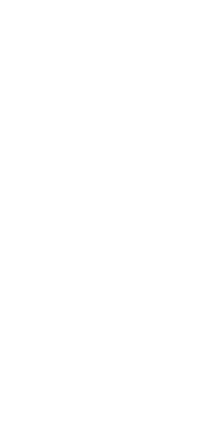
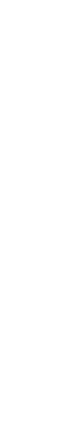
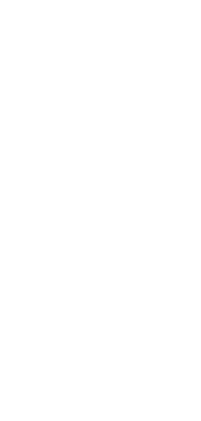
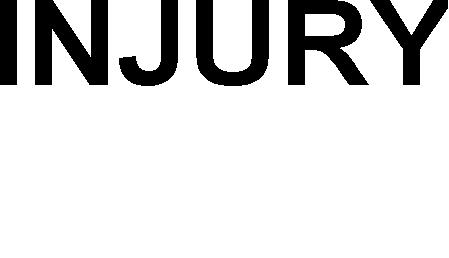
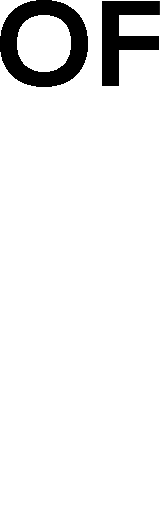
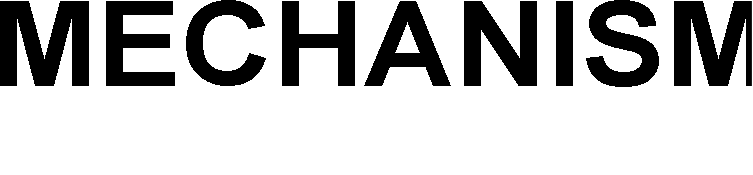
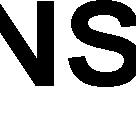
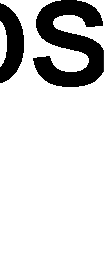
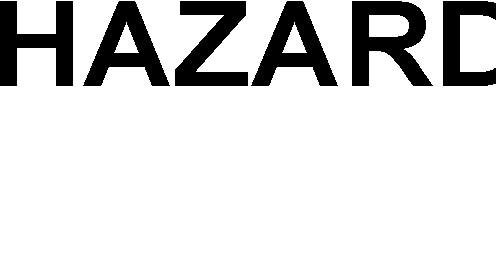
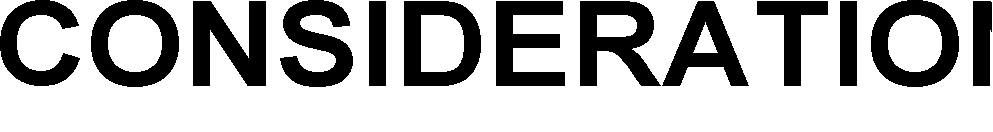
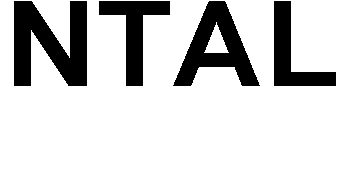
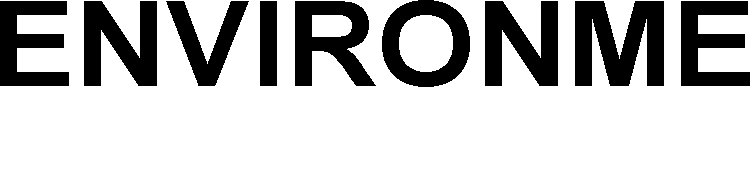
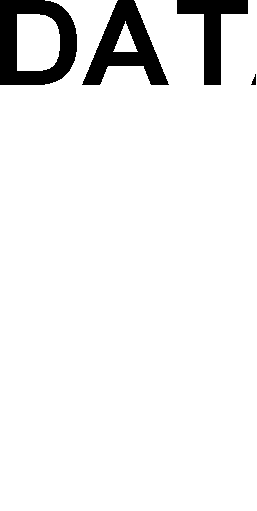
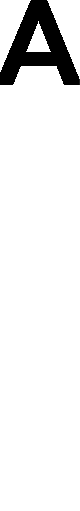
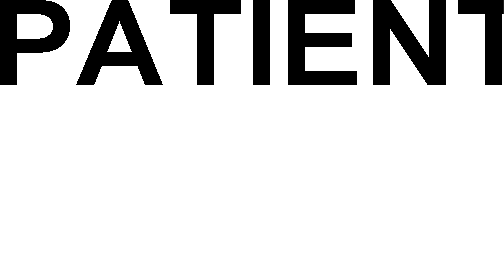
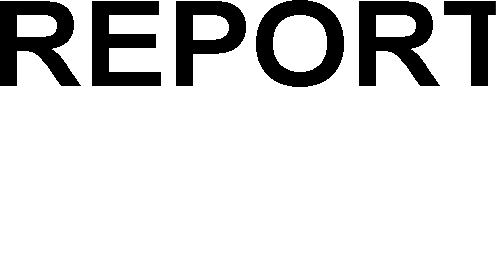
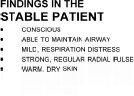


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EMA Licensing Ministry of Health

Provincial Protocol Guidelines

**CONGESTIVE HEART FAILURE OR PULMONARY EDEMA – FLOWCHART**



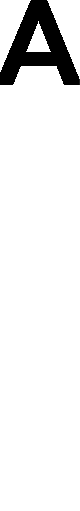
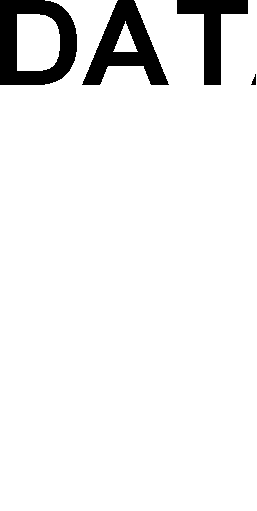
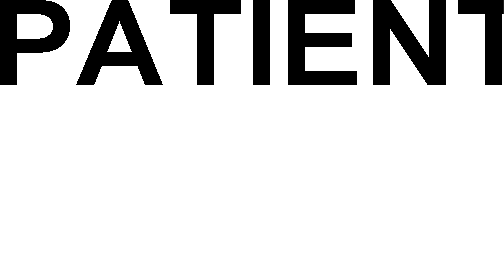
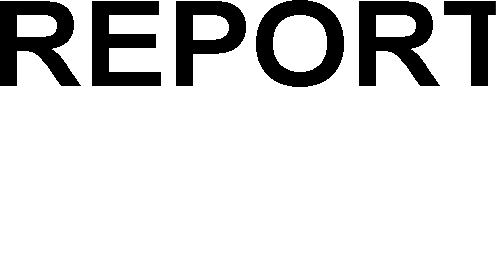
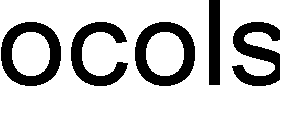
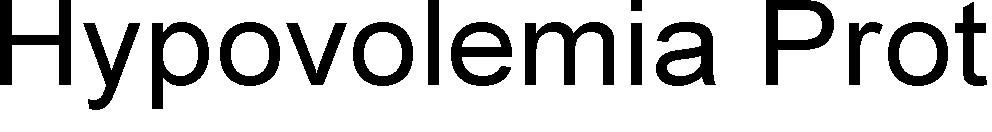
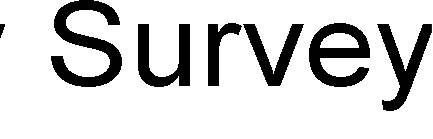
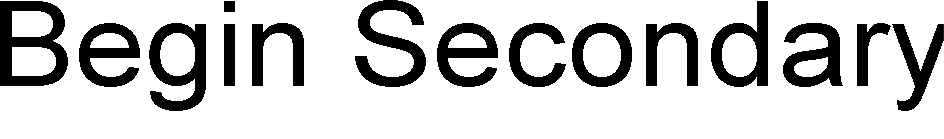
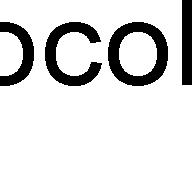
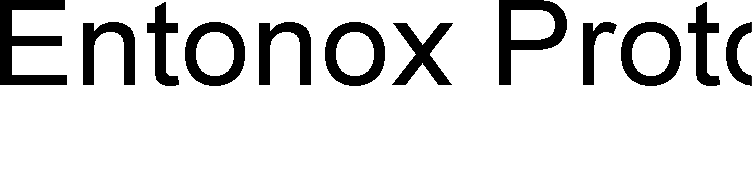
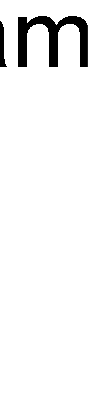
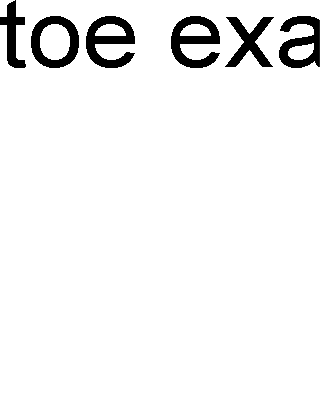
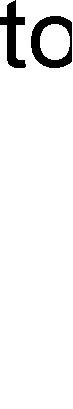
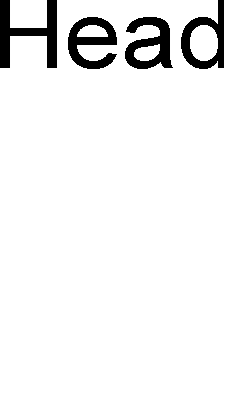
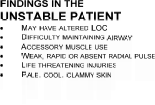
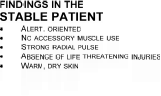
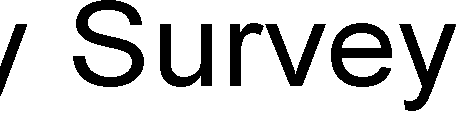
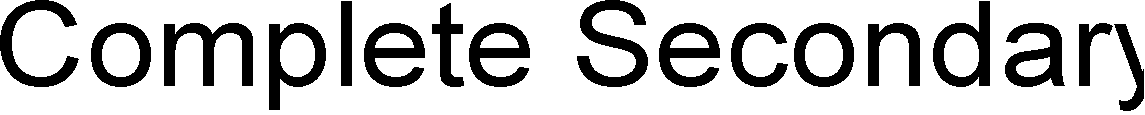
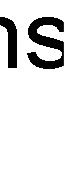
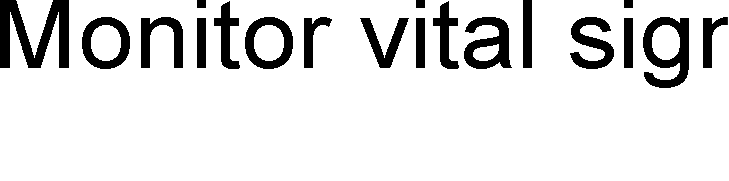
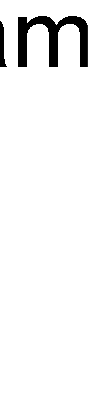
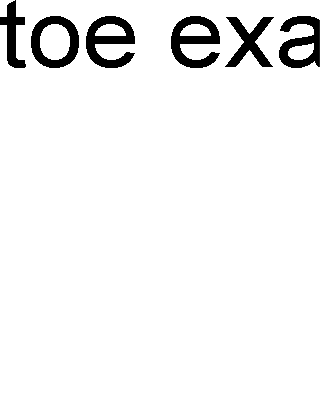
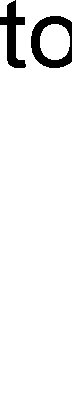
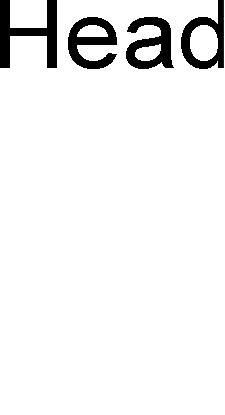
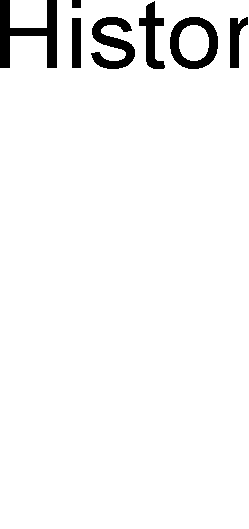
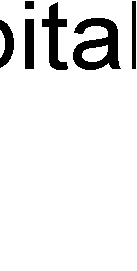
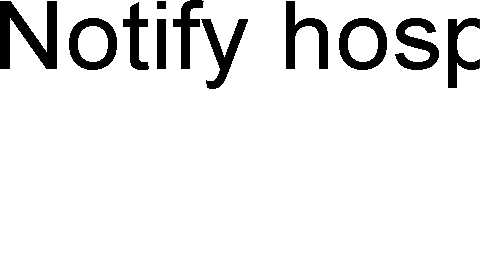
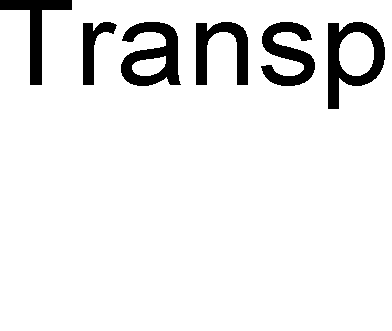
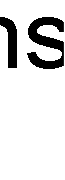
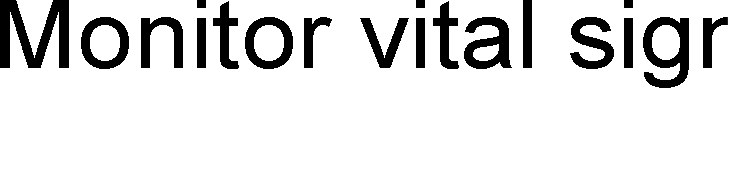
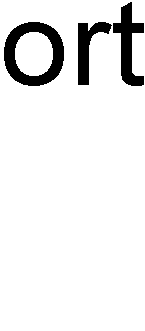
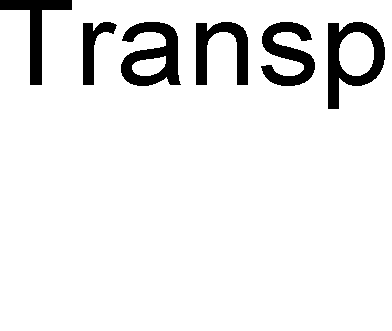
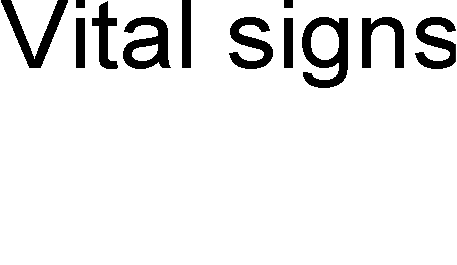
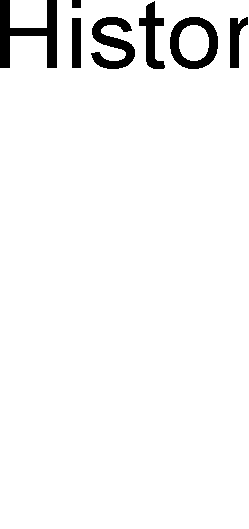
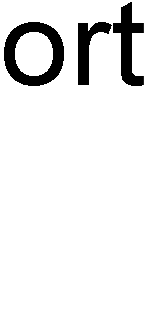
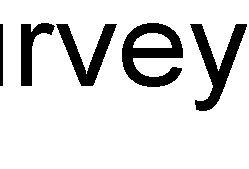
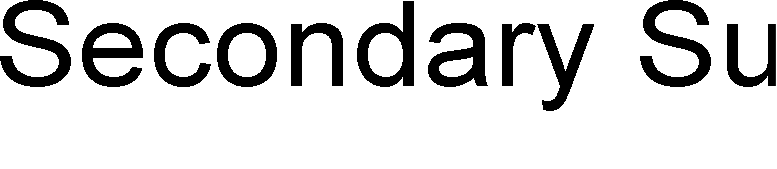
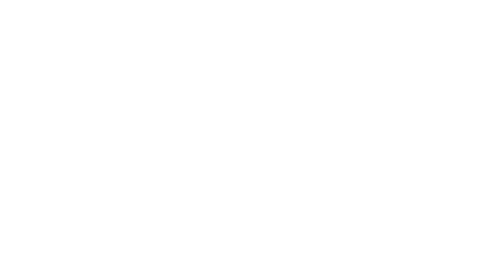
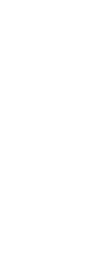
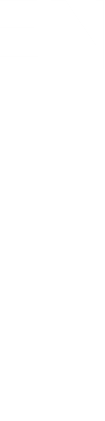
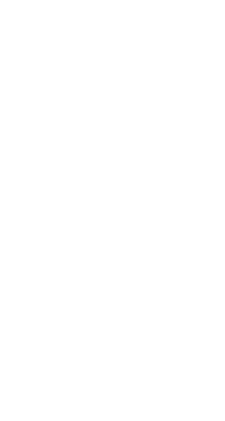
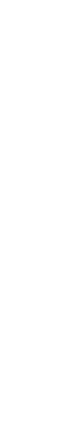
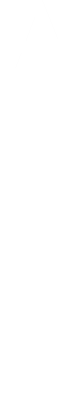
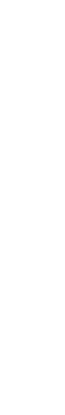
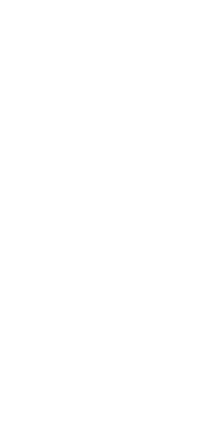
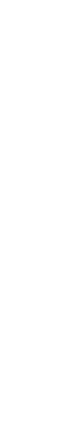
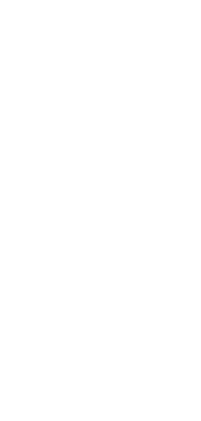
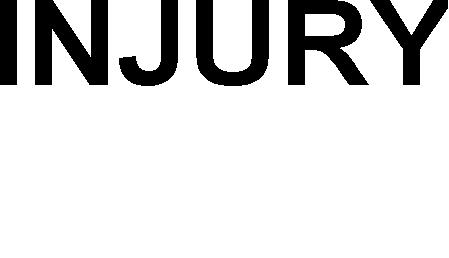
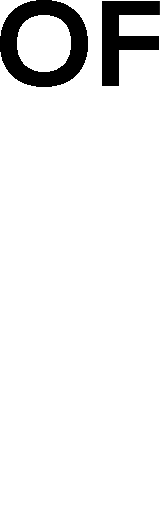
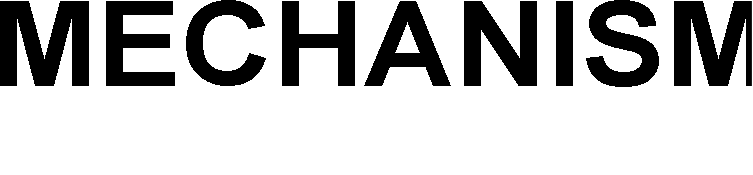
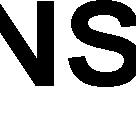
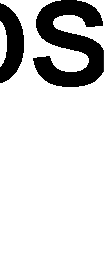
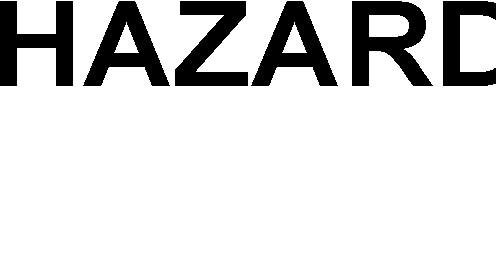
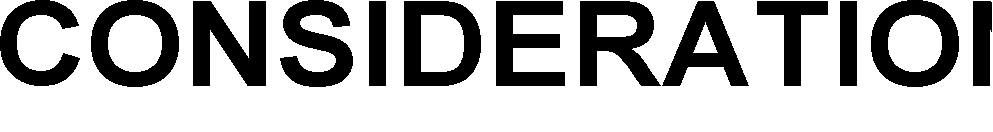
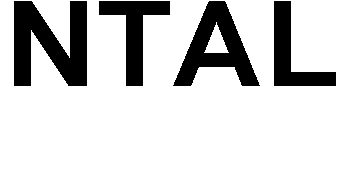
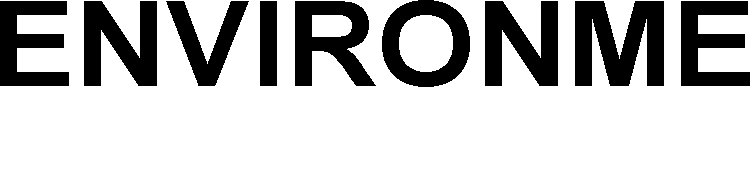
- 19 -

EMA Licensing Ministry of Health

Provincial Protocol Guidelines

**CHEST TRAUMA - FLOWCHART**

If electricity involved, ensure source of electricity is removed from the patient and the rescue area. Call appropriate public safety agencies for assistance if needed. Maintain appropriate body substance isolation precautions.

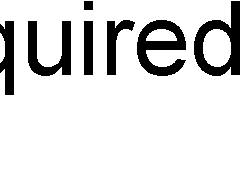
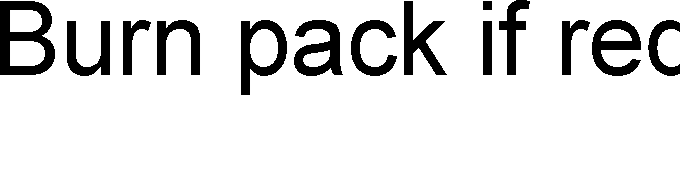
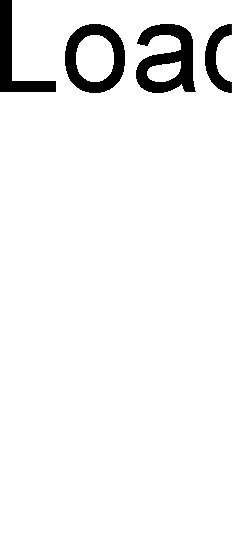
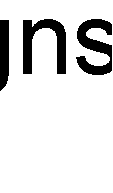
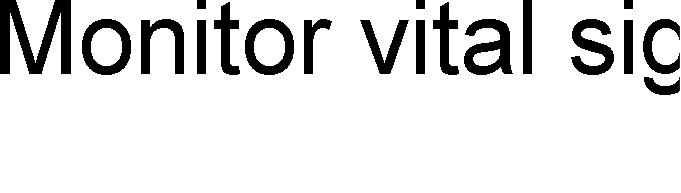
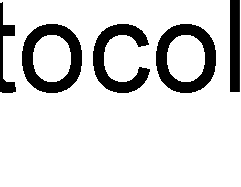
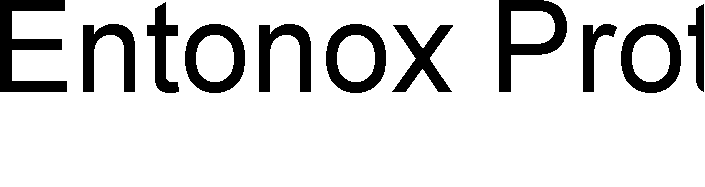
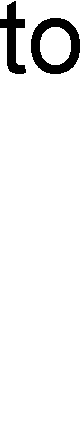
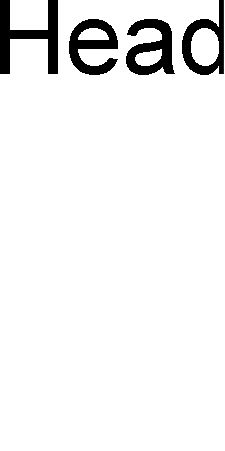
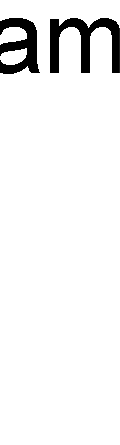
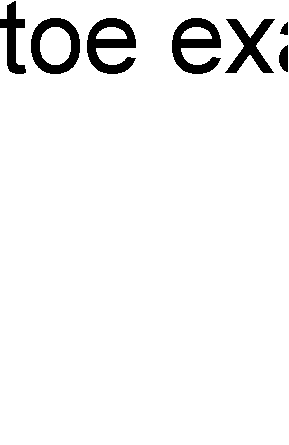
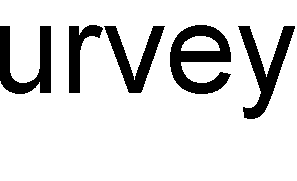
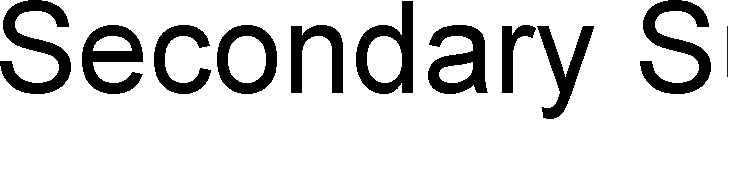
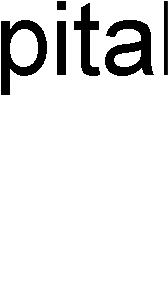
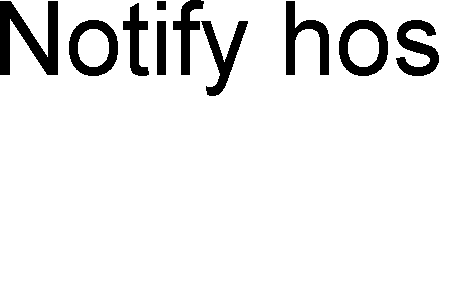
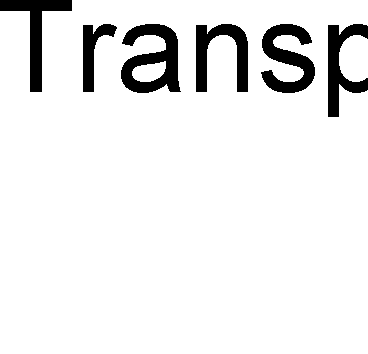
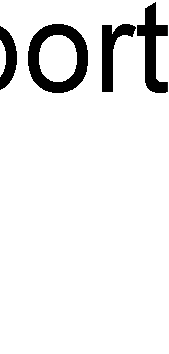
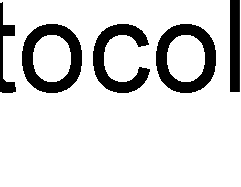
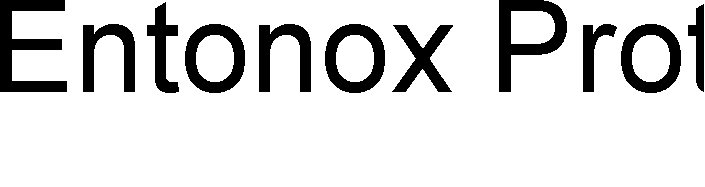
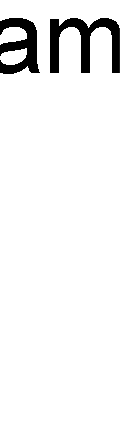
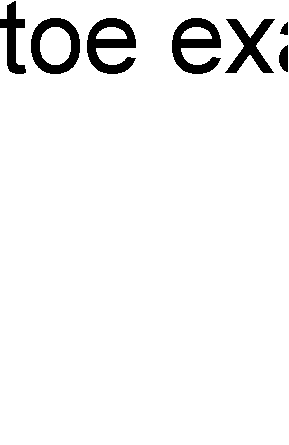
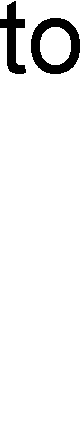
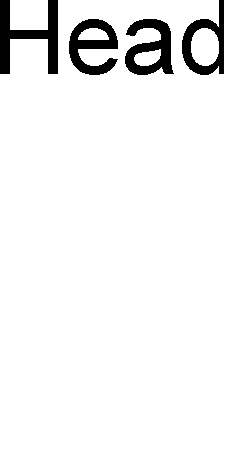
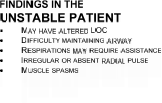
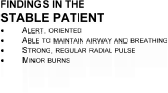
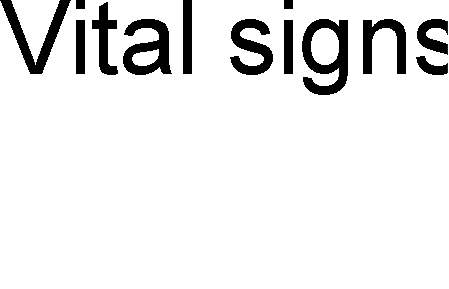
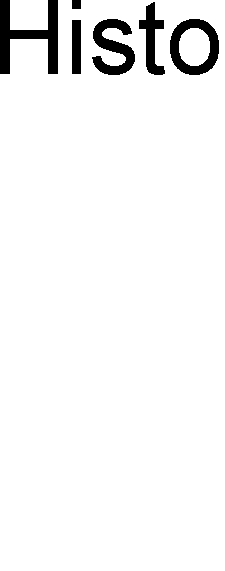
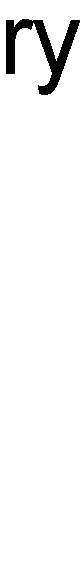
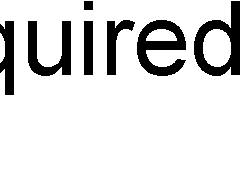
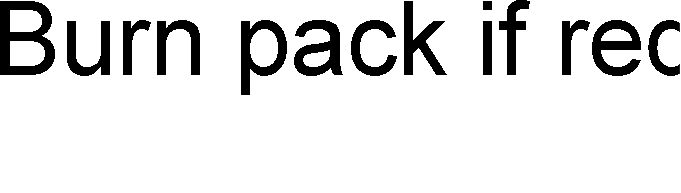
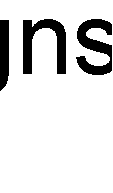
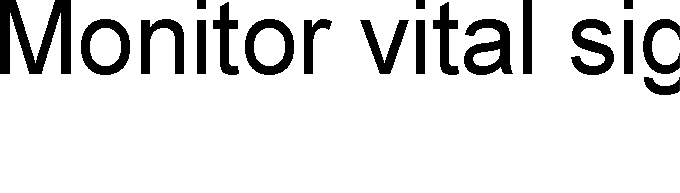
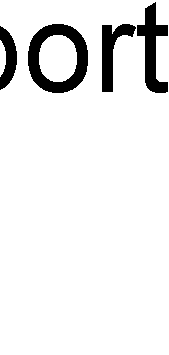
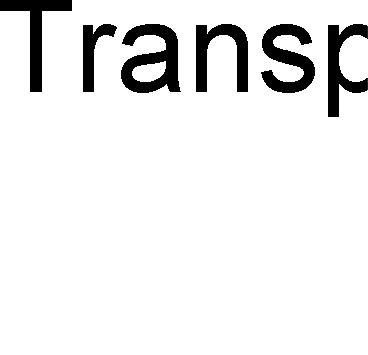
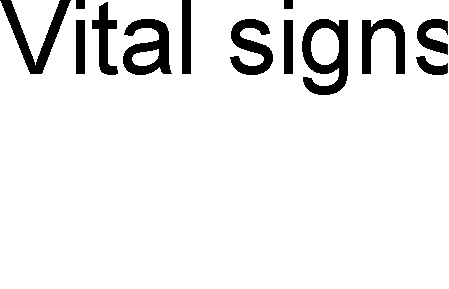
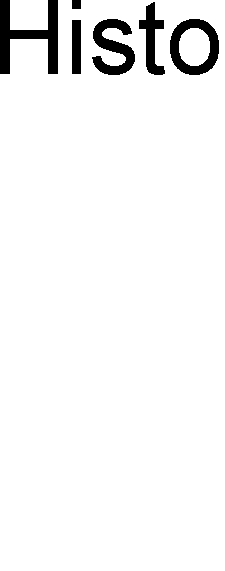
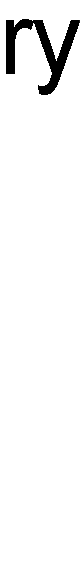
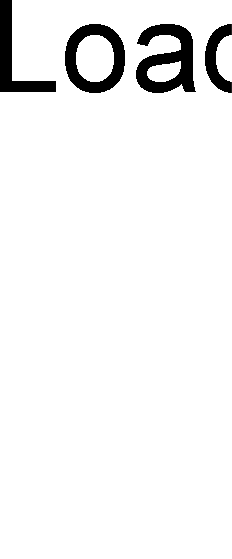
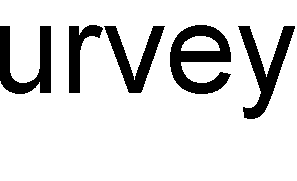
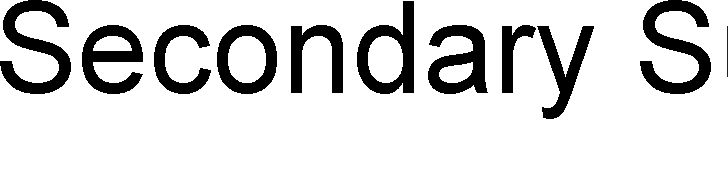
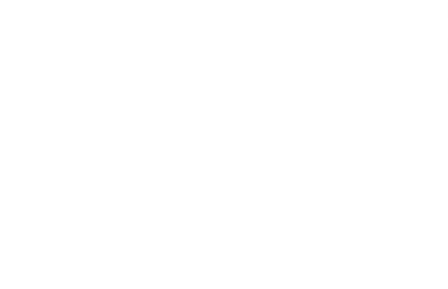
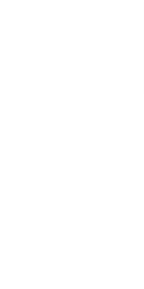
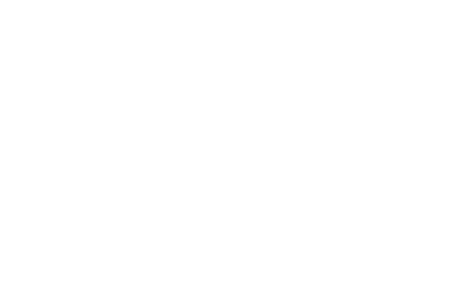
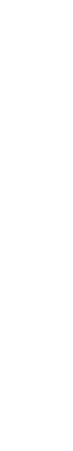
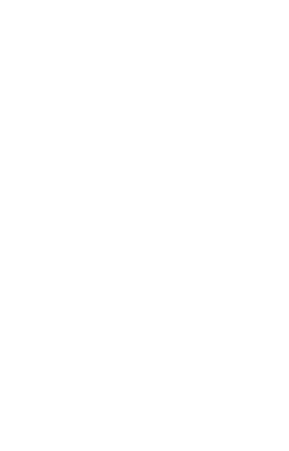
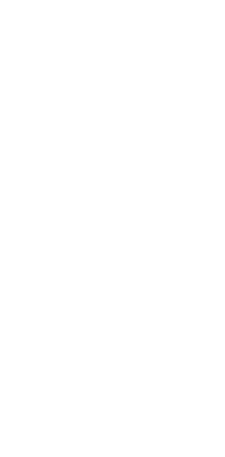
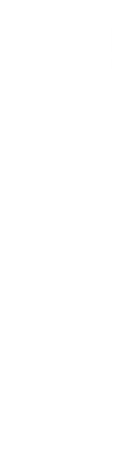
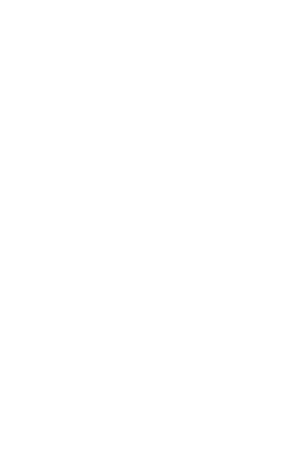
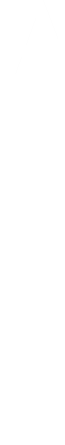
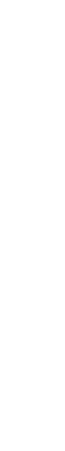
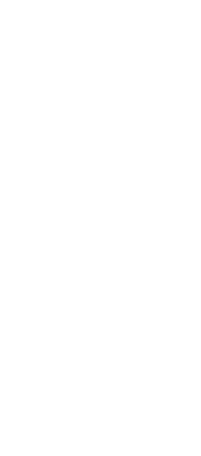
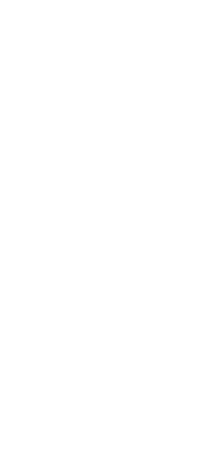
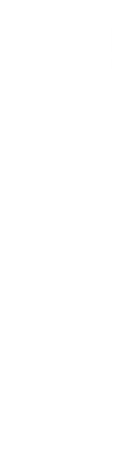
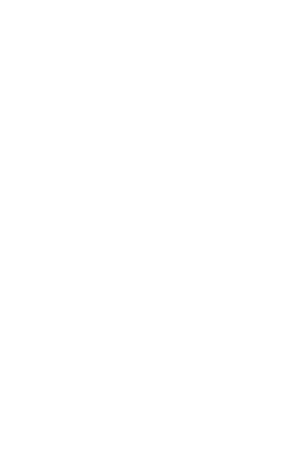
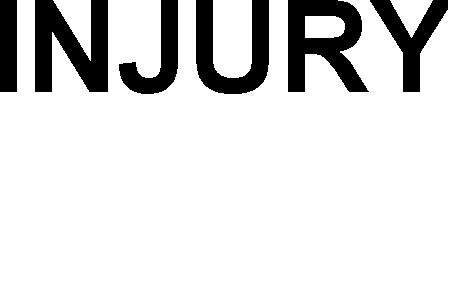
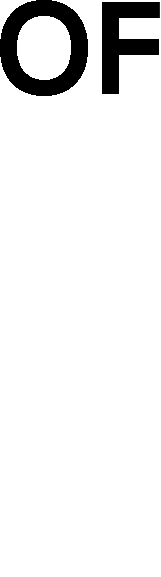
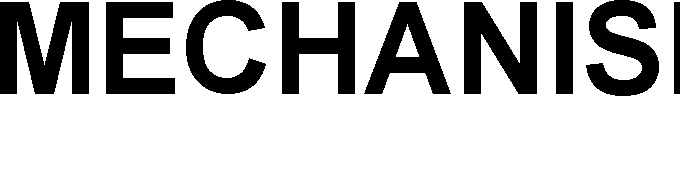
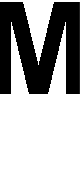
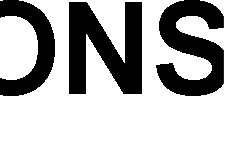
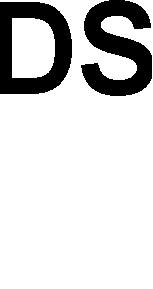
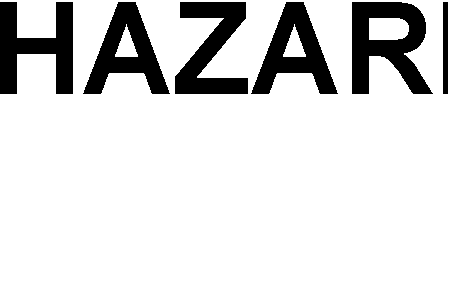
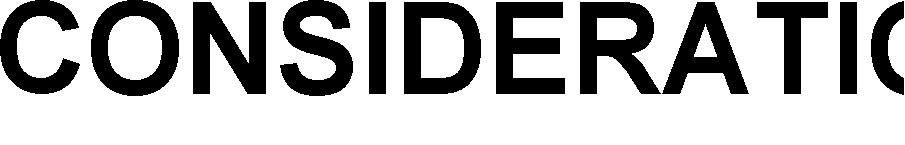
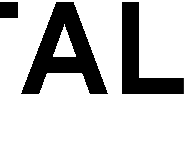
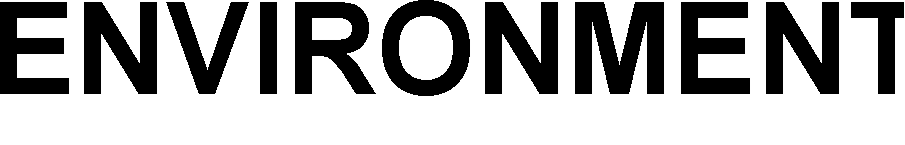
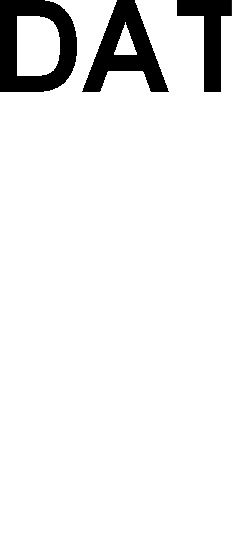
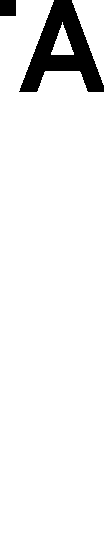
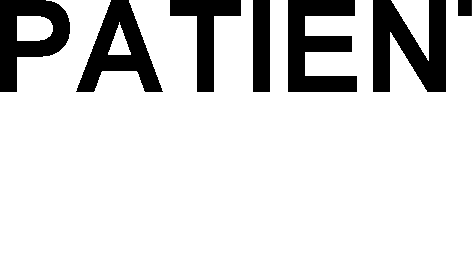
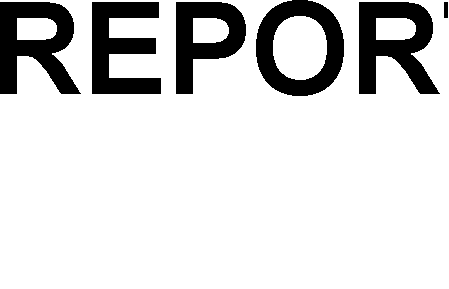
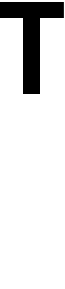


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EMA Licensing Ministry of Health

Provincial Protocol Guidelines

**ABDOMINAL INJURIES – FLOWCHART**



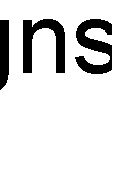
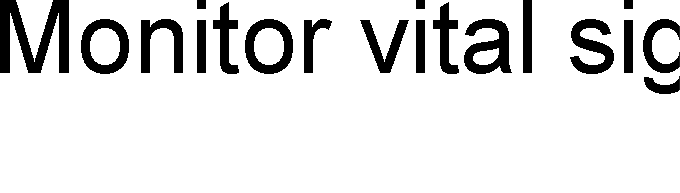
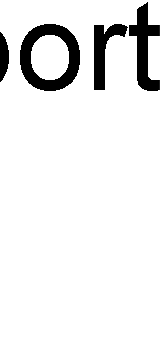
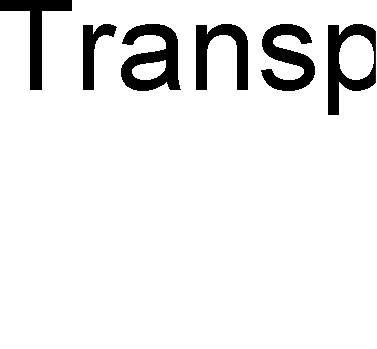
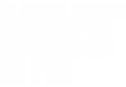
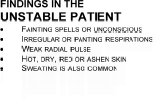
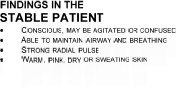
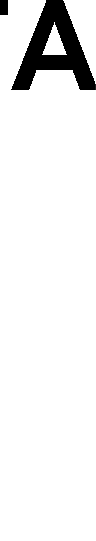
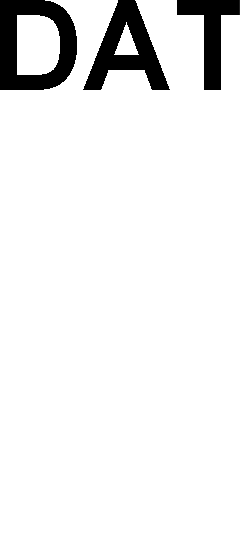
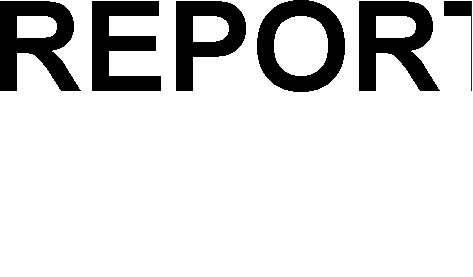
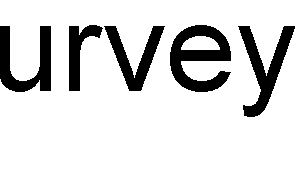
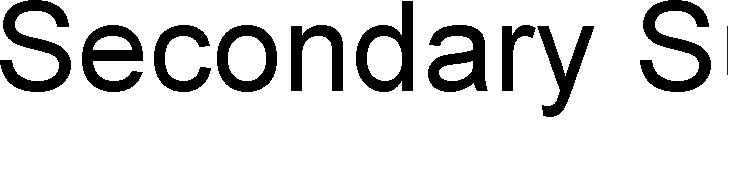
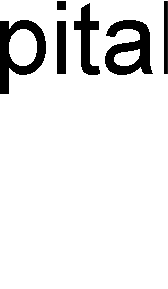
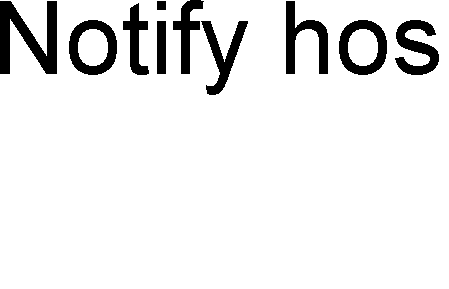
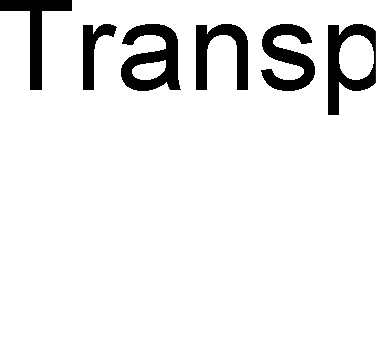
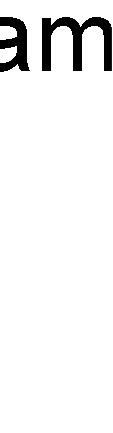
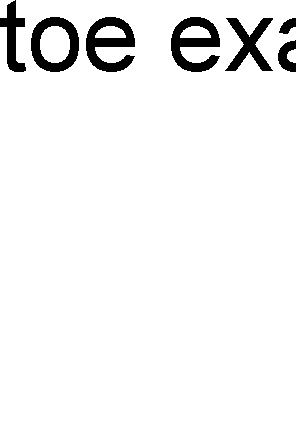
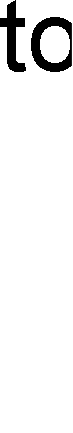
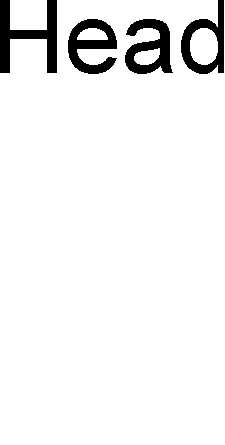
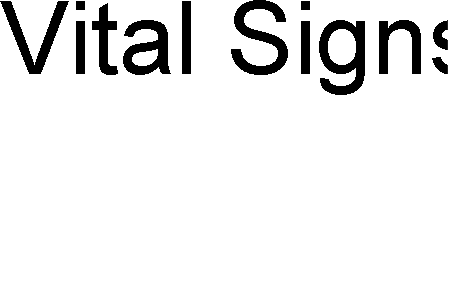
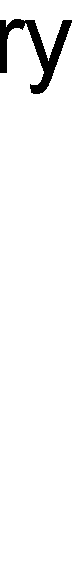
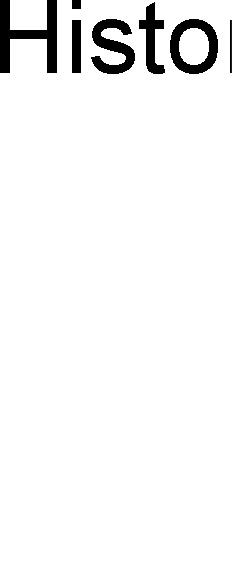
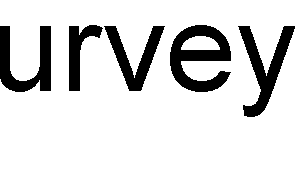
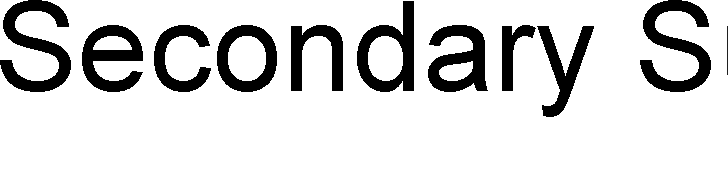
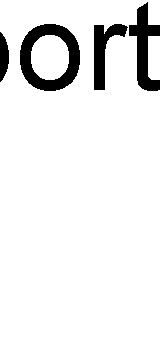
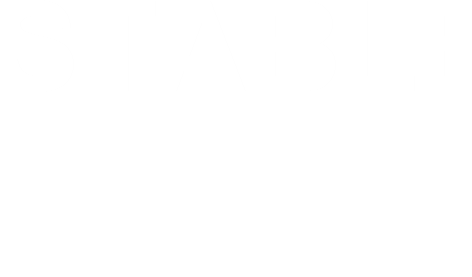
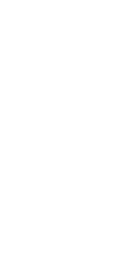
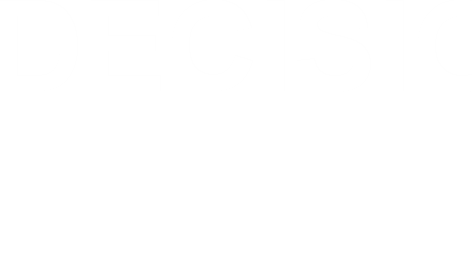
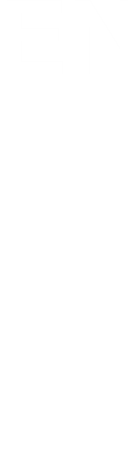
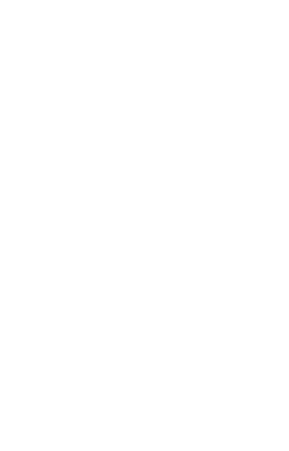
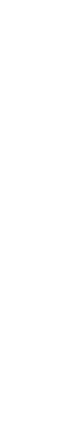
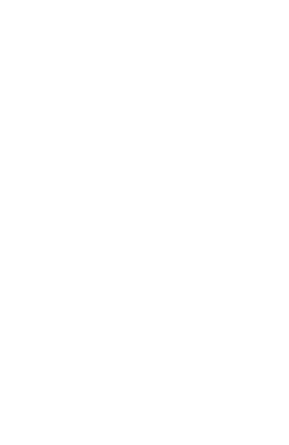
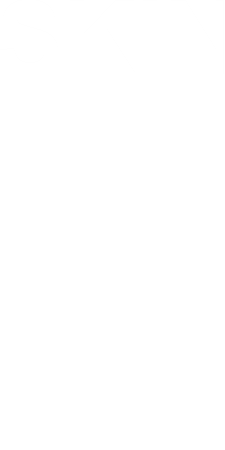
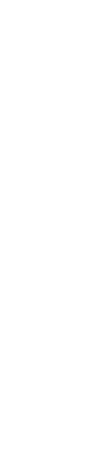
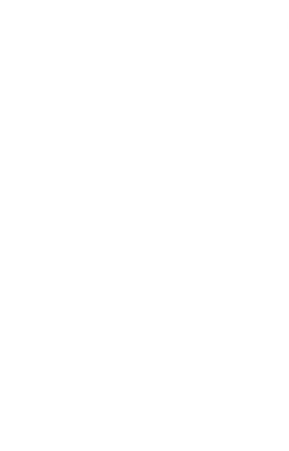
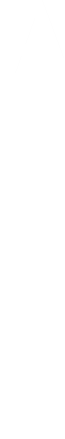
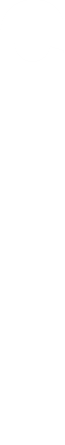
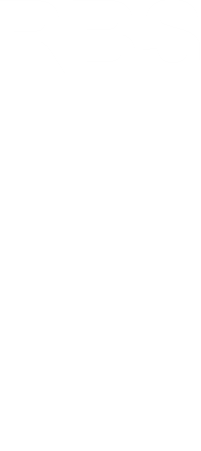
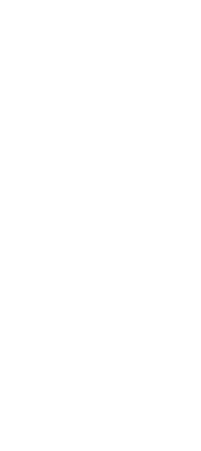
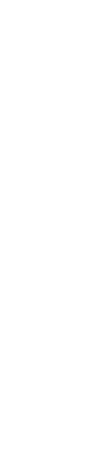
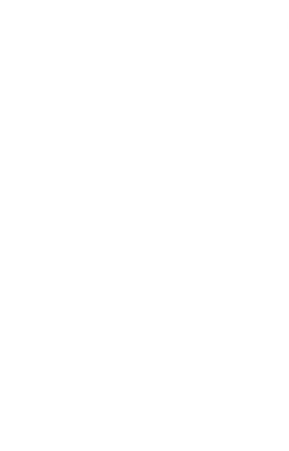
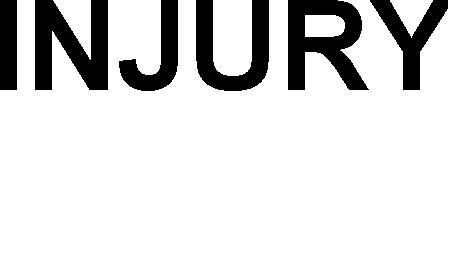
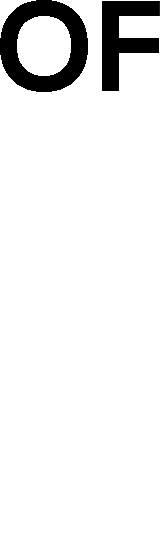
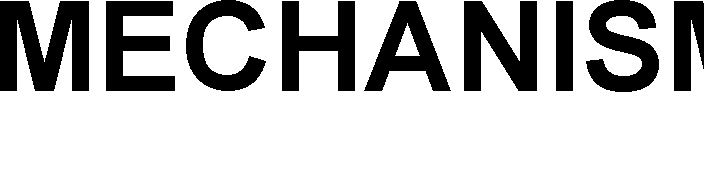
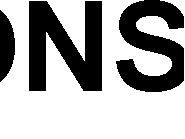
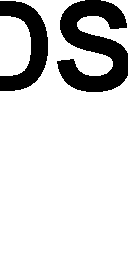
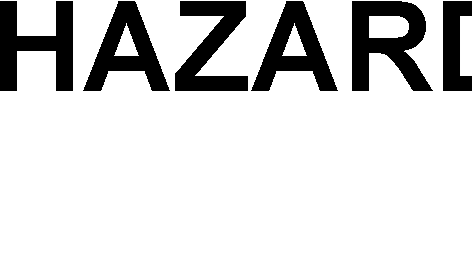
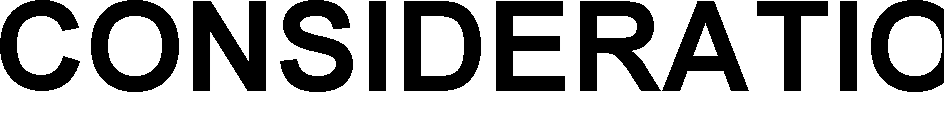
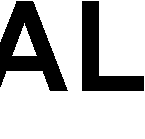
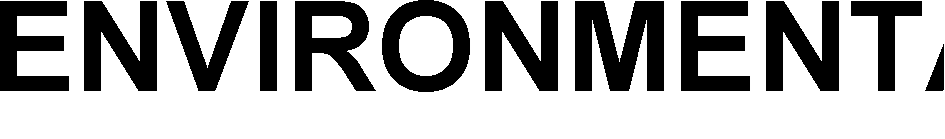
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EMA Licensing Ministry of Health

Provincial Protocol Guidelines

**ELECTRICAL CONTACT – FLOWCHART**

Ensure source of electricity is removed from the patient and the rescue area. Call appropriate public safety agencies for assistance if needed.

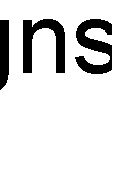
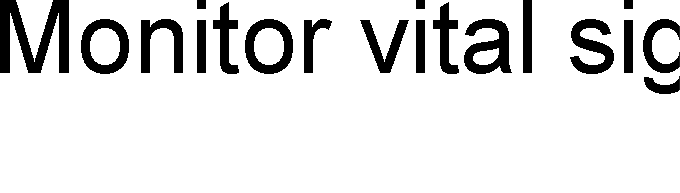
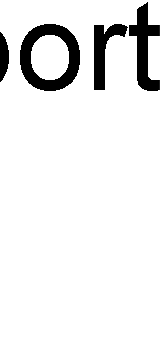
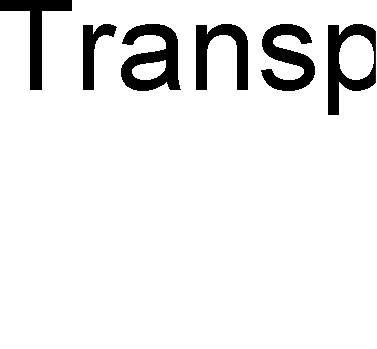
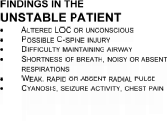
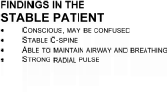
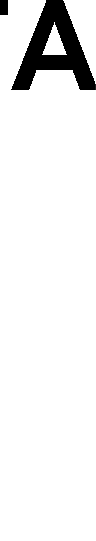
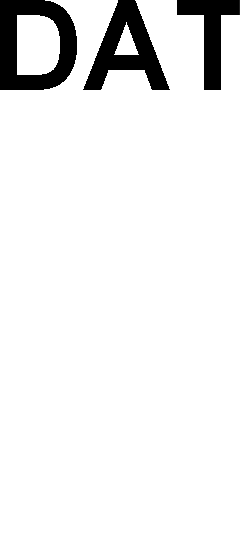
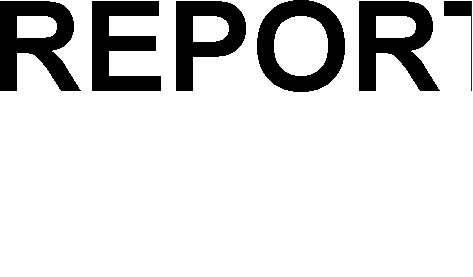
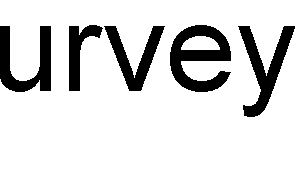
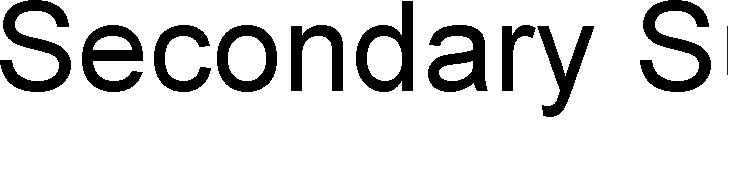
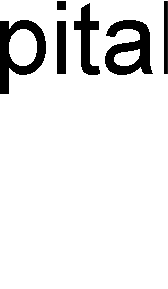
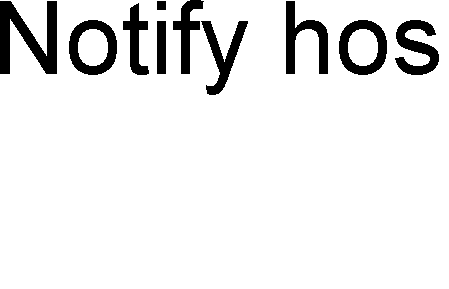
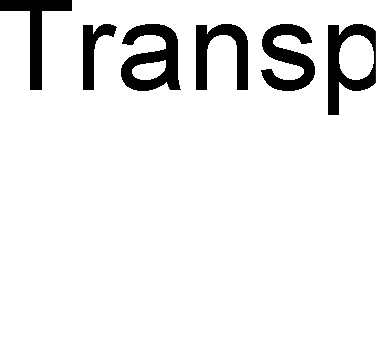
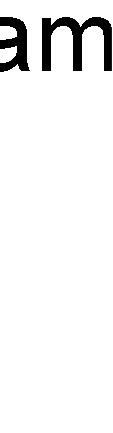
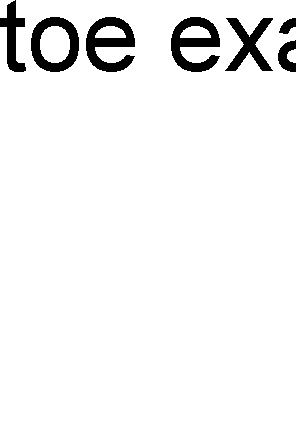
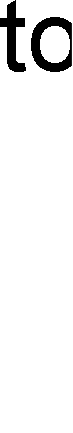
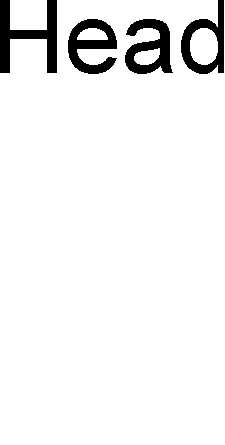
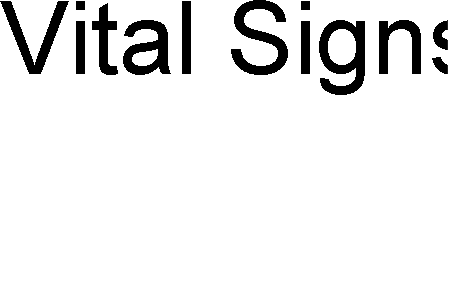
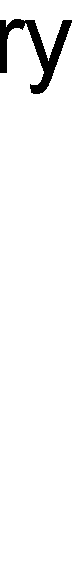
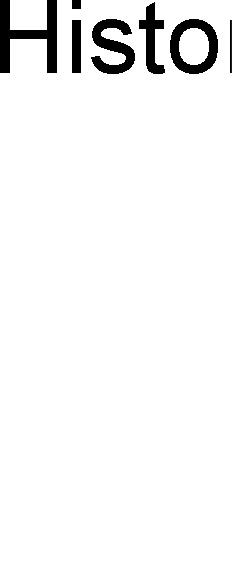
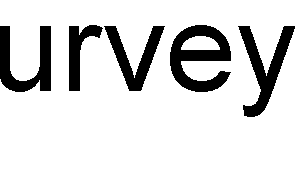
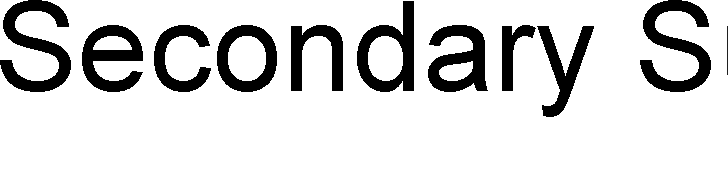
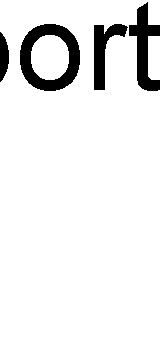
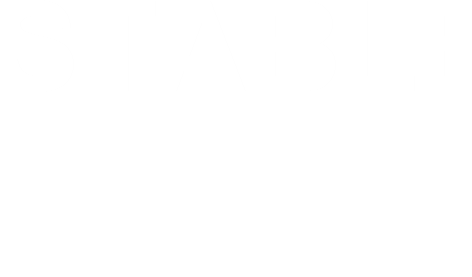
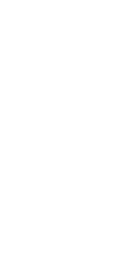
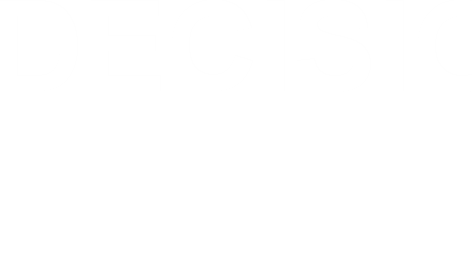
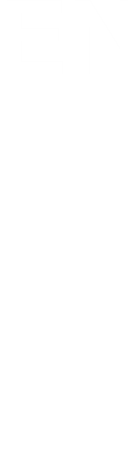
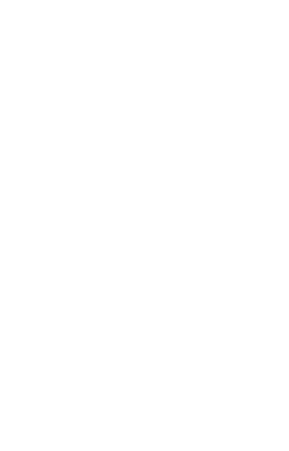
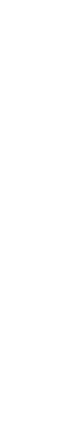
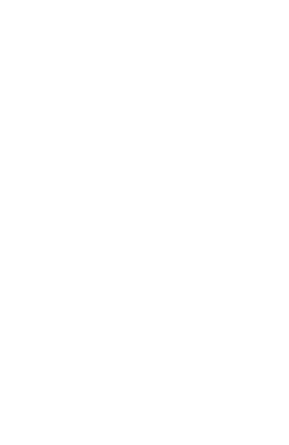
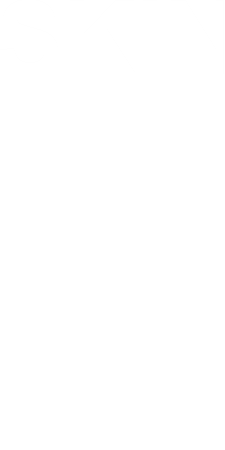
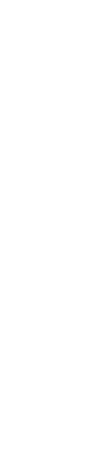
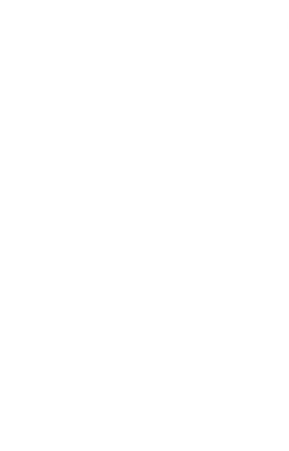
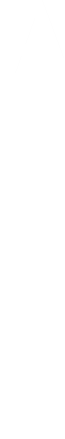
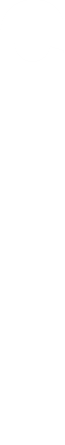
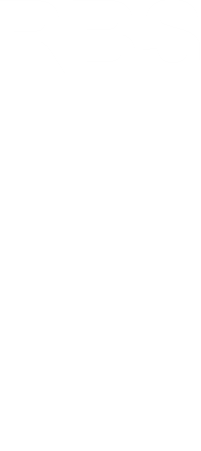
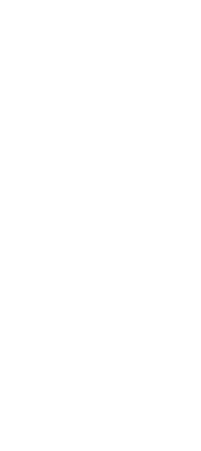
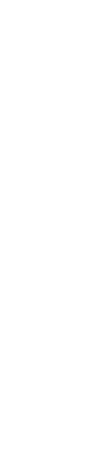
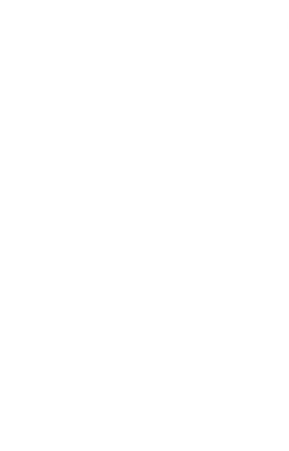
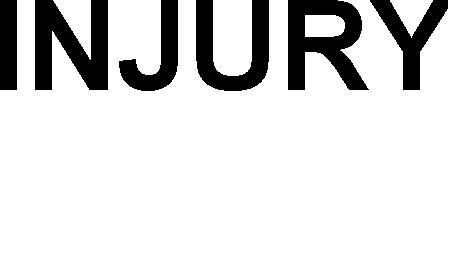
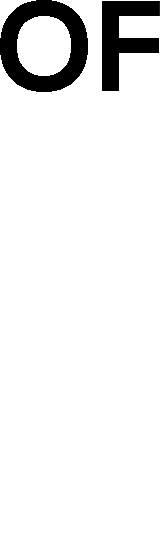
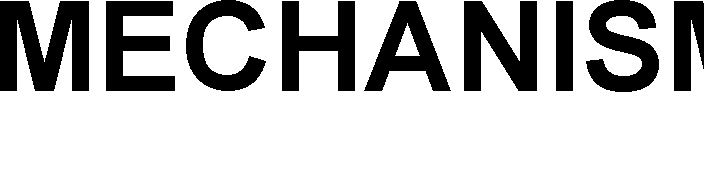
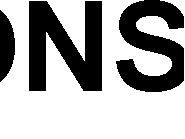
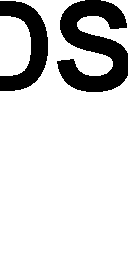
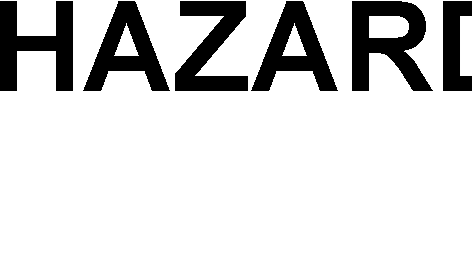
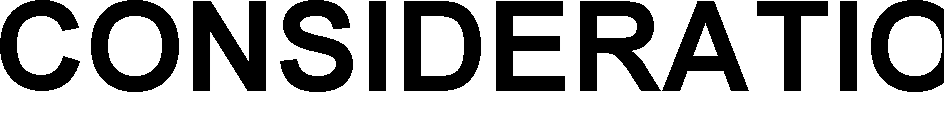
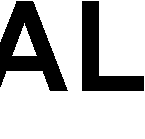
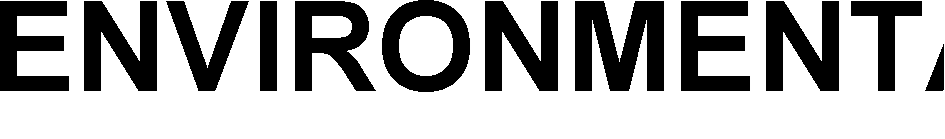


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**HEATSTROKE - FLOWCHART**



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**DROWNING/NEAR DROWNING – FLOWCHART**

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**Fall**

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**SAMPLE HISTORY QUESTIONS**

**MVA Patient**

• Location of patient

• Which vehicle was patient in • How many vehicles involved

• Impact speed

• Exterior damage • Interior damage

• Type of restraints

• Initial position and condition of patient • Loss of consciousness

• Condition of other patients

• Where from • Height

• Free fall or hit other objects during fall • Landing surface

• Position of patient at impact – what hit first • Initial position and condition of patient

• Any loss of consciousness • Cause of fall

**Pedestrian Struck**

• What hit them – size, weight • Velocity of vehicle

• What part of the vehicle hit what part of patient • Damage to vehicle

• Distance patient thrown

• Initial position and condition of patient • Loss of consciousness

• Condition of vehicle occupants

**Shooting**

• Type of firearm • Range

• Angle of shot

• Type of bullet if possible

• Entrance and exit wounds

• Initial position and condition of patient • Loss of consciousness

**Stabbing**

• Type of weapon/object

• Size – length and width of weapon

• Type of wound – slashed or stabbed • Number of wounds

• Other injuries

• Initial position and condition of patient • Loss of consciousness

May need help if there is a c-spine concern and complaining of nausea or has an oral bleed.

patient semi-prone, if injuries permit.

intervene as necessary. Should be semi-prone, injuries permitting.

No response to stimuli.

must intervene and very closely monitor patient’s airway.

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You

|  |  |  |  |
| --- | --- | --- | --- |
| **Eyes Opening** | **Best Verbal Response** | **Best Motor Response** | |
|  |  |  |  |
| 4 - Spontaneously  3 - To Speech  2 - To Pain  1 - No Response | 5 - Oriented  4 - Confused  3 - Inappropriate Words  2 - Incomprehensible Sounds  1 - No Response | 6 - Obeys Commands  5 - Localizes pain  4 - Withdraws from Pain  3 - Flexion (Decorticate) to pain  2 - Extension (Decerebrate) to pain  1 - No Response | |

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**ASSESSING LOC USING AVPU**

**A**  **Alert**  Patient is awake, talking and should be able to maintain own airway.

**V**  **Verbal**  Patient responds to verbal stimulus, but is drowsy. May consider placing

**P**  **Pain**  Patient responds only to pain stimuli. Must monitor airway closely and

**U**  **Unresponsive**

This patient is unable to protect own airway.

**USING GLASGOW COMA SCALE**

The Glasgow Coma Scale is a recognized guide to recording the level of consciousness. When using the Glasgow Coma Scale you need to record the results in each category and not just the total score.

GOA

BP

FR Fx, #

bG bid

↓ ↑ >

<

Cardiac care unit Congestive heart failure

Critical incident stress Central nervous system

Chief complaint Complains of

Cancer

Coronary artery bypass graft Coronary artery disease

Catheter

Complete blood count

C/C c/o, c/o

Ca CABG

CAD cath

CBC

haemoglobin Hematocrit

°C Degree Hb

Blood pressure

Blood glucose Twice a day

BM Bowel

D5w D10w

DNR DOA

DPU Dx

ECG, EKG ECU

EEG EP

ER, ED ET

ETA

Not equal

One, two, three

None, not present, not found

Abdomen

Automatic external defibrillator Air entry

Before meals Before noon

Ambulance not used Alcohol on breath

Approximately Acetylsalicylic acid, Aspirin

As soon as possible

≠

i, ii, iii ∅

abd AED

AE, A/E ac

am ANU

AOB approx

ASA ASAP

Diminished, decreased, lower Elevated, increased, upper

Greater than Less than

♂ Male CP Chest

Kg

dioxide

Hg Hr

Hs Hx

ICN IDDM

IM cc Cubic IV

centigrade C-section Caesarean section

Pain

Cardiopulmonary resuscitation Cerebral spinal fluid

Computed tomography Cerebrovascular accident

CP Chest

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♀

COPD

CCU CHF

CIS CNS

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**SOME ACCEPTED ABBREVIATIONS**

Used by pre hospital care practitioners included here for your information

Female

Chronic obstructed pulmonary disease

CPR CSF

CT (CAT) CVA

= Equals

Dextrose 5% in water Dextrose 10% in water

Do not resuscitate

Code 4, Dead on arrival Discharge planning unit

Diagnosis

Electrocardiogram Extended care unit

Electroencephalograph Emergency physician

Emergency room, department Endotracheal

Estimated time of arrival

First responder Fracture

movement GI Gastrointestinal

Gone on arrival

gtt Drop c With

Hct

pain H2O Water

Chemical symbol for Mercury Hour

Evening, at bedtime History

Intensive care nursery

Insulin dependent diabetes mellitus Intramuscular

centimeter Intravenous

CO2 Carbon

Kilogram

prn

OTC

R/O

mEq/L

As needed, as required

post-op Post

Pupils, equal, react to light

Year

Psychiatric assessment unit After meals, after food

Over the counter

OR Operating

SV

tab T-2

TIA tid

TPR TKO/TKVO

TPN

No known allergies Nothing by mouth

Normal saline

Not yet diagnosed Nitrous Oxide (Entonox)

Oxygen Obstetrics

Once per day

NKA NPO

NS, N/S NYD

N2O2

O2

OB, OBS od

Milliequivalents per liter

MCI Multi-casualty

per through,

L 1 l, L lg LLQ

LOC LUQ

MCG, mcg

s, w/o SA

SC, sc SCN

SIDS SOB

SL, sl

PAU pc

PO

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**SOME ACCEPTED ABBREVIATIONS** (Continued)

First lumbar vertebrae Liter

Large

Left lower quadrant Level of consciousness

Left upper quadrant

Microgram

q am QID/qid

q1h, q2h

R, resp RBC

RLQ RUQ

Every morning Four times per day

Every hour, every two hours

Respirations Red blood cells

Right lower quadrant Right upper quadrant

incident Rx Medications

Rule out mg Milligram

MI

ml, mL MO

MRI MVA

NIDDM

Myocardial infarction Milliliter

Mental observation point Magnetic resonance imaging

Motor vehicle accident

Non-insulin dependant diabetes mellitus

Without Sinoatrial node

Subcutaneous Special care nursery

Sudden infant death syndrome Shortness of breath

Sublingual

nitro Nitroglycerin stat Immediately

Stroke volume

Tablet

Second thoracic vertebrae Transient ischemic attack

Three times per day Temperature, pulse, respiration

To keep vein open

Total parenteral nutrition OD Overdose Tx Treatment

room tx Transmit

U/K Unknown P Pulse

palp Palpation

vag Vaginal

yr by

PERL PERLA

Pupils, equal, round, react to light and accommodation

By mouth, oral

operative

pre-op Pre-operative

pt Patient

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**EMR**

**PROTOCOLS AND PROCEDURES**

• •

• • •

•

= 7

= 25

gtts/min

gtts/min

- 30 -

5000

=

720

15000

60 min

=

60

1

1

•

5W

1.

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**IV MAINTENANCE RATE**

Some protocols may contain a reference to a maintenance rate. This maintenance rate is approximately 1 gtt/sec. Two common administration sets are used: 10 gtts/ml and 60 gtts/ml. To calculate flow rates, the following formula is used:

gtts per minute =

volume to be infused x set rate

**Examples:**

time in minutes

To infuse 500 ml normal saline over 12 hours using a macro-drip set (10 gtts/ml): 500 ml x 10 gtts/min

12 hours x 60 min

To infuse 25 ml 5% D/W in 60 minutes using a micro-drip set (60 gtts/ml): 25 ml x 60 gtts/min

**IV MAINTENANCE**

1. Ensure that the appropriate solution is running. 2. Calculate and maintain the appropriate flow rate.

3. Monitor flow rate and amount of solution.

4. Reassess patient condition and IV on a regular basis (i.e. q 5–15 min):

Reassess ABCs and injury sites. Reassess vital signs.

Inspect IV site, tubing, and solution bag.

Observe for complications and take appropriate measures as necessary. Maintain appropriate flow rate.

Change solution bag if required.

5. Intravenous solutions that can be maintained at normal TKVO rates for the purpose of inter-facility transfers include:

• Normal Saline

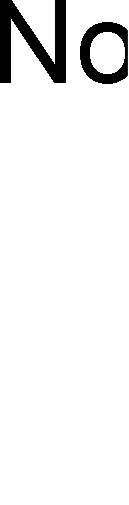
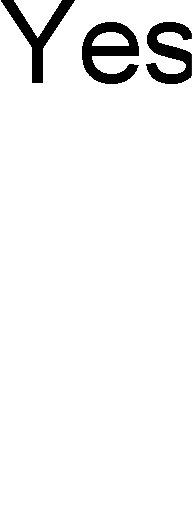
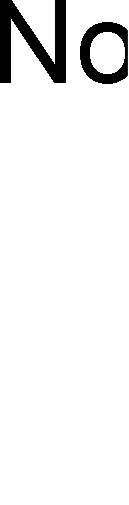
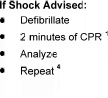
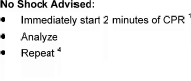
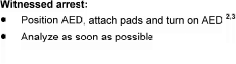
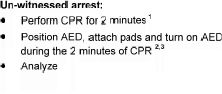
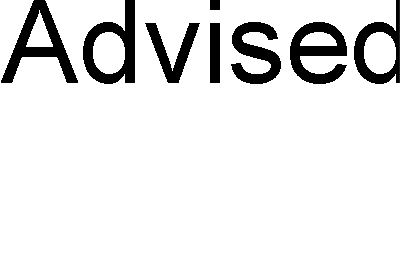
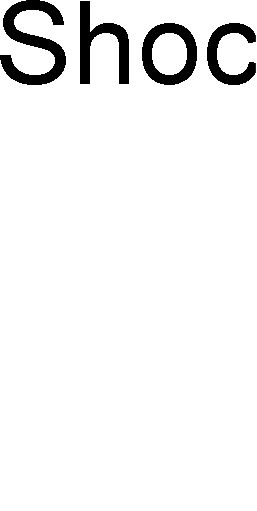
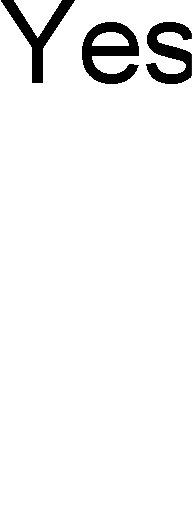
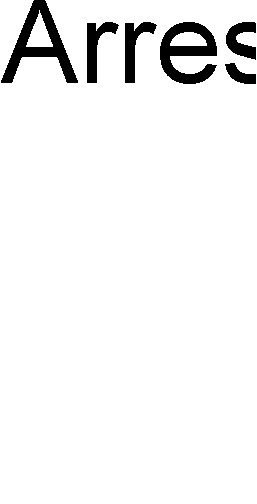
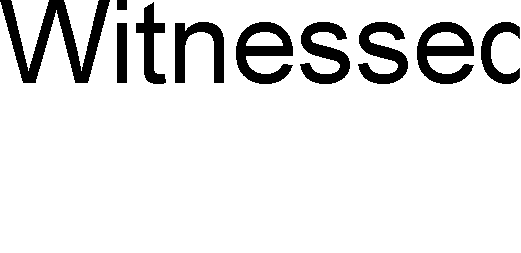
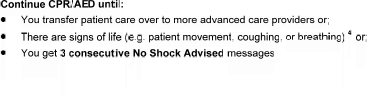
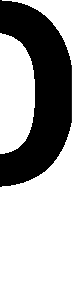
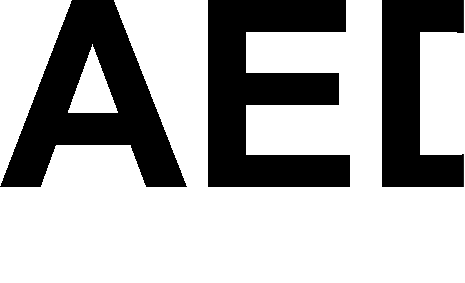
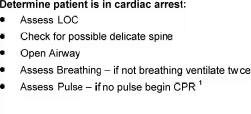
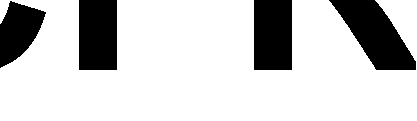
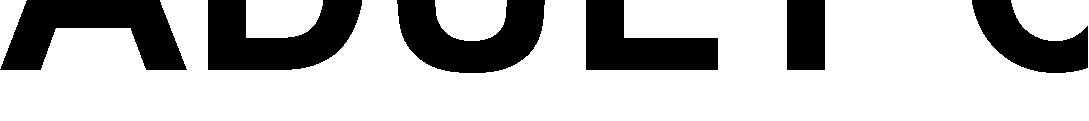
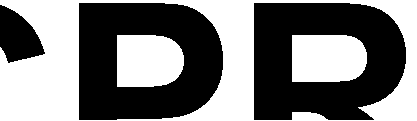
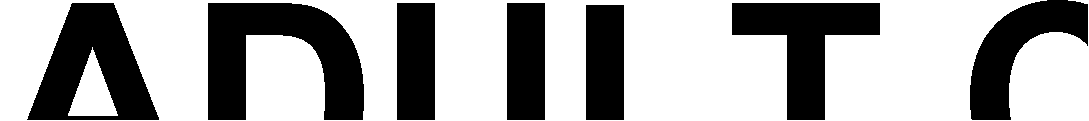
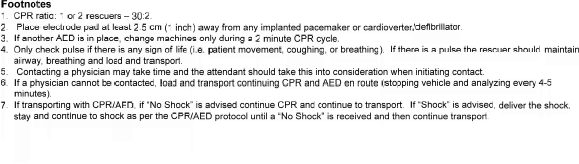
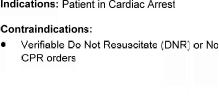
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EMR, PCP and PCP – IV attendants are not to manage patients in cases where medications or other additives have been introduced to the

IV solution. An appropriate medical escort is required in these cases

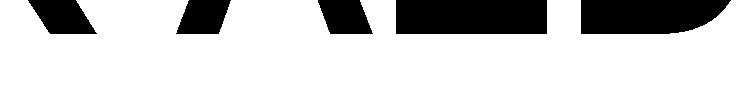
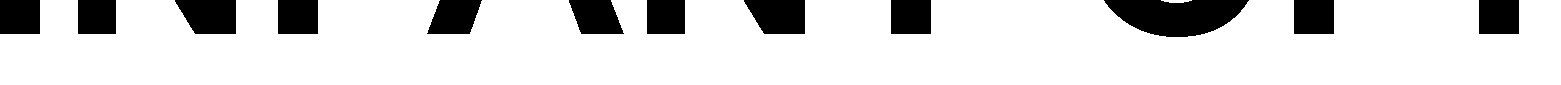
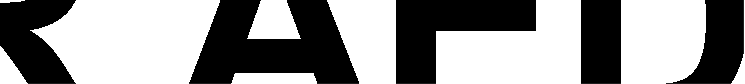
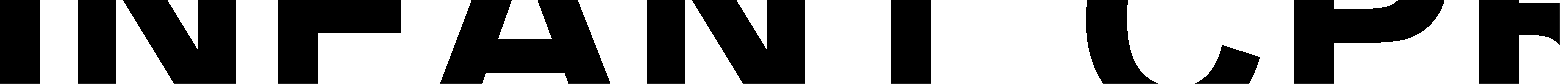
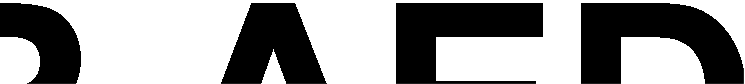
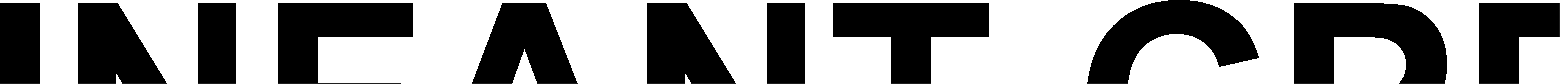
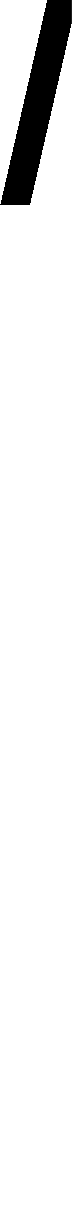
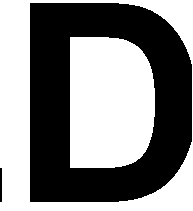
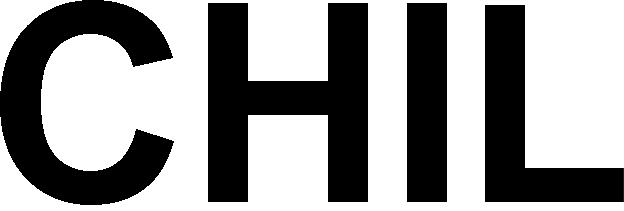
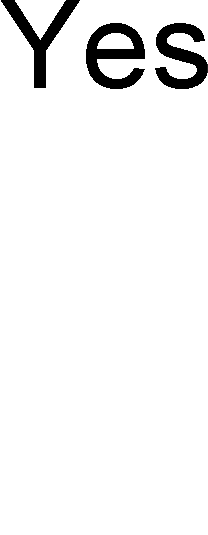
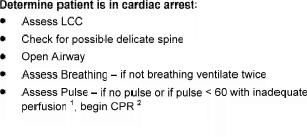
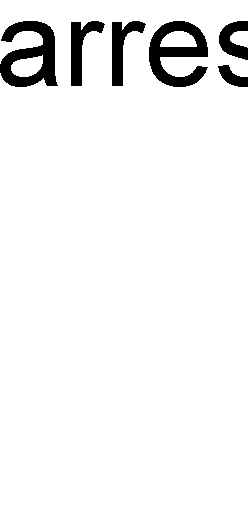
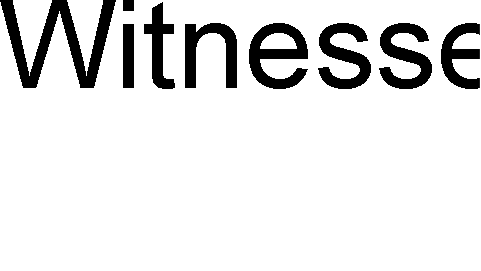
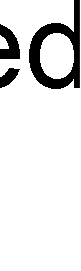
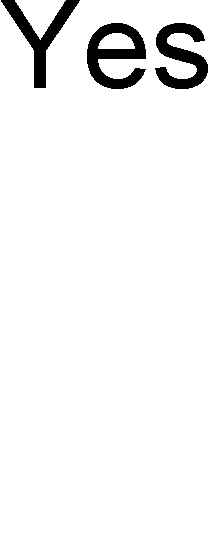
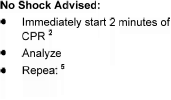
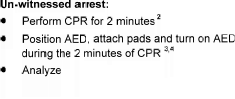
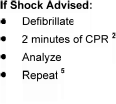
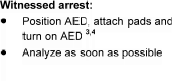
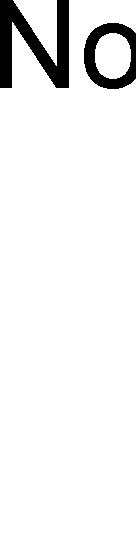
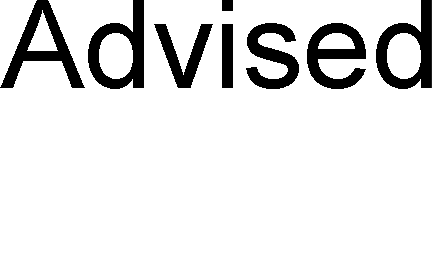
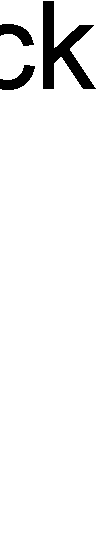
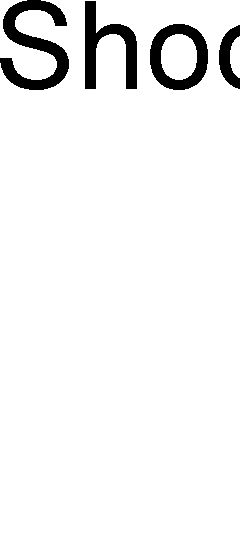
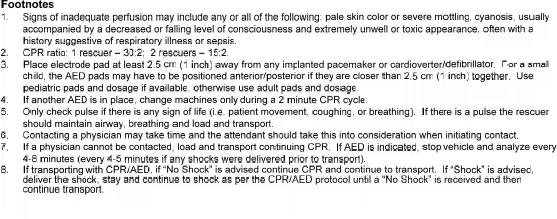
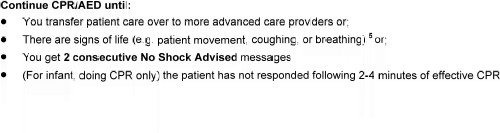
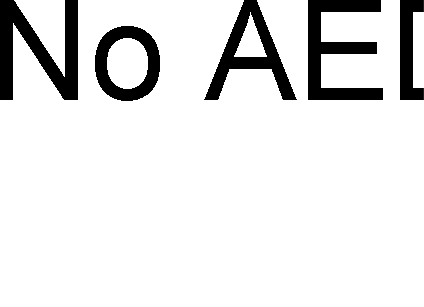
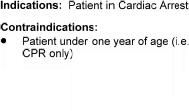


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Provincial Protocol Guidelines

**CPR/AED**



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Provincial Protocol Guidelines

**CPR/AED Information**

**Basic concepts:**

Early CPR is an essential component to successful outcome from cardiac arrest.

CPR should be provided with as few interruptions as possible (keep interruptions to less than 10 seconds).

• Change operators every 2 minutes (where possible) to maintain maximum efficiency.

No pulse checks after your initial assessment, until directed by advanced care providers or the patient begins to move (e.g. spontaneous breaths, cough, eyelid movement, vocalization).

• CPR is more effective while you are stationary (i.e. trying to move the patient while performing CPR results in a deterioration of effective CPR).

• Move a victim early in your management while performing CPR only if the victim is in a dangerous environment or if you believe you cannot perform CPR effectively because of

the victim’s position or location.

• Early defibrillation is an essential component to successful outcome from cardiac arrhythmias that are responsive to defibrillation.

• The concepts of early CPR and early defibrillation should co-exist and one should not impede the other.

• Full decompression (i.e. un-weighting hands from the chest between compressions) is a significant component in effective CPR.

• Avoid hyperventilation.

(Reference: Heart and Stroke Foundation Canada, BLS for Healthcare Providers – Student Manual, 2005. For a comprehensive review, please refer to this manual)

**Adult CPR/AED Basics**

Immediately activate the emergency response system (if appropriate) and get an AED (if available).

• Optimum chest compression rate is 100 per minute with a depth of 3.75 to 5.0 cm

(1.5 to 2 inches) in a normal adult (adjust to 1/3 to ½ the chest diameter for smaller and bigger patients).

• Ratio is 30:2 (one or two rescuers).

Apply and use the AED as soon as possible.

Single shocks – resume CPR immediately following delivery of a shock. No Shock Advised – resume CPR immediately.

Continue resuscitation efforts on scene as long as one is capable (or, if AED is employed, until 3 consecutive no shock advised have been received), until the patient

recovers, advanced care providers take over (e.g. BCAS, physician) or you are presented with a valid “Do not Resuscitate” order (reference: Heart and Stroke Foundation Canada, BLS for Healthcare Providers – Student CD – Supplemental material, 2006, pg. 62).

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**Child (1 year of age to puberty) CPR/AED Basics**

If alone, immediately start CPR for 5 cycles (about 2 minutes) before activating the emergency response system (if appropriate) and applying the AED (NOTE: for a *witnessed sudden collapse* – alone or not, immediately activate the emergency response

system [if appropriate] and get an AED [if available]).

• Start CPR if there is no pulse or if the heart rate is less than 60 beats per minute with signs of poor perfusion (e.g. pale skin color or severe mottling, cyanosis, usually accompanied by a decreased or falling level of consciousness and extremely unwell or toxic appearance, often with a history suggestive of respiratory illness or sepsis).

• If not injured, carry the child, if possible, to the telephone so that you can continue CPR or resume CPR more quickly after the call.

• Optimum chest compression rate is 100 per minute with a depth of 1/3 to ½ the chest diameter.

• Ratio is 30:2 for one rescuer and 15:2 for two rescuers.

Single shocks – resume CPR immediately following delivery of a shock. No Shock Advised – resume CPR immediately.

For a child 1 - 8 years of age, switch to child AED pads (if required) and follow the AED instructions to select a lower (child) shock dose (if available). If not available you may use the adult pads and deliver the adult dose.

• If the defibrillation pads, when placed in the normal anterior/lateral chest position, are within 2.5 cm (one inch) of each other, they may need to be shifted to an anterior/posterior configuration.

**Infant (less than 1 year of age) CPR Basics**

Due to the size of an infant’s head in relation to its body, use a pad (if available) under the shoulders to facilitate the head tilt-chin-lift maneuver.

• Effective ventilation/oxygenation is very important for optimal CPR.

Assess for pulse using the brachial rather than the carotid artery.

If alone, immediately start CPR for 5 cycles (about 2 minutes) before activating the emergency response system (if appropriate). (NOTE: for a *witnessed sudden collapse* –

alone or not, immediately activate the emergency response system [if appropriate]).

• If not injured, carry the infant to the telephone so that you can continue CPR or resume CPR more quickly after the call.

• Start CPR if there is no pulse or if the heart rate is less than 60 beats per minute with signs of poor perfusion (e.g. pale skin color or severe mottling, cyanosis, usually accompanied by a decreased or falling level of consciousness and extremely unwell or toxic appearance, often with a history suggestive of respiratory illness or sepsis).

• Optimum chest compression rate is 100 per minute with a depth of 1/3 to ½ the chest diameter.

• Ratio is 30:2 for one rescuer and 15:2 for two rescuers.

For two rescuers, perform chest compressions with the 2 thumb-encircling hands technique.

• Infant cardiac arrest does not include the use of an automated electronic defibrillator (AED).

o Hypothermia

o Cardiac tamponade

o Pulmonary embolus

o Tension pneumothorax

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o Overdose

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**Asphyxial arrest**

Asphyxial arrest is due to hypoxia. Causes may include overdose, hanging, airway obstruction, smoke inhalation and drowning. If alone with an AED, give 5 cycles of CPR (about 2 minutes) before activating the emergency response system (if appropriate) and applying the AED. If two rescuers: apply the AED while providing one man CPR for 5 cycles (about 2 minutes) then analyze.

**Child (1 year of age to puberty) Sudden Cardiac Arrest**

Most cardiac arrests in children are not due to sudden rhythm disturbances. On rare occasions a child is in ventricular fibrillation. Specifically, cases with a history of previous cardiac problems or a

sharp blow to the precordial area followed by sudden collapse (commotio cordis ).

**Advanced Airway considerations**

For all age categories, when assisting an advanced care paramedic with an advanced airway in place, the ventilation rate is 8 – 10 per minute, interspersed between compressions (i.e. do not pause chest compressions to provide breaths).

**Treatable causes of cardiac arrest**

Consideration for early transport may be appropriate in circumstances where hospital intervention may be able to increase chance of survival or provide life saving care beyond the capability of the BLS rescuer. In these circumstances early consultation with an emergency physician to discuss the possibility of transportation would be appropriate. These circumstances include:

Severe blood loss

o Airway obstruction/choking

Reference: Science Daily, *Blunt Blows From Baseballs, Hockey Pucks Cause Sudden Death In Young Athletes*, November 1997. Web source: [*http://www.sciencedaily.com/releases/1997/11/971114070111.htm*](http://www.sciencedaily.com/releases/1997/11/971114070111.htm)

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recommended Aspirin dose prior

to your arrival.

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Provincial Protocol Guidelines

**CARDIAC CHEST PAIN**

**INDICATIONS**

Patients whose presentation is suggestive of cardiac chest pain, who have a history of heart disease, and who would normally take their prescribed Nitroglycerin for chest pain.

**CONTRAINDICATIONS**

**Aspirin**  **Nitroglycerin**

Inability to swallow Allergy to Aspirin

Active peptic ulcer or gastrointestinal bleeding

• Pediatric patient

• Patient has already taken their

the patient has taken Viagra or Levitra in the last 24 hours, or Cialis in the last 48 hours

• B.P. ≤ 100 mmHg

**Before initiating the Chest Pain protocol, you must have done the following:**

Request equipment be prepared for rapid transport after the primary survey Completed a primary survey and administered oxygen;

Investigated the pain complaint, including severity;

Obtained a history sufficient to suggest that the pain is cardiac in nature, and rule out the contraindications for Nitroglycerin;

• Obtained a baseline set of vital signs

Administer 0.4 mg Nitroglycerin SL q 5 min & 2 (chewable) 81 mg Aspirin PO.

Load and transport after the first Nitroglycerin (maximum of 3 doses).

**If pain is completely relieved, but returns:**

Re-initiate Nitroglycerin administration.

**If pain persists or BP ≤ 100mm Hg:** Administer Entonox 5 minutes after last dose of

Nitroglycerin.

Continue with assessment, treatment and vital signs q 5 minutes.

Continue with assessment, treatment and vital signs q 5 minutes.

Patient outcome is better if definitive hospital treatment is provided as soon as possible, hence early transport is highly desirable. When

equipment is ready load and transport, do not delay until after the first Nitroglycerin if everything else is ready to go; load and go and treat en route.

Ensure that BP > 100 mm Hg and check whether pain still persists before administrating repeat Nitroglycerin

If patient is not on Nitroglycerin, ASA should be given if not contraindicated.

If pain is completely relieved for more than 5 minutes, you may re-initiate the Nitroglycerin component, (but not the Aspirin component) of the Chest Pain Protocol if the patient's pain returns

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Rapid onset via sublingual route (60 seconds) with 30 minute duration.

• Systolic BP

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**NITROGLYCERIN - INFORMATION**

**Classification**

Antianginal, vasodilator

**Mechanism of action**

Reduces cardiac oxygen demand primarily by dilating blood vessels resulting in decreased blood flow (preload) to the heart from the body, decreased resistance to the heart’s pumping (after load). Dilation of coronary arteries results in increased blood flow to cardiac tissue.

**Indications**

For cardiac chest pain when patient has their own Nitroglycerin and a systolic blood pressure of above 100. (Must take baseline set of vitals.)

**Contraindications**

≤ 100 mm Hg

• Known allergy or sensitivity to Nitrates.

If patient has used Viagra or Levitra in the past 24 hours or Cialis in the past 48 hours.

**Onset, dose, route**

Dose depends on strength of patient’s prescription. EMRs are to give 1 dose (q 5 min) to a max of 3 doses.

**Metabolism**

Rapidly metabolised in the body by the liver and excreted by the kidneys.

**Adverse effects**

• Induces hypotension • Dizziness

• Weakness • Headache

• Nausea • Vomiting

**Cautions**

Hypotension frequently occurs, especially in the elderly and must be expected, therefore, ensure patient is not at risk to fall.

• Repeat vitals and drug until pain is relieved, to a maximum of 3 doses (providing the systolic BP remains above 100; irrespective of any Nitro taken by the patient prior to

your arrival).

• If the patient has used Viagra at any time in the past, (beyond the 24 hour contraindication limit) there may be some cause for very careful monitoring of the patient’s blood pressure.

**Notes**

If pain is completely relieved for more than 5 min, you may initiate the chest pain protocol again if the pain returns. This is considered a new episode and a total of 3 additional Nitro can be given. This is applicable even if 3 Nitro have already been

administered for the initial episode.

• Nitroglycerin can be taken as a tablet sublingual (0.3 or 0.6 mg) or spray (0.4 mg). Do not shake the spray prior to administration.

• Nitroglycerin comes in forms other than spray and/or tablet, none of which are approved for EMR use. If your patient has a Nitro patch applied, it does not change the Nitroglycerin protocol.

Apply Oximeter as per Procedure

SA O2 < 95%

Increase O2 flow rate to maximum 15

L/min

Decrease flow rate

to maintain SA O2 > 95%

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Switch to 100% O2 via non-rebreather to maintain SA O2 > 95%

Consider Assisted Ventilation

SA O2 > 95%

Record the SpO2

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**OXYGENATION MANAGEMENT USING A PULSE OXIMETER**

**INDICATIONS**

For monitoring of O2 usage on all patients.

**CONTRAINDICATIONS** Children < 10 kg

**UNRELIABLE READINGS IN** Carbon Monoxide Poisoning

Other Conditions

Assess Patient Initiate high flow O2

Sickle Cell Anemia, severe Anemias.

Do not delay any part of the primary survey / intervention to apply Oximeter. The oxygenation management procedure is described on the next page.

Use lowest amount of Oxygen flow to maintain the SpO2 at >95%.

Adjust Oxygen by turning it up or down by 1 litre/min each minute and monitor the Oximeter reading. For adult face mask, rate is 6-15 LPM; for nasal prong, rate is 2-5 LPM.

For COPD patients, maintain the SpO2 in the range of 92% to 95%

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**OXYGENATION MANAGEMENT USING A PULSE OXIMETER - CONTINUED**

1. Apply Oxygen as per usual practice ensuring the following type of patient gets high flow oxygen immediately:

Seriously ill patient; Short of Breath patient;

Moderate to severely traumatized patient who may be bleeding; Patient who may be having internal bleeding;

Smoke and carbon monoxide poisoning patient (maintain the high oxygenation); Patient with chest pains.

2. Apply Pulse Oximeter to adequately perfusing finger

3. Ensure the proper application of the finger probe

4. Activate the unit

5. Ensure the unit is detecting a pulse

6. Compare pulse on Pulse Oximeter to pulse by auscultation or by palpation

7. If Pulse Oximeter and palpation pulse differ by <10 BPM, the reading for the oxygen saturation level is reliable.

8. If Pulse Oximeter and palpation pulse differ by >10 BPM then:

Remove Pulse Oximeter Remove nail polish

Use another or a warmer digit

Use an ear lobe (if probe available) or toe Re-apply Pulse Oximeter and compare pulse

**OXYGEN ADMINISTRATION**

Do not use an adult face mask with a flow rate less than 6 LPM, as this would deliver less oxygen to the patient than room air.

Nasal cannula should not be used with greater than 5 LPM O2 as this may cause discomfort and drying of mucosa and does not increase O2 concentrations any further.

A non-rebreather mask is indicated for carbon monoxide poisoning and smoke inhalation.

Administration of oxygen to COPD patients is by nasal cannula at 1 - 3 LPM (following acute care treatment with high flow oxygen, if required). Use of high flow oxygen for COPD patients complaining of chest pain is

indicated.

**After the ABC's, primary survey and secondary survey:**

Smoking adults may have an oxygen saturation on room air around 94-96%.

Oxygen saturation < 80 % is considered incompatible with life.

**IMPORTANT**

**Things** **to remember when using an Oximeter**

 **DO NOT DELAY GIVING OXYGEN WHEN IT IS INDICATED BY**

**YOUR TREATMENT AND ASSESSMENT PROTOCOL.**

**according to the Oxygenation Protocol.**

**(except CO poisonings).**

**but the oxygen saturation is < 95% on reassessment.**

**monoxide (CO) poisoned patients regardless of the saturation readings.**

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**PULSE OXIMETER PROTOCOL AND PROCEDURE**

An Oximeter is a device that measures the % of red blood cells (RBC) that are carrying oxygen.

100% saturation means all RBC's are oxygenated.

90% means only 90% of the RBC's are carrying oxygen.

Healthy non-smoking adults' oxygen saturation on room air should be around 97-98%.

Chronic lung diseased patients could have an oxygen saturation on room air around 90-94% when they are not ill.

Patients with acute illnesses (e.g. pneumonia, shock, heart failure, chest trauma, inhalational injuries, etc) with or without chronic lung disease could have saturation levels below 90 without oxygen.

 **DO take time to adjust the amount of oxygen needed to maintain a saturation of >95%**

 **DO remove oxygen if patient is not distressed and the saturation is >95% on room air**

 **DO apply oxygen to patients who clinically did not need oxygen on first assessment**

 **DO continue high flow or non-rebreathing bag of oxygen on all potential carbon**

 **DO NOT fixate on the Oximeter, always pay attention to the patient.**

Administer Entonox:

Patient uses until pain is relieved or side effects appear

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Provincial Protocol Guidelines

**PAIN USING ENTONOX**

**INDICATIONS**

Pain.

**CONTRAINDICATIONS**

**CAUTIONS**

• Usage in an enclosed treatment area without ventilation • Inability to comply with instructions

• Suspected inhalation injury

• Suspected air embolism or pneumothorax

• Patient has taken Nitroglycerin within the last 5 minutes • Decompression sickness

Depressant drugs Maxillo-facial injuries

COPD

Distended Abdomen Shock

**BEFORE INITIATING THE PAIN USING ENTONOX PROTOCOL, YOU MUST HAVE DONE THE FOLLOWING:**

• Completed a primary survey

• Investigated the pain complaint, including severity

• Obtained a baseline set of vital signs, including oxygen saturation

• Conducted a history and physical examination sufficient to rule out the contraindications for use of Entonox

• (If in the ambulance) Turn on the vehicle ventilation system (intake and output)

Explain to patient:

• Entonox is self-administered • Effects of Entonox

• Possible side effects

Monitor and record:

• Start and stop times of Entonox • Patient response

Entonox may be administered to patients with suspected inhalation injuries if O2 saturation is 100%.

Let patient apply mask to own face. Do not assist. Mask may fall away as patient becomes sedated. Do not replace mask Patients should receive high flow oxygen when Entonox is discontinued

Discontinue if cyanosis develops

o tank is stored below -6 C

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| **CAUTION** | **REASON** |
|  |  |
| **Improper Storage** | • Separation of N2O2 and O2, where N2O2 rises to the top of the cylinder.  0 |
| **Combustible** | • Supports combustion |
| **Inhalation by EMA** | • Affects EMA's competency in patient care and driving ability |
| **Entonox Dependence** | • Addictive |

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**ENTONOX – INFORMATION**

Separation occurs when:

gas is stagnant over a long period of time tank has been stored in a vertical position

**ADVERSE AFFECTS**

There are nine common adverse affects in the use of Entonox:

1. aggravation of middle ear (increases pressure) 2. drowsiness

3. nausea 4. vomiting

5. giddiness 6. dizziness

7. amnesia

8. decreased level of consciousness 9. decreased cardiac output

Obtain capillary blood sample

Blood glucose > 4.0 mmol/L

Blood glucose ≤ 4.0 mmol/L

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Load and go

Unable to follow commands

Able to follow commands

Administer oral glucose liberally

carefully

Load and go

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Load and go

Continue with assessment and treatment

Administer oral glucose

If no improvement after 15 minutes, repeat Glucometer testing

Consider other causes of unconsciousness and contact the EP for further orders.

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**DIABETIC EMERGENCIES**

**INDICATIONS**

Known diabetic patients with decreased LOC whose history suggests hyperglycemia or hypoglycemia.

**Before initiating the Diabetic Emergencies protocol, you must have done or obtained the following:**

• Request equipment be prepared for rapid transport • A primary survey

• A history of diabetes

• A baseline set of vital signs

• Signs and symptoms sufficient to suggest hypoglycemia or hyperglycemia

Continue with assessment and treatment

Unable to follow commands

When equipment is ready load and transport, do not delay if everything else is ready to go; load and go and treat en route.

If patient is unable to obey commands, apply the oral glucose against mucous membrane of mouth (rub against gum and cheek). Oral glucose provides immediate treatment for the patient. If the patient is not responding satisfactorily to the oral glucose, at least s/he has received some

glucose.

If repeat glucometer result is ≤ 4.0 mmol/L, give oral glucose again.

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**Note**

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**DIABETIC – INFORMATION ABOUT ORAL GLUCOSE**

**Classification**

• Caloric

**Mechanism**

• Absorbed into the bloodstream resulting in increased blood glucose levels, thereby providing an increased level of glucose for use by cells.

**Indications**

• Oral glucose gel is indicated for a patient with a decreased LOC with a known diabetic history.

**Contraindications**

• If airway management cannot be maintained, oral glucose is contraindicated.

**Onset, dose, route**

• Via the buccal/sublingual route, glucose is absorbed slowly into the blood stream. EMRs administer half of the package (approx. 12 g) prior to transport.

• In approximately 3 – 5 minutes, administer another half package (approx. 12g) of glucogel inside the lower cheek, again being cautious of patient’s airway.

• The effects of glucogel are not immediate.

**Metabolism**

• Glucose enters cells where it is used to provide energy. It is oxidized (broken down) into carbon dioxide and water, and excreted through the lungs and kidneys.

**Adverse effects**

• May increase airway management problems.

**Cautions**

• Patient must be placed semi-prone prior to administration; if this position can not be achieved due to other related complications, administration is contraindicated due to the possibility of causing aspiration.

• Place gel into dependent buccal pouch (lower cheek).

• A number of different brands of oral glucose containing 25 grams 40% dextrose are available in the market.

• Using a tongue depressor may help with administration.

• If there is an initial improvement in the patient’s LOC, administer more glucogel only if the LOC begins to drop.

• Document the time, route (oral), dose and result.