



DYNAMIC INJURY CARDS

Scenario: A bus with Swedish tourists has been involved in a traffic accident on the road between the city and the ski area on the outskirts of town. The road winds up a steep mountainside. On this steep portion, the bus has driven off the road, rolled over, and caught fire.

CASE 01



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Bus driver. Male, 45 years. The bus has driven off the road, rolled over, and caught fire

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Medical team arrives to accident site 30 min after alert

A- Blood in the mouth

B- RR 20-30

C- HR >100

D- MA (Mildly Anxious)

E- Pale and cold

CASE 01

Bus driver. Male, 45 years.

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Accident site 30 min after alert. Medical team arrives.

Blood in the mouth is threat o the airways and has to be handled immediately

RR 20-30 and HR >100 indicates blood loss of 750-1500 ml

Required actions and comments: You are still at the accident site and must get an overview of the other victims too. Even if there is need for volume replacement, this is not the proper time or place. Place person in recovery position and Trendelenburg position (head down, with feet elevated).

Priority: red.

Bus driver. Male, 45 years.

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Accident site 45 min after alert.

A- Airways open and free

B- RR 20-30

C- HR >100

D- MA (Mildly Anxious)

E- Pale, Shivering

CASE 01

Bus driver. Male, 45 years.

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Accident site 45 min after alert, patient now in recovery and trendelenburg position.

The airway now is free. Still there are signs of hypovolemia. RR 20-30 , HR > 100 and mental status MA are all signs of blood loss 750-1500 ml. The patient is pale and shivering, both signs of hypovolemia and hypothermia.

Required actions and comments: There is need for volume replacement but you are still at the accident site and have to deal with several other wounded victims too. Cover the person with blankets to keep him warm.

Priority: red.

Bus driver. Male, 45 years.

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Accident site 60 min after alert

Facial injury, Femur fracture.

A- Coughing blood clots

B- RR 30-40

C- HR >120

D- AC (Anxious and Confused)

E- Pale, Shivering

CASE 01

Bus driver. Male, 45 years.

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Accident site 60 min after alert

You have found signs of facial injuries and a femur fracture. Vital status with RR 30-40, HR >120 and mental status AC all indicates blood loss 1500-2000. The patient is obviously bleeding and on his way into hypovolemic shock.

Required actions and comments: There is need for volume replacement and you also have to stabilize his fracture. But you are still at the accident site and need to get the patient in shelter and warmth where you can take more appropriate actions. Priority red for transport to collection point.

Bus driver. Male, 45 years.

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Accident site 90 min after alert

Facial injury, Femur fracture.

A- Blood from the mouth

B- RR 30-40

C- HR > 120

D- CL (Confused Lethargic)

E- Pale, Shivering

CASE 01

Bus driver. Male, 45 years.

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Accident site 90 min after alert

Vital signs with RR 30-40, HR >120, mental status CL, and a pale and shivering patient indicates blood loss of 1500-2000 ml but also hypothermia which affects his mental status more than blood loss alone. His status is deteriorating and you need to get him quickly to warmth and shelter.

Required actions and comments: Transportation to collection point.

CASE 01

Bus driver. Male, 45 years.

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Transport to collection point, 105 min after alert

Facial injury, Femur fracture.

A- Coughing blood clots

B- RR 30-40

C- HR >120

D- CL (Confused Lethargic)

E- Pale, shivering

CASE 01

Bus driver. Male, 45 years.

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Transport to collection point, 105 min after alert

The situation is unchanged; all vital signs indicate hypovolemia and hypothermia. You suspect as previously facial injuries and a femur fracture. Transport to warmth and shelter where you can take more appropriate actions is vital. Even transport takes time and during transport you have to make sure that the patient is in recovery position and covered with blankets not lose more warmth.

Required actions and comments: Put the person in supine position on a stretcher. Cover the person with blankets.

Priority: red.

Bus driver. Male, 45 years.

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Collection point 120 min after alert

Facial injury, Femur fracture.

A- Recovery position, mouth full of blood clots

B- RR 30-40

C- HR >120, BPD (Blood Pressure Decreased)

D- AC (Anxious, Confused)

E- Pale, shivers heavily

CASE 01

Bus driver. Male, 45 years.

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Collection point 120 min after alert

Finally two hours after alert you are in warmth and shelter. Vital signs, blood clots in the mouth a threat to his airways. RR 30-40, HR > 120, and for the first time you can get a BP, which is decreased, all indicators of a blood loss of 1500-2000 ml. The patient is shivering heavily, he is pale and his mental status is AC which indicates both hypovolemia and hypothermia

Required actions and comments: Clean the mouth. Insert an iv or intraosseous needle, give iv infusion start with 1000 ml Ringer-Acetat (warm 37-42 C).

Bus driver. Male, 45 years.

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Collecton point 140 min after alert

Facial injury, Femur fracture.

A- Blood from the mouth

B- RR 20-30

C- HR > 100, BPN (Blood Pressure Normal)

D- AC (Anxious, Confused)

E- Pale, shivering

CASE 01

Bus driver. Male, 45 years.

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Collection point 140 min after alert

Vital signs have changed, RR now 20-30, HR > 100 and BP N mean that your fluid replacement works but the patient is still hypovolemic. He is still pale and shivering, obviously hypothermic. His fracture is unstable end need to be stabilized to minimise bleeding and pain. If you have oxygen it will benefit the patient's oxygenation in his hypovolemic state.

Required actions and comments: Cover the person with blankets. Stabilize the femur fracture. Consider to give oxygen.

CASE 01

Bus driver. Male, 45 years.

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Collection point 160 min after alert

Face injury, Femur fracture.

A- Dyspnoea

B- Reduced breath sounds right lung, RR 30-40

C- HR >120, BPD (Blood Pressure Decreased)

D- AC (Anxious, Confused)

E- Pale

CASE 01

Bus driver. Male, 45 years.

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Collecting pint 160 min after alert

Vitals signs now deteriorate, dyspnoea, RR 30-40, reduced breath sounds right lung, HR > 120 and BP D strongly indicates both a pneumothorax and further blood loss.

Required actions and comments: Give oxygen. Insert a decent chest tube. Give another iv infusion of warm 1000 ml Ringer-Acetate.

CASE 01

Bus driver. Male, 45 years.

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Collection point 180 min after alert

Face injury, Femur fracture, Pneumothorax.

A- Free and open

B- RR 20-30

C- HR>100, BPN (Blood Pressure Normal)

D- MA (Mildly Anxious)

E- Pale

CASE 01

Bus driver. Male, 45 years.

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Collection point 180 min after alert

Your handling of the patient with a chest tube and more fluids has stabilised his vital signs. However he still show signs of hypovolemia and hypothermia with RR 20-30, HR > 100, BP N and mental status MV and skin is pale.

Required actions and comments: Keep infusion running. Chest tube is inserted in to the right side of thorax, keep checking that it is in proper place. Priority red and transport to hospital.

CASE 01

Bus driver. Male, 45 years.

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**Ambulance transport 20 min after departure from collection point
(200 min after alert)**

Face injury, Femur fracture, Pneumothorax.

A- Vomiting

B- RR 20-30

C- HR > 100, BPN (Blood Pressure Normal)

D- MA (Mildly Anxious)

E- Supine position

CASE 01

Bus driver. Male, 45 years.

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**Ambulance transport 20 min after departure from collection point
(200 min after alert)**

**Vomiting and aspiration is always a threat to a patient's airways,
especially if his mental status is affected.**

Required actions and comments: Vomiting – Place the person
immediately in side position and clear his mouth.

CASE 01

Bus driver. Male, 45 years.

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**Ambulance transport 40 min after departure from collection point
(220 min after alert)**

Face injury, Femur fracture, Pneumothorax.

A- Airways open and free

B- RR 20-30

C- HR > 100, BPN (Blood Pressure Normal)

D- MA (Mildly Anxious)

E- Pale, no shivering

CASE 01

Bus driver. Male, 45 years.

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**Ambulance transport 40 min after departure from collection point
(200 min after alert)**

**Vital signs with RR 20-30, HR > 100 and BP N indicates blood loss
750-1500. The patient is no longer shivering which could either mean
that his rewarmed or that his temperature is below 33.**

**Required actions and comments: Bleeding 750-1500 ml, keep infusion
running. Check temperature.**

CASE 01

Bus driver. Male, 45 years.

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**Ambulance transport 60 min after departure from collection point
(240 min after alert)**

Face injury, Femur fracture, Pneumothorax.

A- Free airways

B- RR 30-40

C- HR > 120, BPD (Blood Pressure Decreased)

D- AC (Anxious, Confused)

E- Very pale. Temperature 33 C

CASE 01

Bus driver. Male, 45 years.

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**Ambulance transport 60 min after departure from collection point
(240 min after alert)**

**Vital signs now deteriorates again. Temperature is 33 C which
means that his clotting system is working at only 50% of its normal
and the patient keeps bleeding.**

Required actions and comments: Keep temperature as warm as possible in the ambulance, it won't render the patient rewarming shock but may keep him from loose even more warmth. Vitals signs indicate blood loss of 1500-2 000 ml, give iv infusion of the third warm 1 000 ml Ringer-Acetate at high speed.

Bus driver. Male, 45 years.

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Arrival to hospital 80 min after departure from collecting point (260 min after alert)

Report to the hospital: Facial injury, blood cloths threat to his airways, Femur fracture dx. splinted. Pneumothorax dx, pleura drain inserted. Hypovolemia, third 1000 Ringer Acetate running. Hypothermia.

A- Coughing blood

B- RR 20-30

C- HR > 100, BPN (Blood Pressure Normal)

D- MA (Mildly Anxious)

E- Very pale, Temperature 33 C

CASE 01

- FOR EXERCISE PURPOSES ONLY -

Scenario: A bus with Swedish tourists has been involved in a traffic accident on the road between the city and the ski area on the outskirts of town. The road winds up a steep mountainside. On this steep portion, the bus has driven off the road, rolled over, and caught fire.

CASE 02



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Accident site (0-15 min)

The person is confused, wailing and screaming. NOT able to walk.

A- Rattles

B- RR 30-40

C- HR >100, heavily

D- Confused, no adequate response

E- Feels cold

Other- Holding the hand against the right side of the chest

- FOR EXERCISE PURPOSES ONLY -

- Page 2

Accident site (0-15 min)

Required actions and comments:

Place person in recovery position with right side of the chest downwards.
Move the person with stretcher to collection point. Suspected thorax injury.

Priority: red.

CASE 02

- FOR EXERCISE PURPOSES ONLY -

- Page 3 -

Collection point (15-30 min)

Heavily swollen face, holding left hand against the right side of the chest.
Coughing. Mobility – NOT able to walk.

A- Coughing

B- RR >40

C- HR >100, heavily

D- GCS 11-12

E- Cold, shivers

CASE 02

- FOR EXERCISE PURPOSES ONLY -

- Page 4 -

Collection point (15-30 min)

Required actions and comments: ABCDE survey. Prepare for intubation and chest tube or needle decompression as soon as possible. No loss of fluid. Insert an iv needle. Cover the patient with a blanket.

Priority: red.

CASE 02

- FOR EXERCISE PURPOSES ONLY -

- Page 5 -

Collection point (30-45 min)

Suspect pneumothorax, rib fractures, face fractures Mobility – NOT able to walk.

- A-** Coughing, rattles, paradoxical chest motion
- B-** RR > 35
- C-** HR > 100, heavily
- D-** GCS 11-12
- E-** Cold,

CASE 02

- FOR EXERCISE PURPOSES ONLY -

- Page 6 -

Collection point (30-45 min)

Required actions and comments: Give iv pain relief.

Priority: red.

CASE 02

- FOR EXERCISE PURPOSES ONLY -

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Collection point 45-60 min

Needle decompression. Mobility – NOT able to walk.

A- Breath sounds from both lungs, snoring, lying in supine position, coughing blood

B- RR >25

C- HR 100, SBP 135/

D- GCS 13

E- Cold, shivers

CASE 02

- FOR EXERCISE PURPOSES ONLY -

- Page 8 -

Collection point 45-60 min

Required actions and comments: Give infusion 1000 ml Ringer-Acetat (warm). Cover the person with blankets. Give sedative drugs iv.

Priority: red.

CASE 02

- FOR EXERCISE PURPOSES ONLY -

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Collecting point 60-75 min

Intubation, no suction equipment is available, aspiration detected during intubation, patient is hard to intubate. Mobility – NOT able to walk.

A- Vomiting blood

B- RR 20, observation and control

C- HR 100. SBP 110/

E- Peripheral coldness

Other: Sedated

CASE 02

- FOR EXERCISE PURPOSES ONLY -

- Page 10 -

Collection point 60-75 min

Required actions and comments: Prepare for transport to the hospital. Check that tracheal tube and chest tube are in correct positions before transport.

Priority: red.

CASE 02

- FOR EXERCISE PURPOSES ONLY -

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Ambulance transport 75-90 min

Pneumothorax, rib fractures, face fractures. Mobility – NOT able to walk.

A- Intubated, breath sounds in both lungs

B- Controlled ventilation. RR 20.

C- HR 100, SBP 135/

Other- Sedated, saturation 94%

- FOR EXERCISE PURPOSES ONLY -

- Page 12 -

Ambulance transport 75-90 min

Required actions and comments: ABCDE survey (review the patient).
Documentation and report to the hospital.

Priority: red.

CASE 02

- FOR EXERCISE PURPOSES ONLY -

- Page 13 -

Ambulance transport 90-105 min

Rapidly declining saturation. Mobility – NOT able to walk.

A- Intubated, heavy wheezes from both lungs

B- Controlled ventilation. RR 20.

C- HR 120, SBP 120/

E- Cold

Other- Saturation 84-76%

- FOR EXERCISE PURPOSES ONLY -

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Ambulance transport 90-105 min

Required actions and comments: Stop the ambulance, auscultation of the lungs. The tube has moved up to vocal cord level. Adjust the position of the tracheal tube.

Priority: red.

CASE 02

- FOR EXERCISE PURPOSES ONLY -

- Page 15 -

Ambulance transport 105-120min

Difficulties to get the tracheal tube into correct position. Mobility – NOT able to walk.

A- Intubated, heavy wheezes from both lungs

B- RR 20, controlled ventilation, hard to ventilate, obstructive, resistance

C- HR 120, SBP 120/

E- Cold

Other- Saturation < 76%, sedated

CASE 02

- FOR EXERCISE PURPOSES ONLY -

- Page 16 -

Ambulance transport 105-120 min

Required actions and comments: Report to the hospital to prepare for urgent tracheotomy. During transport prepare for possible urgent tracheotomy.

Priority: red.

CASE 02

- FOR EXERCISE PURPOSES ONLY -

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Emergency department 120-135 min

Adjusting the tracheal tube. Mobility – NOT able to walk.

A- Reduced wheezes from both lungs

B- Controlled ventilation, RR 20

C- HR 120, SBP 120/

E- Cold

Other- Saturation 76-84%, sedated

CASE 02

- FOR EXERCISE PURPOSES ONLY -

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Emergency department 120-135 min

Required actions and comments: Report to the hospital that the low saturation was caused by aspiration and a dislocated tracheal tube. ABCDE survey (review the patient). Perform a documentation of the patient's status.

Priority: red.

CASE 02

- FOR EXERCISE PURPOSES ONLY -

- Page 19 -

Emergency department 135-150 min

Multiple face- and rib fractures. Pneumothorax. Intubated, Thorax evacuated. NOT able to walk.

A- Breath sounds in both lungs

B- Controlled ventilation. RR 20.

C- HR 120, SBP 120/

E- Cold

Other- Saturation 89-92%

CASE 02

- FOR EXERCISE PURPOSES ONLY -

- Page 20 -

Emergency department 135-150 min

Required actions and comments: ATLS concept practiced in the trauma room. Transport to ICU for control of airways. CT head, thorax, abdomen and pelvis. Estimate the bleeding and loss of fluid. Active warming of the patient.

Priority: red.

CASE 02

- FOR EXERCISE PURPOSES ONLY -

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ICU 150-165 min

Inspection of airways by ENT specialist.

- A-** Breath sounds from both lungs
- B-** Controlled ventilation, RR 20
- C-** HR 120, SBP 120/
- E-** Peripheral coldness, Temp 36,1

CASE 02

- FOR EXERCISE PURPOSES ONLY -

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ICU 150-165 min

Required actions and comments: Active warming of the patient.

CASE 02

- FOR EXERCISE PURPOSES ONLY -

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ICU/CT 165-180 min

No head injury confirmed after CT

A- Breath sounds from both lungs

B- Controlled ventilation, RR 20

C- HR 120, SBP 120/

E- Warmer

- FOR EXERCISE PURPOSES ONLY -

- Page 24 -

ICU/CT 150-165 min

Required actions and comments: Summary of actions performed.

CASE 02



DYNAMIC INJURY CARDS

Scenario: A bus with Swedish tourists has been involved in a traffic accident on the road between the city and the ski area on the outskirts of town. The road winds up a steep mountainside. On this steep portion, the bus has driven off the road, rolled over, and caught fire.

CASE 03



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Accident site (0-15 min)

Supine position, no answer, blood in the hair and on one leg.

Mobility - NOT able to walk.

A- Snoring

B- RR 30

C- HR 140

D- No response

E- Peripheral coldness

CASE 03

- FOR EXERCISE PURPOSES ONLY -

- Page 2

Accident site (0-15 min)

Required actions and comments:

Place person in recovery position. Move the person with stretcher to collection point. Blanket

Priority: red.

CASE 03

- FOR EXERCISE PURPOSES ONLY -

- Page 3 -

Collection point (15-30 min)

Unconscious. Suspect head trauma. Open femur fracture. Mobility – NOT able to walk.

A- Blood in mouth, snoring, wheezing

B- RR 30

C- HR 120, SBP 95/

D- GCS 8

E- Peripheral coldness, pale

CASE 03

- FOR EXERCISE PURPOSES ONLY -

- Page 4 -

Collection point (15-30 min)

Required actions and comments: Clean the mouth. Place the person in recovery position. Direct pressure over bleeding source, cover. Probable transfusion 1500 ml = 30-40%. Iv needle + infusion Ringer-Acetat 2000 ml. Cover the patient with a blanket.

Priority: red.

CASE 03

- FOR EXERCISE PURPOSES ONLY -

- Page 5 -

Collection point (30-45 min)

Swollen eyelids. Mobility – NOT able to walk.

A- Snoring

B- RR 35

C- HR 120, SBP 95

D- GCS 8

E- Peripheral coldness, pale

CASE 03

- FOR EXERCISE PURPOSES ONLY -

- Page 6 -

Collection point (30-45 min)

Required actions and comments: Plan for intubation and intubate.
Control of the pupils. Fixate the fractured leg.

Priority: red.

CASE 03

- FOR EXERCISE PURPOSES ONLY -

- Page 7 -

Collection point 45-60 min

Suspect bleeding from femur fracture. Mobility – NOT able to walk.

- A-** Intubated and ventilated
- B-** Controlled ventilation RR 20
- C-** HR 120, SBP 80/
- D-** GCS 8 (by the time of intubation) Pupils alike
- E-** Pale

CASE 03

- FOR EXERCISE PURPOSES ONLY -

- Page 8 -

Collection point 45-60 min

Required actions and comments: Possible transfusion, volume replacement with colloid infusion (Rescue flow 250 ml or Voluven 500 ml). Plan for transportation to hospital.

Priority: red.

CASE 03

- FOR EXERCISE PURPOSES ONLY -

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Collecting point 60-75 min

High airway pressure and difficulties to ventilate. Mobility – NOT able to walk.

A- Controlled ventilation

B- RR 20. Breathing sounds weak left thorax

C- HR 130. SBP 100/

D- Slightly larger right pupil in compare with left pupil

E- Peripheral coldness, pale

- FOR EXERCISE PURPOSES ONLY -

- Page 10 -

Collection point 60-75 min

Required actions and comments: Ambulance transport delayed due to ventilation problems. Solve the ventilation problems. Listen, feel and inspect thorax. Intubation failed? Pneumothorax? Pupil controls.

Priority: red.

CASE 03

- FOR EXERCISE PURPOSES ONLY -

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Ambulance transport 75-90 min

Suspected pneumothorax left side. Mobility – NOT able to walk.

A- Controlled ventilation

B- RR 20.

C- HR 110, SBP 100/

D- Right pupil dilates

E- Pale

CASE 03

- FOR EXERCISE PURPOSES ONLY -

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Ambulance transport 75-90 min

Required actions and comments: Needle decompression. Tube thoracostomy.

Priority: red.

CASE 03

- FOR EXERCISE PURPOSES ONLY -

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Ambulance transport 90-105 min

Thoracostomy with tube placed in left side. Ambulance transportation starts. Mobility – NOT able to walk.

A- Controlled ventilation

B- RR 25.

C- HR 110, SBP 100/

D- Right pupil dilates

E- Pale

CASE 03

- FOR EXERCISE PURPOSES ONLY -

- Page 14 -

Ambulance transport 90-105 min

Required actions and comments: Rise of ventilation rate. Mannitol infusion (after contact with neurosurgeon on call). ABCDE survey

Priority: red.

CASE 03

- FOR EXERCISE PURPOSES ONLY -

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Ambulance arrives to ED (105-120min)

Mobility – NOT able to walk.

A- Controlled ventilation

B- RR 20

C- HR 110, SBP 100/

D- Right pupil less dilated

E- Pale

CASE 03

- FOR EXERCISE PURPOSES ONLY -

- Page 16 -

Ambulance arrives to ED (105-120 min)

Required actions and comments: Report to medical staff at hospital.

Priority: red.

CASE 03

- FOR EXERCISE PURPOSES ONLY -

Scenario: A bus with Swedish tourists has been involved in a traffic accident on the road between the city and the ski area on the outskirts of town. The road winds up a steep mountainside. On this steep portion, the bus has driven off the road, rolled over, and caught fire.

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Accident site (0-15 min)

Person screaming, twisting, doesn't move the legs. Mobility – NOT able to walk.

A- Free airways

B- RR 35

C- HR >140, SBP 95/

D- Screaming, not adequate, confused

E- Freezing, shaking

CASE 04

- FOR EXERCISE PURPOSES ONLY -

- Page 2

Accident site (0-15 min)

Required actions and comments:

Can't be put on the side, screaming loudly due to pain in the lower part of the body, blood on the pants, transport on stretcher to collection point.
Pain relief iv

Priority: red.

CASE 04

- FOR EXERCISE PURPOSES ONLY -

- Page 3 -

Collection point (15-30 min)

Heavy bleeding from the pelvis and femur area. Mobility - NOT able to walk.

A- Free airways

B- RR 35

C- HR >140, SBP 95/

D- Screaming, not adequate, confused

E- Freezing, shaking

- FOR EXERCISE PURPOSES ONLY -

- Page 4 -

Collection point (15-30 min)

Required actions and comments: Blood loss $> 2\ 000$ ml, loss of fluid $>40\%$, iv needle, Ringer-Acetat 2000 ml, check for any external bleeding, compression may be needed. Cover the person with a blanket.

Priority: red.

CASE 04

- FOR EXERCISE PURPOSES ONLY -

- Page 5 -

Collection point (30-45 min)

Suspect femur and pelvis fractures. Mobility – NOT able to walk.

A- Free airways

B- RR 20-30

C- HR > 100, SBP 125/

D- Screaming, not adequate, confused

E- Cold,

CASE 04

- FOR EXERCISE PURPOSES ONLY -

- Page 6 -

Collection point (30-45 min)

Required actions and comments: Continued bleeding (loss of volume),
750-1000 ml

Priority: red.

CASE 04

- FOR EXERCISE PURPOSES ONLY -

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Collection point 45-60 min

Suspect femur and pelvis fractures. Mobility – NOT able to walk.

A- Free airways

B- RR 24

C- HR 118, SBP 105/

D- Screaming, confused

E- Freezing, shaking

CASE 04

- FOR EXERCISE PURPOSES ONLY -

- Page 8 -

Collection point 45-60 min

Required actions and comments: Continued bleeding (loss of volume), fluid + 1000 ml Ringer-Acetat, Stabilizing bandage around pelvis e.g. a belt

Priority: red.

CASE 04

- FOR EXERCISE PURPOSES ONLY -

- Page 9 -

Collecting point 60-75 min

Suspect femur and pelvis fractures. Mobility – NOT able to walk.

A- Free airways

B- RR 25

C- HR 120, SBP 95/

D- GCS 12

E- Cold

CASE 04

- FOR EXERCISE PURPOSES ONLY -

- Page 10 -

Collection point 60-75 min

Required actions and comments: Continued bleeding (loss of volume) 1500 ml. Infusion 1000 ml Ringer-Acetat + 500 ml colloid infusion + one large size needle, prepare for transport to hospital.

Priority: red.

CASE 04

- FOR EXERCISE PURPOSES ONLY -

- Page 11 -

Ambulance transport 75-90 min

Suspect femur and pelvis fractures, thorax pain. Mobility – NOT able to walk.

A- Free airways

B- RR 30-40

C- HR >120, SBP 90/

D- GCS 12

E- Cold shaking

CASE 04

- FOR EXERCISE PURPOSES ONLY -

- Page 12 -

Ambulance transport 75-90 min

Required actions and comments: Continued loss of volume. Iv infusions. Iv pain relief

Priority: red.

CASE 04

- FOR EXERCISE PURPOSES ONLY -

- Page 13 -

Ambulance transport 90-105 min

Suspect femur and pelvis fractures, thorax pain. Mobility – NOT able to walk.

A- Free airways

B- RR 20-30

C- HR 118, SBP 90/

D- GCS 12

E- Freezing, shaking, periphery cyanosis

Other- Saturation 93%

CASE 04

- FOR EXERCISE PURPOSES ONLY -

- Page 14 -

Ambulance transport 90-105 min

Required actions and comments: Continuing loss of volumes.
Continuing iv infusions. Pain relief. Loosen the dressing.

Priority: red.

CASE 04

- FOR EXERCISE PURPOSES ONLY -

- Page 15 -

Emergency department (ED) 105-120min

Suspect femur and pelvis fracture, thorax pain. Mobility – NOT able to walk.

A- Free airways

B- RR 20-30

C- HR > 120, SBP 90/

D- GCS 12

E- Freezing, shaking

Other- Saturation 89%,

CASE 04

- FOR EXERCISE PURPOSES ONLY -

- Page 16 -

Emergency department (ED) 105-120 min

Required actions and comments: Report loss of volume, infusion volumes and reason for low saturation. ABCDE survey. Documentation.

Priority: red.

CASE 04

- FOR EXERCISE PURPOSES ONLY -

- Page 17 -

Emergency department 120-135 min

Suspect femur and pelvis fractures. Mobility – NOT able to walk.

A- Free airways

B- RR 20-30

C- HR > 120, SBP 90/

D- GCS 12

E- Freezing, shaking

Other- Saturation 89%

CASE 04

- FOR EXERCISE PURPOSES ONLY -

- Page 18 -

Emergency department 120-135 min

Required actions and comments: ATLS concept in the trauma room, CT head + thorax+abdomen+pelvis. Calculation of bleeding and loss of fluid. Active warming.

Priority: red.

CASE 04

- FOR EXERCISE PURPOSES ONLY -

- Page 19 -

At hospital CT 135-150 min

Suspect femur and pelvis fracture, thorax pain. NOT able to walk.

A- Free airways

B- RR 20-30.

C- HR > 120, SBP 90/

D- GCS 12

E- Freezing, shaking

Other- Saturation 96%

CASE 04

- FOR EXERCISE PURPOSES ONLY -

- Page 20 -

At hospital CT 135-150 min

Required actions and comments: Hb 60

Priority: red.

CASE 04

- FOR EXERCISE PURPOSES ONLY -

- Page 21

ICU/OP 150-165 min

Suspect femur and pelvis fractures, thorax pain. Mobility – NOT able to walk.

A- Free airways

B- RR 20-30

C- HR > 120, SBP 90/

D- GCS 12

E- Freezing, shaking

Other- 97%

CASE 04

- FOR EXERCISE PURPOSES ONLY -

- Page 22 -

ICU/OP 150-165 min

Required actions and comments: 0

CASE 04

- FOR EXERCISE PURPOSES ONLY -

- Page 23

ICU 165-180 min

Suspect femur and pelvis fractures, thorax pain. Mobility – NOT able to walk.

A- Free airways

B- RR 20-30

C- HR > 120, SBP 90/

D- GCS 12

E- Freezing, shaking

Other- Saturation 94%

CASE 04

- FOR EXERCISE PURPOSES ONLY -

- Page 24 -

ICU/CT 150-165 min

Required actions and comments: Summery

CASE 04



DYNAMIC INJURY CARDS

Scenario: A bus with Swedish tourists has been involved in a traffic accident on the road between the city and the ski area on the outskirts of town. The road winds up a steep mountainside. On this steep portion, the bus has driven off the road, rolled over, and caught fire.

CASE 05



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Passenger, female 35 years.

- Page 1 -

Medical team arrives to accident site 30 min after alert

Burn injury 2nd degree on the face and the front of the thoracic region
27% (9+18).

A- Airways open and free, soot in the face

B- RR 20-30

C- HR >120

D- MA (Mildly Anxious), heavily affected by pain

E- Burn injury on the trunk and the face

CASE 05

Passenger, female 35 years.

- Page 2 -

Accident site 30 min after alert. Medical team arrives.

Burn injury face 9 %, thoracic region front 18 %, Airway open and free but beware of the burn injury in the facial region. RR 20-30 and HR > 100 indicates volume depletion corresponding to a blood loss of 750-1500 ml, HR > 120 is higher than that and probably due to severe pain and stress from the burn injury.

Required actions and comments: Hypovolemi due to fluid loss from burn injuries, the patient needs to start with 1000 Ringer Acetat but you are still at the accident site. Place person in recovery position. Transport on stretcher to collection point. Priority red.

Passenger, female 35 years.

- Page 3 -

Accident site 45 min after alert

Burn injury 2nd degree on the face and trunk 27% (9+18).

A- Airway open and free

B- RR 20-30

C- HR >120

D- MA (Mildly Anxious), heavily affected by pain

E- Shivering

CASE 05

Passenger, female 35 years.

- Page 4 -

Accident site 45 min after alert

You are still waiting for transport to collection point. Vital signs are unchanged but the patient has started to shiver, indicating loss of warmth, beware of hypothermia.

Required actions and comments: Cover with blankets to avoid hypothermia. Give Ketamin or Morphine to relieve pain.

Priority: red.

CASE 05

Passenger, female 35 years.

- Page 5 -

Accident site 60 min after alert

Burn injury 2nd degree on the face and trunk 27% (9+18).

A- Airways open and free but big blisters forming on the lips

B- RR 20-30

C- HR >120

D- MA (Mild Anxious)

E- Shivering

CASE 05

Passenger, female 35 years.

- Page 6 -

Accident site 60 min after alert

Facial burn, soot in the face and now big blisters forming on his lips.

RR 20-30, HR>100 equals to 750-1500 bleeding, HR alone >120

equals to 1500-2000 ml blood loss – is the patient bleeding, probably not, fluid loss due to burn injury and excruciating pain explains the RR and HR

Required actions and comments: Most important now is to observe the patient's airways. Burn injury in the face with blisters on the lips indicates a high risk for edema and obstruction of the airways. Also the patient needs to start with 1000 Ringer Acetat but you are still at the accident site, this is not the proper time or place for iv infusion. Priority red for transport to collection point.

Passenger, female 35 years.

- Page 7 -

Accident site 90 min after alert

Burn injury 2nd degree on the face and trunk 27% (9+18).

A- Free airways. The lips are even more swollen

B- RR 20-30, coughing

C- HR > 100

D- MA (Mild Anxious)

E- Shivering

CASE 05

Passenger, female 35 years.

- Page 8 -

Accident site 90 min after alert

Lips even more swollen and the patient is coughing? Obstruction due to edema from burn injury in the airways? RR 20-30 and HR >100, indicate both volume depletion as before, but HR now is somewhat lower than earlier, probably due to effect of pain killer.

Required actions and comments: The situation is getting dangerous with a threat to the patient's airways, still though his airway is open and free and you are at the accident site with several other patients and lack of equipment for more sophisticated assessment and actions to be taken.

Priority: Red.

CASE 05

Passenger, female 35 years.

- Page 9 -

Transport to collection point, 105 min after alert

Burn injury 2nd degree on the face and trunk 27% (9+18)

A- Airways open and free

B- RR 20-30, coughing + dyspnoea

C- HR >100

D- AC (Anxious, Confused)

E- Still shivering, blisters forming in the facial and cervical region

CASE 05

Passenger, female 35 years.

- Page 10 -

Transport to collection point, 105 min after alert

Airway still open and free but the coughing and now dyspnoea are indicating a swollen airway. However you have not been able to make a more thorough assessment of the patient and there could be other explanations too to her dyspnoea. Vital signs with RR 20-30, HR > 100 still indicates hypovolemia.

Required actions and comments: Keep the patient in a semi sitting position to relieve her dyspnoea. Time is running and you ought to get the patient to the collection point for a better assessment.

Priority: Red.

Passenger, female 35 years.

- Page 11 -

Collection point 120 min after alert

Burn injury 2nd degree on the face and trunk 27% (9+18).

- A-** Airways open and free
- B-** RR 20-30, coughing a little, increasing dyspnoea
- C-** HR >100, BPN (Blood Pressure Normal)
- D-** AC (Anxious, Confused)
- E-** Shivering, blisters in the face and in the cervical region

CASE 05

Passenger, female 35 years.

- Page 12 -

Collection point 120 min after alert

Airways open and free, coughing but less than previously. It may be tempting to immediately put a tube into the trachea. But hold, just for a moment and assess his A+B.

Required actions and comments: Auscultation of the lungs.

Priority: Red.

CASE 05

Passenger, female 35 years.

- Page 13 -

Collecting point 140 min after alert

Burn injury 2nd degree on the face and trunk 27% (9+18).

A- Free airways

B- RR 20-30, greatly reduced breath sounds on left lung

C- HR > 100, BPN (Blood Pressure Normal)

D- AC (Anxious, Confused)

E- Shivering, blisters in the face and cervical region

CASE 05

Passenger, female 35 years.

- Page 14 -

Collecting point 140 min after alert

Airway is still open and free but there is a left sided pneumothorax which needs immediate attention.

Required actions and comments: Insert chest tube.

Priority: Red.

CASE 05

Passenger, female 35 years.

- Page 15 -

Collecting point 160 min after alert

Burn injury 2nd degree on the face and trunk 27% (9+18). Pneumothorax.

- A-** Airways open and free
- B-** RR 20-30, coughing, reduced dyspnoea
- C-** HR >100, BPN (Blood Pressure Normal)
- D-** AC (Anxious, Confused)
- E-** No change but more blisters

CASE 05

Passenger, female 35 years.

- Page 16 -

Collection point 160 min after alert

Airway still open and free. Dyspnoea is relieved after his pleura drain was inserted. RR 20-30 and HR > 100, BP N still indicates hypovolemia.

Required actions and comments: Now there is time to consider an iv infusion but as there are several other patients on their way in to the collection point and you have to assess them first. If you however have time see to this patients need for an iv infusion it is the correct time and place.

Priority: Red

Passenger, female 35 years.

- Page 17 -

Collecting point 180 min after alert

Burn injury 2nd degree on the face and trunk 27% (9+18). Pneumothorax

A- Obstructed airways, stridor

B- RR 20-30, coughing, wheezing

C- HR>120, BPN (Blood Pressure Normal)

D- AC (Anxious, Confused)

E- Pale, shivers, blisters in the facial region, on the lips and on the cervical region.

CASE 05

Passenger, female 35 years.

- Page 18 -

Collecting point 180 min after alert

Airways no longer open and free, securing the airways is highest priority. RR 20-30 and HR > 120 indicate hypovolemia and stress. Mental status has deteriorated from MA to AC which could indicate both hypoxia and hypovolemia.

Required actions and comments: IV or IO needle. Give 1000 ml Ringer-Acetate iv. Secure airway – how, when? Intubation? Craniotomy? This may be a difficult choice but the patient is still breathing, you have oxygen and you have the necessary equipment and you are not alone. There is no better place right now to secure his airway.

Priority: red

Passenger, female 35 years.

- Page 19 -

**Ambulance transport 20 min after departure from collection point
(200 min after alert)**

Burn injury 2nd degree on the face and trunk 27% (9+18). Pneumothorax with pleural drain. Airway secured with a tube in trachea.

A- Airway open and free with a tube in the trachea

B- RR 20-30,

C- HR > 100, BPN (Blood Pressure Normal)

D- MA(Mildly Anxious)

E- Pale, shivering

CASE 05

Passenger, female 35 years.

- Page 20 -

**Ambulance transport 20 min after departure from collection point
(200 min after alert)**

You choose to secure the airways before the transport which was a wise decision because if you had not, now you have had an immediate threat to his airways with stridor and you would have had to put a tube into his trachea in a transport with no help from colleagues. But as you choose the right time and place now you can relax and just look to your patients need for iv infusion.

Required actions and comments: 1000 Ringer-Acetate, warm iv.

Priority: red

Passenger, female 35 years.

- Page 21 -

**Ambulance transport 40 min after departure from collection point
(220 min after alert)**

Burn injury 2nd degree on the face and trunk 27% (9+18). Pneumothorax

A- Tube in the trachea, free airways

B- RR 14-20, breathing spontaneously

C- HR > 100, BPN (Blood Pressure Normal)

D- MA (Mildly Anxious)

E- Pale, shivering

CASE 05

Passenger, female 35 years.

- Page 22 -

Ambulance transport 40 min after departure from collection point (200 min after alert)

Airways open and free with a tube in the trachea. RR 14-20. HR > 100, mental status MA. Still shivering.

Required actions and comments: Vital signs more stable but still indication of hypovolemia. Start your second 1000 Ringer Acetate. Make sure that his tube and pleura drain is secured. Give oxygen. The patient is shivering since long, he has blankets for insulation but also keep the ambulance as warm as possible during transport.

CASE 05

. Passenger, female 35 years.

- Page 23 -

**Ambulance transport 60 min after departure from collection point
(240 min after alert)**

Burn injury 2nd degree on the face and trunk 27% (9+18). Pneumothorax.
Patient is vomiting

A- Free airways but a lot of stomach content is in his mouth

B- RR 14-20, breathing spontaneously, coughing intensively

C- HR > 100, BPN (Blood Pressure Normal)

D- MA (Mildly Anxious)

E- Pain, pale, shivers

CASE 05

Passenger, female 35 years.

- Page 24 -

**Ambulance transport 60 min after departure from collection point
(240 min after alert)**

**Airway is secured with a tube in the trachea but now when he throws
up there is a leak in the cuff and some stomach content leaks into the
airways giving him intense coughing**

Required actions and comments: Put patient in side position. Suction
his tube and mouth. Check the cuff. Give oxygen. Give antiemetic iv.

CASE 05

Passenger, female 35 years.

- Page 25 -Arrival to hospital 80 min after departure from collecting point (260 min after alert)

Burn injury 2nd degree on the face and trunk 27% (9+18). Pneumothorax sin., Hypothermic, shivering. Temperature 35 C.

A- Airways open and free with a tube in the trachea

B- RR 14-20

C- HR > 100, BPN (Blood Pressure Normal)

D- MA (Mildly Anxious)

E- Temperature 35°

Passenger, female 35 years.

- Page 26 -

Arrival to hospital 80 min after departure from collecting point (260 min after alert)

Report to hospital:

Burn injury 2nd degree on the face and trunk 27% (9+18). Pneumothorax sin., pleura drain inserted and in place. Obstructed airways from edema following facial burn injury, tube inserted and in place. Hypovolemia due to burn injury, 2000 ml Ringer Acetate infused. Hypothermic, shivering. Temperature 35 C.

CASE 05



DYNAMIC INJURY CARDS

Scenario: A bus with Swedish tourists has been involved in a traffic accident on the road between the city and the ski area on the outskirts of town. The road winds up a steep mountainside. On this steep portion, the bus has driven off the road, rolled over, and caught fire. The injury panorama is a mixture of rapid deceleration injuries and burn injuries

CASE 06



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Passenger, male 44 years

- Page 1 -

Medical team arrives to accident site 30 min after alert
Head injury.

A- Airways obstructed

B- RR 14-20

C- HR >100

D- AC (Anxious, Confused), numbness in hands and feet

E- Pale

CASE 06

Passenger, male 44 years

- Page 2 -

Accident site 30 min after alert. Medical team arrives.

Airways are obstructed, a threat to life that has to be handled immediately. RR 14-20 and HR > 100 indicates blood loss up to 750-1500 ml. Mental status AC indicates blood loss 1500-2000 but here we have a head injury which alone can explain mental status. Numbness in hands and feet is a serious sign of cervical fracture

Required actions and comments: Free airways. Cervical collar. Recovery position.

Priority: red.

Passenger, male 44 years

- Page 3 -

Accident site 45 min after alert
Head injury, suspected C- fracture

- A-** Airways open and free
- B-** RR 8-10
- C-** HR >100
- D-** AC (Anxious, Confused)
- E-** Pale, shivering

CASE 06

Passenger, male 44 years

- Page 4 -

Accident site 45 min after alert

Airways open and free after recovery position. Cervical collar in place. RR 8-10 but HR > 100, indicates an effect on RR from the head injury but also a blood loss of 750-1500 according to HR. Pale and shivering patient indicates loss of warmth and risk of hypothermia.

Required actions and comments: You probably have several questions and would like to do more to this patient but you are still at the accident site and there are other patients that have to be assessed too. Cover the person with blankets. Trendelenburg's position.

Passenger, male 44 years

- Page 5 -

Accident site 60 min after alert

Head injury, suspected C- fracture.

A- Airways open and free

B- RR 8-10

C- HR >100

D- AC (Anxious, Confused)

E- Pale

CASE 06

Passenger, male 44 years

- Page 6 -

Accident site 60 min after alert

Vital sign are unchanged with RR 8-10 and HR > 100, mental status AC, pale but not shivering.

Required actions and comments: You are still at the accident site and even if you are worried about the head injury and the suspected cervical fracture you can't do more at the moment. Can you?

Priority: red.

CASE 06

Passenger, male 44 years

- Page 7 -

Accident site 90 min after alert
Head injury, suspected C fracture.

A- Snoring

B- RR 6-8

C- HR > 100

D- CL (Confused Lethargic)

E- Pale

CASE 06

Passenger, male 44 years

- Page 8 -

Accident site 90 min after alert

Vital signs are deteriorating. Airways are obstructed. RR even lower, now 6-8 and HR still > 100 , mental status CL. You have to do something to the obstructed airways. RR getting lower and mental status CL could both be signs of hypoxia and increased intracranial pressure. HR > 100 still is a sign of blood loss 750-1500 ml.

Required actions and comments: Nasopharyngeal tube

Priority: Red

CASE 06

Passenger, male 44 years

- Page 9 -

Transport to collection point, 105 min after alert

Head injury, suspected C fracture.

A- Open and free with nasopharyngeal tube

B- RR 20-30

C- HR >100

D- CL (Confused Lethargic)

E- Pale, shivering

CASE 06

Passenger, male 44 years

- Page 10 -

Transport to collection point, 105 min after alert

Airways now open and free with nasopharyngeal tube. RR 20-30 and HR > 100 indicates blood loss 750-1500 ml. Mental status CL indicates more than blood loss 1500, again suspect the head injury as an explanation. Patient shivering again, indicates hypothermia.

Required actions and comments: Transport the person in recovery position. Cover the person with more blankets insulate under the patient too.

Priority: red.

Passenger, male 44 years

- Page 11 -

Collection point 120 min after alert

Head injury, suspected C-fracture.

- A-** Airways open and free, supine position, nasopharyngeal tube
- B-** RR 20-30, reduced breath sounds right lung
- C-** HR >100, BPD (Blood Pressure Decreased)
- D-** CL (Confused Lethargic)
- E-** Pale, shivers

CASE 06

Passenger, male 44 years

- Page 12 -

Collection point 120 min after alert

Airways secured with nasopharyngeal tube. RR 20-30 and HR > 100, BP D are all strong indicators of blood loss 750-1500 may be even more according to BP alone. Mental status CL can be both from blood loss and head injury. Reduced breath sounds dx would make you suspect hemo-pneumothorax.

Required actions and comments: Insert an IV or IO needle, start infusion warm 1000 ml Ringer-Acetat. Hemo- pneumothorax?

CASE 06

Passenger, male 44 years

- Page 13 -

Collecting point 140 min after alert

Head injury, suspected C-fracture, hemothorax?

- A-** Free airways, supine position, nasopharyngeal tube
- B-** RR 20-30, reduced breath sounds right lung
- C-** HR > 100, BPD (Blood Pressure Decreased)
- D-** CL (Confused Lethargic)
- E-** Pale, shivering

CASE 06

Passenger, male 44 years

- Page 14 -

Collecting point 140 min after alert

Vitals signs are all strong indicators of blood loss of 750-1500 ml , maybe even more although you have started infusion of Ringer-Acetat. Reduced breath sounds dx .is still an indicator of hemo-penumothorax. You are now at the collection point and have warmth, shelter and equipment to do something about this.

Required actions and comments: Insert a chest tube – evacuation of 450 ml blood.

Priority: Red

Passenger, male 44 years

- Page 15 -

Collecting point 160 min after alert

Head injury, suspected C fracture, hemothorax dx, drain inserted.

A- Free airways, supine position, nasopharyngeal tube

B- RR 14-20

C- HR >100, BPD (Blood Pressure Decreased)

D- CL (Confused Lethargic)

E- Pale, shivering

CASE 06

Passenger, male 44 years

- Page 16 -

Collecting point 160 min after alert

Airways still secured with nasopharyngeal tube. RR 14-20. more normal after pleural drain, HR > 100 and BP D still indicating blood loss 750-1500. Mental status Cl, can be explained from blood loss and head injury.

Required actions and comments: Bleeding 750-1500 ml. Give more iv infusion - a second warm 1000 ml Ringer-Acetat.

CASE 06

Passenger, male 44 years

- Page 17 -

Collecting point 180 min after alert

Head injury, suspected C fracture, hemothorax.

A- Free airways, supine position, nasopharyngeal tube, vomiting

B- RR 14-20

C- HR>100, BPN (Blood Pressure Normal)

D- CL (Confused Lethargic)

E- Pale, shivering

CASE 06

Passenger, male 44 years

- Page 18 -

Collecting point 180 min after alert

Airways open and free with nasopharyngeal tube but now the patient is vomiting which needs immediate action as his mental status is CL and he is in danger of aspiration. HR still > 100 but BP N are both signs of hypovolemia but you have had effect on BP from your infusion.

Required actions and comments: Recovery position, clean the mouth.
Transport to hospital

Priority: red

Passenger, male 44 years

- Page 19 -

**Ambulance transport 20 min after departure from collection point
(200 min after alert)**

Head injury, suspected C fracture, hemothorax

A- Free airways, recovery position, nasopharyngeal tube

B- RR 14-20, chest tube

C- HR > 100, BPN (Blood Pressure Normal)

D- CL (Confused Lethargic)

E- Pale, no shivering

CASE 06

Passenger, male 44 years

- Page 20 -

**Ambulance transport 20 min after departure from collection point
(200 min after alert)**

Airways still secured by nasopharyngeal tube. RR 14-20 and HR > 100 but BP N are still indicating hypovolemia. Mental status CL now strongly points to a severe head injury as blood loss alone can't explain mental status CL. Patient is not shivering may be an effect of blankets and a warm ambulance, but remember the suspected C-fracture, maybe the patient is not able to shiver due to a medullary lesion on cervical level.

Required actions and comments: Oxygen, Check temperature.

CASE 06

Passenger, male 44 years

- Page 21 -

**Ambulance transport 40 min after departure from collection point
(220 min after alert)**

Head injury, suspected C fracture, hemothorax

A- Airways open and free with nasopharyngeal tube

B- RR 10-12,

C- HR > 100, BPN (Blood Pressure Normal)

D- CL (Confused Lethargic)

E- Pale, temperature 34.5°

CASE 06

Passenger, male 44 years

- Page 22 -

Ambulance transport 40 min after departure from collection point (220 min after alert)

Airways open and free with nasopharyngeal tube. RR 10-12, why? HR > 100, BP N, still indicates bleeding 750-1500. Mental status unchanged. Temperature 34.5, means that the patient is clearly hypothermic and can explain the reduced RR, but RR can also indicate a higher intracranial pressure.

Required actions and comments: Maximal heating in the ambulance. Blankets. Why is the respiration rate decreasing?

CASE 06

Passenger, male 44 years

- Page 23 -

**Ambulance transport 60 min after departure from collection point
(240 min after alert)**

Head injury, suspected C fracture, hemothorax

A- Obstructed airways, blood and phlegm from the mouth

B- RR 10-12, coughing

C- HR > 100, BPN (Blood Pressure Normal)

D- CL (Confused Lethargic)

E- Pale, temperature 34°

CASE 06

Passenger, male 44 years

- Page 24 -

**Ambulance transport 60 min after departure from collection point
(240 min after alert)**

**Airways obstructed from blood and phlegm, need immediate action.
RR 10-12, coughing as indication of some aspiration. HR > 100, BP
N, still hypovolemia but not deteriorating. Mental status CL, head
injury**

Required actions and comments: Immediate recovery position. Clean
the mouth, suction from nasopharynx.

Priority: red

CASE 06

Passenger, male 44 years

- Page 25 -

Arrival to hospital 80 min after departure from collecting point (260 min after alert)

Head injury, suspected C fracture, hemothorax

A- Airways open and free with nasopharyngeal tube

B- RR 8-10

C- HR > 100, BPN (Blood Pressure Normal)

D- L (Lethargic)

E- Pale, temperature 34°

CASE 06

Passenger, male 44 years

- Page 26 -

Arrival to hospital 80 min after departure from collecting point (260 min after alert)

Report to hospital: Head injury, mental status CL and deteriorating. Suspected C-fracture with numbness in hands and feet, cervical collar. Hemothorax dx. drain inserted 450 ml evacuated. Airways open and free with nasopharyngeal tube, intubation is warranted. RR 8-10 and declining. HR > 100, BP N, still hypovolemic after 2000 Ringer Acetat. Hypothermic T 34.5C.

Priority red

CASE 06



DYNAMIC INJURY CARDS

Scenario: A bus with Swedish tourists has been involved in a traffic accident on the road between the city and the ski area on the outskirts of town. The road winds up a steep mountainside. On this steep portion, the bus has driven off the road, rolled over, and caught fire. The injury panorama is a mixture of rapid deceleration injuries and burn injuries

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Passenger, male 52 years

- Page 1 -

Medical team arrives to accident site 30 min after alert

Burn injury 2nd degree on the trunk 18+18%.

A- Airways open and free

B- RR 20-30

C- HR >100

D- AC (Anxious, Confused), affected by pain

E- 2nd degree burn injury on the trunk, 18+18%

CASE 07

Passenger, male 52 years

- Page 2 -

Accident site 30 min after alert. Medical team arrives.

Airway open and free. RR 20-30, HR > 100 indicates blood loss or volume depletion equal to 750-1500. Mental status AC is more than expected from blood loss alone, severe pain from burn injuries may explain this.

Required actions and comments: You are on the accident site and even if you would like to do more this is not the proper time or place. There are several other injured victims that need attention too. Prevent hypothermia, blankets.

Priority: yellow.

Passenger, male 52 years

- Page 3 -

Accident site 45 min after alert

Burn injury 2nd degree on the trunk 18+18%.

A- Airways open and free

B- RR 20-30

C- HR >100

D- AC (Anxious, Confused), affected by pain

E- Freezing, shivering

CASE 07

Passenger, male 52 years

- Page 4 -

Accident site 45 min after alert

Vital signs unchanged, airways open and free, RR 20-30, HR > 100. Mental status AC, still severe pain. Shivering, indicates loss of warmth although you have covered the patient with blankets

Required actions and comments: Blankets + foam mattress to save from the cold ground. Pain relief –ketamin or morphine, iv or im or sc?

CASE 07

Passenger, male 52 years

- Page 5 -

Accident site 60 min after alert

Burn injury 2nd degree on the trunk 18+18%,

A- Free airways

B- RR 20-30

C- HR >120

D- AC (Anxious, Confused), affected by pain

E- Freezing, shivering, dislocated lower limb

CASE 07

Passenger, male 52 years

- Page 6 -

Accident site 60 min after alert

Vital signs unchanged. Airway open and free. RR 20-30, HR > 100 and mental status AC all indicating hypovolemia equal to blood loss 750-1500 AC. Dislocation of lower limb, fracture, need to be put in position and fixed.

Required actions and comments: Fixation of the lower limb fracture, use simple measures.

Priority yellow

CASE 07

Passenger, male 52 years

- Page 7 -

Accident site 90 min after alert

Burn injury 2nd degree on the trunk (18+18%). Lower limb fracture.

A- Airways open and free

B- RR 20-30

C- HR > 120

D- AC, affected by pain

E- Freezing, shivering

CASE 07

Passenger, male 52 years

- Page 8 -

Accident site 90 min after alert

Airway open and free, RR 20-30, HR > 120, mental status AC, still indicating hypovolemia equal to at least 1500 ml blood loss. There is no obvious bleeding except for the fracture but the burn injury can explain the high HR and the mental status. Patient is shivering, still losing warmth.

Required actions and comments: You would wish to be able to give iv infusion of crystalloids but you are still at the accident site and neither have time nor equipment to do it, and it's freezing cold.

Priority yellow.

Passenger, male 52 years

- Page 9 -

Transport to collection point, 105 min after alert

Burn injury 2nd degree on the trunk 18+18%, Lower limb fracture.

A- Obstructed airways

B- RR 20-30

C- HR >120

D- CL (Confused and lethargic), seizures

E- Pale, cyanotic

CASE 07

Passenger, male 52 years

- Page 10 -

Transport to collection point, 105 min after alert

Airways obstructed, RR 20-30, HR > 120, mental status now CL and the patient suffers from seizures.

Required actions and comments: Seizures, probably epileptic origin, he has a medallion around his neck with a candle. Put patient immediately in recovery position and make sure that his airway is open and free.

CASE 07

Passenger, male 52 years

- Page 11 -

Collection point 120 min after alert

Burn injury 2nd degree on the trunk 18+18%, Lower limb fracture.

Epileptic seizure?

A- Snoring breathing

B- RR 20-30

C- HR >120, BPN (Blood Pressure Normal)

D- CL (Confused Lethargic)

E- Pale, shivers

CASE 07

Passenger, male 52 years

- Page 12 -

Collection point 120 min after alert

Airways not free, snoring, RR 20-30 and HR > 120, BP N, mental status CL, all indicating volume depletion equal to 750-1500 ml blood loss. Mental status and HR although would indicate 1500-200 but BP is normal. The high HR and CL can be explained by pain from burn injuries and secondary to seizures. Seizures stopped spontaneously.

Required actions and comments: Insert an iv or IO needle, give iv infusion 1000 ml warm Ringer-Acetat. Keep patient in recovery position. Consider nasopharyngeal tube.

Passenger, male 52 years

- Page 13 -

Collecting point 140 min after alert

Burn injury 2nd degree on the trunk 18+18%, Lower limb fracture.

Epileptic seizure ?

A- Airways obstructed

B- RR 14-20

C- HR > 100, BPN (Blood Pressure Normal)

D- Seizures

E- Pale

CASE 07

Passenger, male 52 years

- Page 14 -

Collecting point 140 min after alert

Airways obstructed , needs immediate attention. RR 14-20, HR> 100, mental status ongoing seizures. Your Ringer Acetate is effective. But you have to stop his seizures.

Required actions and comments: Put in a nasopharyngeal tube Give 10 mg Stesolid iv. Keep patient in recovery position.

CASE 07

Passenger, male 52 years

- Page 15 -

Collecting point 160 min after alert

Burn injury 2nd degree on the trunk 18+18%, Lower limb fracture.

Epileptic seizure ?

A- Airways open and free with nasopharyngeal tube in place

B- RR 14-20

C- HR >100, BPN (Blood Pressure Normal)

D- CL (Confused Lethargic)

E- Pale, shivering

CASE 07

Passenger, male 52 years

- Page 16 -

Collecting point 160 min after alert

Airway now open and free with nasopharyngeal tube. RR 14-20 , HR > 100, mental status CL, indicating hypovolemia 750-1500 ml and post seizure affection of mental status. Patient is shivering indicating hypothermia.

Required actions and comments: Check add more blankets for insulation. Start a second 1000 warm Ringer Acetate

CASE 07

Passenger, male 52 years

- Page 17 -

Collecting point 180 min after alert

Burn injury 2nd degree on the trunk 18+18%, Lower limb fracture.

Epileptic seizure?

A- Airways open and free, nasopharyngeal tube

B- RR 14-20

C- HR>100, BPN (Blood Pressure Normal)

D- AC (Anxious, Confused)

E- Pale, freezing, shivering, pain

CASE 07

Passenger, male 52 years

- Page 18 -

Collecting point 180 min after alert

Airways open and free with nasopharyngeal tube. RR 14-20, HR > 100, mental status AC. Severe pain from burn injuries and still shivering from cold

Required actions and comments: Give morphine 2-4 mg iv, small doses.

Priority: Yellow

CASE 07

Passenger, male 52 years

- Page 19 -

**Ambulance transport 20 min after departure from collection point
(200 min after alert)**

Burn injury 2nd degree on the trunk 18+18%, Lower limb fracture.

Epileptic seizure?

A- Free airways, nasopharyngeal tube

B- RR 20-30

C- HR > 100, BPN (Blood Pressure Normal)

D- AC (Anxious, Confused)

E- Freezing

CASE 07

Passenger, male 52 years

- Page 20 -

**Ambulance transport 20 min after departure from collection point
(200 min after alert)**

**Airway open and free with nasopharyngeal tube in place. RR 20-30,
HR > 100, BP N, mental status AC. Why is respiratory rate
increasing? Hypoxia? Hypovolemia? Pain?**

Required actions and comments: Why is respiratory rate increasing?
Always handle the A first, Oxygen 15 l/min on a non-rebreathing mask,
then B, give a bolus of 500 ml warm Ringer Acetate iv.

CASE 07

Passenger, male 52 years

- Page 21 -

**Ambulance transport 40 min after departure from collection point
(220 min after alert)**

Burn injury 2nd degree on the trunk 18+18%, Lower limb fracture.
Epileptic seizure?

A- Airways open and free, nasopharyngeal tube

B- RR 20-30

C- HR > 100, BPN (Blood Pressure Normal)

D- AC (Anxious, Confused)

E- Freezing, pain, temperature 35C

CASE 07

Passenger, male 52 years

- Page 22 -

**Ambulance transport 20 min after departure from collection point
(200 min after alert)**

Airways open and free with nasopharyngeal tube. RR 20-30, HR > 100, BP N. Still high RR although you have given oxygen and volume. Pain can explain the higher RR

Required actions and comments: Give morphine 2-4 mg iv

CASE 07

Passenger, male 52 years

- Page 23 -

**Ambulance transport 60 min after departure from collection point
(240 min after alert)**

Burn injury 2nd degree on the trunk 18+18%, Lower limb fracture.

Epileptic seizure ?

A- Airways, open and free with nasopharyngeal tube but now vomiting

B- RR 20-30, coughing

C- HR > 120, BP D

D- AC (Anxious, Confused)

E- Shivering

CASE 07

Passenger, male 52 years

- Page 24 -

Ambulance transport 60 min after departure from collection point (240 min after alert)

Airways open and free with nasopharyngeal tube but vomiting is a threat to his airways that needs immediate attention. RR 20-30 and HR now > 120, BP D indicating volume depletion 1500-2000.

Required actions and comments: Immediate Recovery position. Clean the mouth. Increase infusion rate of Ringer-Acetat.

CASE 07

Passenger, male 52 years

- Page 25 -

Arrival to hospital 80 min after departure from collecting point (260 min after alert)

Burn injury 2nd degree on the trunk 18+18%, Lower limb fracture.

Epileptic seizures?

A- Free airways, nasopharyngeal tube

B- RR 30-40

C- HR > 120, BPD (Blood Pressure Decreased)

D- AC (Anxious, Confused)

E- Pale, shivering.

CASE 07

Passenger, male 52 years

- Page 26 -

Arrival to hospital 80 min after departure from collecting point (260 min after alert)

Report to hospital: Burn injury 2nd degree on the trunk 18+18%, Lower limb fracture, repositioned and fixed. Epileptic seizures, EP medallion, 10 mg diazepam given. Hypovolemia, 2000 Ringer Acteate infused but still RR 30-40 and HR > 120 indicating volume depletion 1500-2000 ml. No obvious bleeding. Hypothermic, 35 C.

Required actions and comments: Give more infusion, warm Ringer-Acetate

CASE 07



DYNAMIC INJURY CARDS

Scenario: A bus with Swedish tourists has been involved in a traffic accident on the road between the city and the ski area on the outskirts of town. The road winds up a steep mountainside. On this steep portion, the bus has driven off the road, rolled over, and caught fire. The injury panorama is a mixture of rapid deceleration injuries and burn injuries

CASE 08



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Passenger, male 47 years

- Page 1 -

Medical team arrives to accident site 30 min after alert

Burn injury, 2nd degree on both legs. Dislocated left shoulder.

A- Airways open and free

B- RR 20-30

C- HR >120

D- AC (Anxious, Confused), affected by pain

E- 2nd degree burn injury on both legs, 18+18%

CASE 08

Passenger, male 47 years

- Page 2 -

Accident site 30 min after alert. Medical team arrives.

Airway open and free. RR 20-30, HR > 120, mental status AC, all indicating blood loss 1500-2000 ml. Burn injuries, second degree to both legs equals 36 %

Required actions and comments: You are at the accident site, evne if you realize that the patient needs volume, this is not the proper time or place. There are several other patients who need assessment. Blankets, recover position.

Priority: yellow

CASE 08

Passenger, male 47 years

- Page 3 -

Accident site 45 min after alert

Burn injury, 2nd degree on both legs. Dislocated left shoulder

A- Airways open and free

B- RR 20-30

C- HR >120

D- AC (Anxious, Confused), heavily affected by pain

E- Freezing, shivering

CASE 08

Passenger, male 47 years

- Page 4 -

Accident site 45 min after alert

**Vital signs unchanged, RR 20-30, HR > 120 and mental status AC.
Severe pain and shivering.**

Required actions and comments: Still not suitable to give volume.
Blankets and pain relief is all you can do – ketamin or morphine.

Priority: Yellow

CASE 08

Passenger, male 47 years

- Page 5 -

Accident site 60 min after alert

Burn injury, 2nd degree on both legs. Dislocated left shoulder

A- Airways open and free

B- RR 20-30

C- HR >120

D- AC (Anxious, Confused), affected by pain

E- Freezing, shivering, pale

CASE 08

Passenger, male 47 years

- Page 6 -

Accident site 60 min after alert

Vital signs unchanged, RR 20-30, HR > 120 and mental status AC still indicating volume depletion 1500-2000 ml. Pain and shivering.

Required actions and comments: Still recovery position, pain relief and blankets, and if possible insulating mattresses to save the patient from loosing warmth to the cold ground are all you can do.

Priority: yellow

CASE 08

Passenger, male 47 years

- Page 7 -

Accident site 90 min after alert

Burn injury, 2nd degree on both legs. Dislocated left shoulder

A- Airways open and free

B- RR 20-30

C- HR > 120

D- AC (Anxious, Confused)

E- Pale, cold and clammy

CASE 08

Passenger, male 47 years

- Page 8 -

Accident site 90 min after alert

Vital signs are deteriorating, RR 20-30, HR > 120, mental status AC and now the patient is pale, cold and clammy all indicating severe blood loss. No obvious bleeding sites but you have to consider intra thoracic or intra abdominal bleeding.

Required actions and comments: Put patient into Trendelenburg's position.

Priority: Change from yellow to red.

CASE 08

Passenger, male 47 years

- Page 9 -

Transport to collection point, 105 min after alert

Burn injury, 2nd degree on both legs. Dislocated left shoulder

A- Airways open and free, vomiting

B- RR 20-30

C- HR >120

D- AC (Anxious, Confused)

E- Pale, cold and clammy

CASE 08

Passenger, male 47 years

- Page 10 -

Transport to collection point, 105 min after alert

Vital signs still indicating severe volume depletion with RR 20-30, HR > 120 , mental status AC, pale, cold and clammy, now vomiting too. Bleeding is one explanation, angina or myocardial infarction is another.

Required actions and comments: You would need oxygen, volume and better assessment. During transport give pain relief, ketamin or morphine. Recovery and Trendelenburg's position.

CASE 08

Passenger, male 47 years

- Page 11 -

Collection point 120 min after alert

Burn injury, 2nd degree on both legs. Dislocated left shoulder.

A- Vomiting, but free airways

B- RR 30-40

C- HR >120, BPD (Blood Pressure Decreased)

D- AC (Anxious, Confused), abdominal pains

E- Pale, cold and clammy

CASE 08

Passenger, male 47 years

- Page 12 -

Collection point 120 min after alert

Vital signs are deteriorating, RR 30-40, HR > 120, BP D, mental status AC indicates blood loss 1500-2000. Pale, cold and clammy mean hypovolemic shock.

Required actions and comments: Put in IV or IO times two, Give iv infusion 2000 ml warm Ringer-Acetate at high speed. Suspect abdominal- or chest bleeding.

CASE 08

Passenger, male 47 years

- Page 13 -

Collecting point 140 min after alert

Burn injury, 2nd degree on both legs. Dislocated left shoulder.

A- Airways open and free

B- RR 20-30

C- HR > 120, BPD (Blood Pressure Decreased)

D- AC (Anxious, Confused)

E- Pale

CASE 08

Passenger, male 47 years

- Page 14 -

Collecting point 140 min after alert

Vital signs a little more stabile, RR 20-30, HR > 120, mental status AC still pale but not cold and clammy anymore

Required actions and comments: Continue iv or io 2000 ml Ringer-Acetat. Trendelenburg's position. Assess abdomen. Auscultate both lungs.

Priority: red

CASE 08

Passenger, male 47 years

- Page 15 -

Collecting point 160 min after alert

Burn injury, 2nd degree on both legs. Dislocated left shoulder.

A- Airways open and free

B- RR 30-40, breath sounds equal both sides

C- HR >120, BPD (Blood Pressure Decreased). Abdomen tense and painful to palpation over right upper quadrant

D- AC (Anxious, Confused)

E- Pale.

CASE 08

Passenger, male 47 years

- Page 16 -

Collecting point 160 min after alert

Vital signs still indicating severe blood loss, RR 30-40, HR > 120 , BP D, mental status AC is equal to 1500-2000 ml volume depletion. Abdominal bleeding from right upper quadrant may explain the blood loss.

Required actions and comments: Continue iv infusion 2000 ml warm Ringer-Acetat

Priority: Red

CASE 08

Passenger, male 47 years

- Page 17 -

Collecting point 180 min after alert

Burn injury, 2nd degree on both legs. Dislocation of shoulder. Abdominal injury.

A- Airways free and open, vomiting

B- RR 20-30

C- HR>120, BPD (Blood Pressure Decreased)

D- AC (Anxious, Confused), chest pain, pains also in left arm

E- Pale

CASE 08

Passenger, male 47 years

- Page 18 -

Collecting point 180 min after alert

Airway open and free, RR 20-30, HR > 120 , BP D, mental status AC indicates ongoing bleeding. Patient now vomiting, and suffers from chest pain and pain in left arm. You must suspect angina or myocardial infarction.

Required actions and comments: Clear airways after vomiting, suspect angina, give morphine 2-4 mg iv, or io, oxygen if available, 15 l/min on non rebreathable mask.

Priority: Red

Passenger, male 47 years

- Page 19 -

**Ambulance transport 20 min after departure from collection point
(200 min after alert)**

Burn injury, 2nd degree on both legs. Dislocation of shoulder. Abdominal injury. Angina.

A- Airways open and free

B- RR 20-30

C- HR > 120, BPD (Blood Pressure Decreased)

D- MA (Mildly Anxious)

E- Freezing, pale

CASE 08

Passenger, male 47 years

- Page 20 -

Ambulance transport 20 min after departure from collection point (200 min after alert)

Vital signs RR 20-30, HR > 120, BP D, mental status MA which is a little better, oxygen and morphine seems to have effect. Patient is pale and freezing, risk for hypothermia is considerable. Check temperature.

Required actions and comments: Continue with oxygen, continue with infusion of Ringer Acetate, morphine 2-4 mg iv iterative doses until pain relief.

CASE 08

Passenger, male 47 years

- Page 21 -

**Ambulance transport 40 min after departure from collection point
(220 min after alert)**

Burn injury, 2nd degree on both legs. Dislocation of shoulder. Abdominal injury. Angina.

A- Free airways

B- RR 20-30

C- HR > 120, BPD (Blood Pressure Decreased)

D- AC (Anxious, Confused), central chest pains

E- Freezing, pale, cold and clammy

CASE 08

Passenger, male 47 years

- Page 22 -

**Ambulance transport 20 min after departure from collection point
(200 min after alert)**

**Vital signs still indicating blood loss 1500-2000, RR 20-30, HR > 120,
BP D, mental status AC, now cold and clammy again with chest pain.
Angina.**

Required actions and comments: Angina - morphine 2-4 mg iv
iterative doses till pain relief .Continue iv/io infusion of 2000
RingeAcetate.

Priority: Red

CASE 08

Passenger, male 47 years

- Page 23 -

**Ambulance transport 60 min after departure from collection point
(240 min after alert)**

Burn injury, 2nd degree on both legs. Dislocation of shoulder. Abdominal injury. Angina.

A- Free airways

B- RR 20-30

C- HR > 120, BPD (Blood Pressure Decreased)

D- MA (Mildly Anxious)

E- Pale, freezing. Temperature 35.5

CASE 08

Passenger, male 47 years

- Page 24 -

Ambulance transport 60 min after departure from collection point (240 min after alert)

Vital signs unchanged, RR 20-30, HR > 120, BP D, mental status MA, still indicating blood loss 1500-2000 ml. NO chest pain. Patient mildly hypothermic.

Required actions and comments: Continue oxygen, infusion of warm Ringer Acetate, morphine as needed. Keep ambulance as warm as possible to avoid further heat loss.

CASE 08

Passenger, male 47 years

- Page 25 -

Arrival to hospital 80 min after departure from collecting point (260 min after alert)

Burn injury, 2nd degree on both legs. Dislocation of shoulder. Abdominal injury. Angina.

A- Free airways

B- RR 30-40

C- HR > 120, BPD (Blood Pressure Decreased)

D- AC (Anxious, Confused)

E- Temperature 35°, pale

CASE 08

Passenger, male 47 years

- Page 26 -

Arrival to hospital 80 min after departure from collecting point (260 min after alert)

Report to hospital: Burn injury, 2nd degree on both legs, 18 + 18 %. Dislocation of shoulder. Abdominal injury right upper quadrant. Blood loss 1500-2000. Vital signs still unstable, 2000 ml Ringer acetate infused. Chest pain, suspect angina pectoris or myocardial infarction. Morphine given in several doses by 2-4 mg iv.

CASE 08



DYNAMIC INJURY CARDS

Scenario: A bus with Swedish tourists has been involved in a traffic accident on the road between the city and the ski area on the outskirts of town. The road winds up a steep mountainside. On this steep portion, the bus has driven off the road, rolled over, and caught fire. The injury panorama is a mixture of rapid deceleration injuries and burn injuries.

CASE 09



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Passenger male 57 years

- Page 1 -

Medical team arrives to accident site 30 min after alert

Burn injury, 2nd to 3rd on the trunk 18+18%.

A- Airways open and free

B- RR 20-30

C- HR >100

D- AC (Anxious, Confused), affected by pain

E- Pale, freezing

CASE 09

Passenger male 57 years

- Page 2 -

Accident site 30 min after alert. Medical team arrives.

Vital signs; Airway is open and free. RR 20-30, HR >100, indicates a blood loss 750-1500 ml, mental status AC equals to more but can be explained by the burn injuries. Patient is pale and cold

Required actions and comments: You are at the accident site and even if you would like to put an iv, this is not the proper time or place. There are several other victims that need to be assessed.

Blanket to prevent hypothermia.

Priority: yellow.

Passenger male 57 years

- Page 3 -

Accident site 45 min after alert

Burn injury, 2nd to 3rd on the trunk 18+18%.

A- Airways open and free

B- RR 20-30

C- HR >100

D- AC (Anxious, Confused), affected by pain

E- Freezing, shivering

Passenger male 57 years

- Page 4 -

Accident site 45 min after alert

Vital signs are unchanged, airways open and free, RR 20-30, HR > 100 and mental status AC, affected by pain.

Required actions and comments: Pain relief –ketamin or morphine im.

Priority yellow

Passenger male 57 years

- Page 5 -

Accident site 60 min after alert

Burn injury, 2nd to 3rd on the trunk 18+18%.

- A-** Airways open and free
- B-** RR 20-30
- C-** HR >120
- D-** AC (Anxious, Confused)
- E-** Pale, cold and clammy, hungry

Passenger male 57 years

- Page 6 -

Accident site 60 min after alert

Vital signs have deteriorated, airway still open and free, RR 20-30, HR > 120, mental status AC, but now also cold and clammy and hungry. Vitals signs indicate hypovolemia but his hunger may also be the clue to the patient's deterioration.

Required actions and comments. You are still at the accident site, the patients vital signs strongly indicate hypovolemia, put patient in trendelenburg position but also look for injection marks indicating Diabetes mellitus.

Passenger male 57 years

- Page 7 -

Accident site 90 min after alert

Burn injury, 2nd to 3rd on the trunk 18+18%.

A- Airways open and free

B- RR 20-30

C- HR > 120

D- AC (Anxious, Confused)

E- Anxious, very confused, cold and clammy

Passenger male 57 years

- Page 8 -

Accident site 90 min after alert

Vital signs still indicating hypovolemia but the patient has no effect of trendelenburgs position, but is getting even more anxious and confused, cold and clammy.

Required actions and comments: You must suspect hypoglycemia. If the patient is awake some sweet drink but better is glucagon sc, or glucose iv; 30 ml 20% glucose

Passenger male 57 years

- Page 9 -

Transport to collection point, 105 min after alert

Burn injury, 2nd to 3rd on the trunk 18+18%. Suspected Diabetes Mellitus

A- Airways open and free

B- RR 20-30. minor dyspnoea

C- HR >100

D- MA (Mildly Anxious)

E- Pale

Passenger male 57 years

- Page 10 -

Transport to collection point, 105 min after alert

Vitals signs RR 20-30, HR > 100, mental status MA, all indicating hypovolemia equal to 750-1500 blood loss. You had effect of glucagon sc and also found injection marks from DM and now the patient himself can tell that he has DM

Required actions and comments: Trendelneburgs- and recovery position during transport to collection point

Passenger male 57 years

- Page 11 -

**Collection point 120 min after alert Burn injury, 2nd to 3rd on the trunk
18+18%. Diabetes Mellitus**

- A- Airways open and free**
- B- RR 20-30, minor dyspnoea**
- C- HR >120**
- D- MA (Mildly Anxious)**
- E- Pale**

Passenger male 57 years

- Page 12 -

Collection point 120 min after alert

Vital signs airway open and free, RR 20-30, HR > 120, mental status MA all indicating hypovolemia equal to 750-1500 ml blood loss.

Required actions and comments: Now at the collection point you can insert iv or io needle, give 1000 ml Ringer-Acetate and 30 ml Glucose 20%.

Passenger male 57 years

- Page 13 -

Collection point 140 min after alert

Burn injury, 2nd to 3rd on the trunk 18+18%. Diabetes Mellitus

- A-** Airways open and free
- B-** RR 20-30, minor dyspnoea
- C-** HR > 100, BPD (Blood Pressure Decreased)
- D-** MA (Mildly Anxious)
- E-** Affected by pain, got to wee

Passenger male 57 years

- Page 14 -

Collecting point 140 min after alert

Vital signs airway open and free, RR 20-30, minor dyspnoea, HR > 100, BP D, mental status MA all indicating still hypovolemic, although 1000 Ringer Acetate is running. Now urgent need to wee and pain from burn injuries.

Required actions and comments: Give ketamin or morphine iv. Even if the need to wee isn't life threatening it's still a big problem for the patient. Help him and put diapers in for future need.

Passenger male 57 years

- Page 15 -

Collecting point 160 min after alert

Burn injury, 2nd to 3rd on the trunk 18+18%. Diabetes Mellitus

- A-** Airways open and free, vomiting
- B-** RR 20-30, minor dyspnoea
- C-** HR >100, BPD (Blood Pressure Decreased)
- D-** MA (Mildly Anxious)
- E-** Freezing, shivering

Passenger male 57 years

- Page 16 -

Collection point 160 min after alert

Airway open and free but vomits, RR 20-30, minor dyspnoea, HR > 100, BP D, mental status MA. Freezing, shivering indicating loss of warmth.

Required actions and comments: Clear his mouth, put into recovery position. Put on more blankets and also an insulating mattress underneath the patient. Check temperature. You may also start to wonder from his dyspnoea, why?

Passenger male 57 years

- Page 17 -

Collection point 180 min after alert

Burn injury, 2nd to 3rd on the trunk 18+18%. Diabetes Mellitus

A- Airways open and free

B- RR 20-30, Increasing dyspnoea

C- HR>100, BPD (Blood Pressure Decreased)

D- AC (Anxious, Confused)

E- Pain from burn injuries. Temperature 35°

Passenger male 57 years

- Page 18 -

Collection point 180 min after alert

Vital signs airways open and free , RR 20-30 but now more dyspnoea, HR > 100, BP D, mental status AC all indicating volume depletion equal to 750-1500 ml blood loss, temperature 35 C indicating hypothermia.

Required actions and comments: The reason for more dyspnoea may be his circumferential burn injury. Place the patient in an upright position to make it easier to breathe, put on more blankets. Start a second warm 1000 Ringer Acetate iv. For pain relief give morphine iv.

Passenger male 57 years

- Page 19 -

**Ambulance transport 20 min after departure from collection point
(200 min after alert)**

Burn injury, 2nd to 3rd on the trunk 18+18%. Diabetes Mellitus.

Hypothermia 35 C

A- Airways open and free, vomiting

B- RR 30-40

C- HR > 120, BPD (Blood Pressure Decreased)

D- AC (Anxious, Confused)

E- Pale

Passenger male 57 years

- Page 20 -

Ambulance transport 20 min after departure from collection point (200 min after alert)

Airways open and free but vomiting again, RR 20-30, HR >120, BP D, mental status AC all indicating hypovolemia equal to blood loss 1500-2000.

Required actions and comments: Continue your second 1000 Ringer Acetate at a higher speed, Administer Oxygen 15 l/min on a non rebreathing mask, Check glucose/s, glucose/s =7 mmol/l

Passenger male 57 years

- Page 21 -

**Ambulance transport 40 min after departure from collection point
(220 min after alert)**

Burn injury, 2nd to 3rd on the trunk 18+18%. Diabetes Mellitus.

Hypothermia 35 C

A- Airways open and free

B- RR 30-40

C- HR > 120, BPD (Blood Pressure Decreased)

D- AC (Anxious, Confused)

E- Pale

Passenger male 57 years

- Page 22 -

**Ambulance transport 40 min after departure from collection point
(220 min after alert)**

**Vital signs Airway open and free, RR 30-40, HR > 120, BP D, mental
status AC, Loss of fluid 30-40% equal to 1500-2000 ml bleeding.**

**Required actions and comments: Give more infusion, now your third
1000 ml warm Ringer-Acetate**

Passenger male 57 years

- Page 23 -

**Ambulance transport 60 min after departure from collection point
(240 min after alert)**

Burn injury, 2nd to 3rd on the trunk 18+18%. Diabetes Mellitus.

Hypothermia 35 C

A- Airways open and free

B- RR 20-30

C- HR > 100, BPD (Blood Pressure Decreased)

D- AC (Anxious, Confused)

E- Pale, affected by pain

Passenger male 57 years

- Page 24 -

**Ambulance transport 60 min after departure from collection point
(240 min after alert)**

**Vital signs a little better, RR 20-30, HR > 100, BP D, mental status
MA indication hypovolemia equal to 750-1500 blood loss. Pale, apin.**

Required actions and comments: Give Morphine iv for pain relief.

Passenger male 57 years

- Page 25 -

Arrival to hospital 80 min after departure from collecting point (260 min after alert)

Burn injury, 2nd to 3rd on the trunk 18+18%. Diabetes Mellitus.

Hypothermia 35 C

A- Airways open and free, vomiting

B- RR 30-40, dyspnoea

C- HR > 120, BPD (Blood Pressure Decreased)

D- AC (Anxious, Confused)

E- Pale, nausea

Passenger male 57 years

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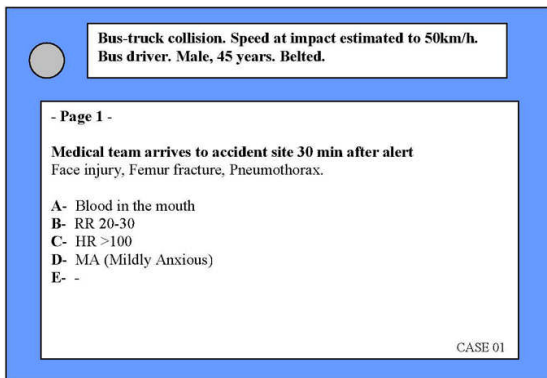
Arrival to hospital 80 min after departure from collecting point (260 min after alert)

Report to hospital: Burn injury, 2nd to 3rd degreev on the trunk 18+18%. Dyspnoea, due to circumferential burn injury? Diabetes Mellitus with hypoglycemic event. Hypothermia 35 C. Loss of fluid 30-40% equal to 1500-2000 ml bleeding. Third 1000 warm ringer Acetate running. Vomiting – for the third time after pain relief with morphine, caused by morphine?

Background

In an accident or disaster exercise there is need to be able to change the vital status and the effect of the health care response over time. Dynamic injury cards have been developed for more realistic accident and disaster scenarios as well as exercises.

Customers are health care personnel in primary health care, emergency departments and in pre-hospital settings.



Development process

The development process included close studies of the PHTLS and ATLS concept as base for vital status changes according to the pathophysiologic answer to different injuries. In an accident or disaster scenario vital status changes over time and according to the health care response.

The injury card system has successfully been tested in two exercises within the Swedish National Air Ambulance Services.

Product description

In the dynamic injury card series we have followed the expected health care response and vital status changes and the effect of health care responses at the accident site, during ambulance transport and at the receiving hospital. Changes, responses and expected or unexpected events are summoned in a deck of cards attached in order to a key chain necklace. In the exercise the trainee follows a time table for changes allowing for a dynamic scenario.

The injury card system allows the trainee to assess the wounded person through all phases of an accident or disaster scenario. Cards can be used to simulate events which may not be obvious, or try to prompt specific responses during an exercise. In the scenarios the rate of deterioration in the simulated casualty can be designed to test trend recognition. The proposed actions taken in the Injury Card System follows the ATLS and PHTLS concept.

Product benefit and dissemination

The added value of the Injury Card System in the health care system and in the disaster response system is that now there is available an easily applicable tool for more realistic exercises where vital status and health care responses changes over time.

The Injury Card System will be disseminated throughout the health care system through courses and may also be used in e-learning.

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