


The role of the radiologist in the trauma team
The ETC concept

Maeke Scheerder

Emergency/Trauma radiologist

Amsterdam University Medical Centers

- No relevant disclosures

ETC Instructor

Firm believer in the ETC concept

m.j.scheerder@amsterdamumc.nl

Amsterdam UMC
University Medical Centers

Statement

A trauma resuscitation cannot be run without imaging and a radiologist

Radiology and a radiologist: A keystone in the turmoil of traumasetting; Hussain et all. Cureus 13(4) April 2021

Goal of imaging in trauma

- Early and accurate diagnosis
- Improve patient management
- Decrease mortality and disability/morbidity

The role of the radiologist in the management of politrauma patiënts. Pinto et all. Eur J of Radiology 59(2006); 315-316
Radiology and a radiologist: A keystone in the turmoil of traumasetting; Hussain et all. Cureus 13(4) April 2021
Current Standards for and Clinical Impact of Emergency Radiology in Major Trauma. F. Iacobellis et all. Int. J. Environ. Res. Public Health 2022, 19, 539

Role of radiologist in trauma

Increasingly important role:

- Team member (visible - present)
- Knowledge of trauma mechanisme & expected injury
- Knowledge of technique and modalities

The role of the radiologist in the management of politrauma patiënts. Pinto et all. Eur J of Radiology 59(2006); 315-316
Radiology and a radiologist: A keystone in the turmoil of traumasetting; Hussain et all. Cureus 13(4) April 2021
Current Standards for and Clinical Impact of Emergency Radiology in Major Trauma. F. Iacobellis et all. Int. J. Environ. Res. Public Health 2022, 19, 539

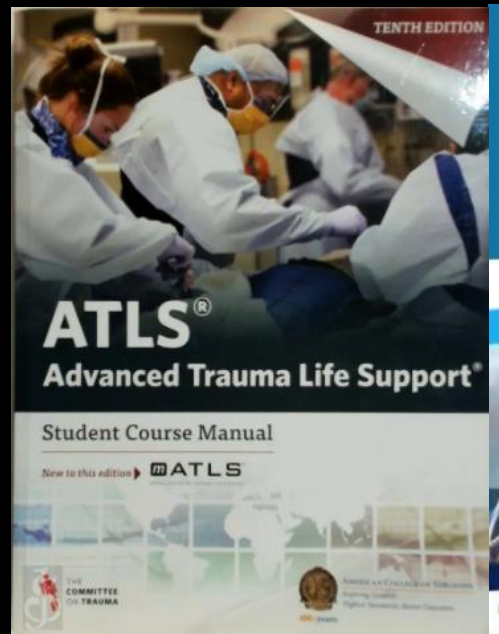
How to become a team member?

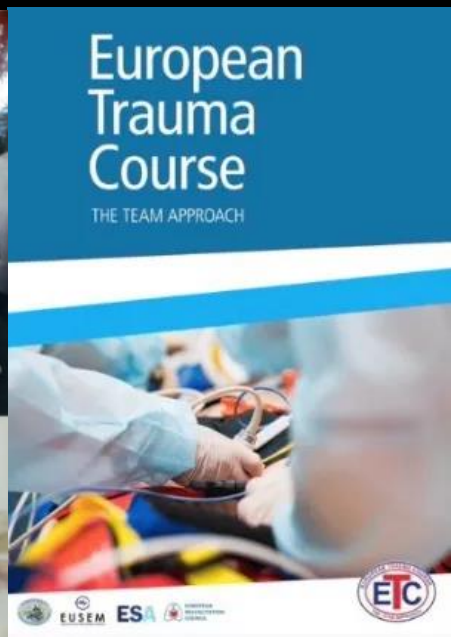
Involvement
Protocols / guidelines
Knowledge / training

- Advanced Trauma Life Support (ATLS)

- European Trauma Course (ETC)

Teamwork
Communication
Leadership
Decision making





My home…

Presence / visibiltiy

European Trauma Course
ETC

- Initial clinical management of major trauma
- Non-technical skills

Target Groups ETC

- Doctors involved in trauma care
  - Basic knowledge of trauma required

- ED-nurses, paramedics
  - At independent practitioner level

Course format

- 2,5 days

- 24 candidates
- 12 instructors

- 1 lecture
- 1 demonstration
- 11 workshops
- Assessment

90% practical in workshops

The workshops

- Airway management
- Shock management
- Chest trauma
- Traumatic Brain Injury
- Abdominal & pelvic trauma
- Spinal trauma
- Extremity trauma
- Paediatric Trauma
- Transport

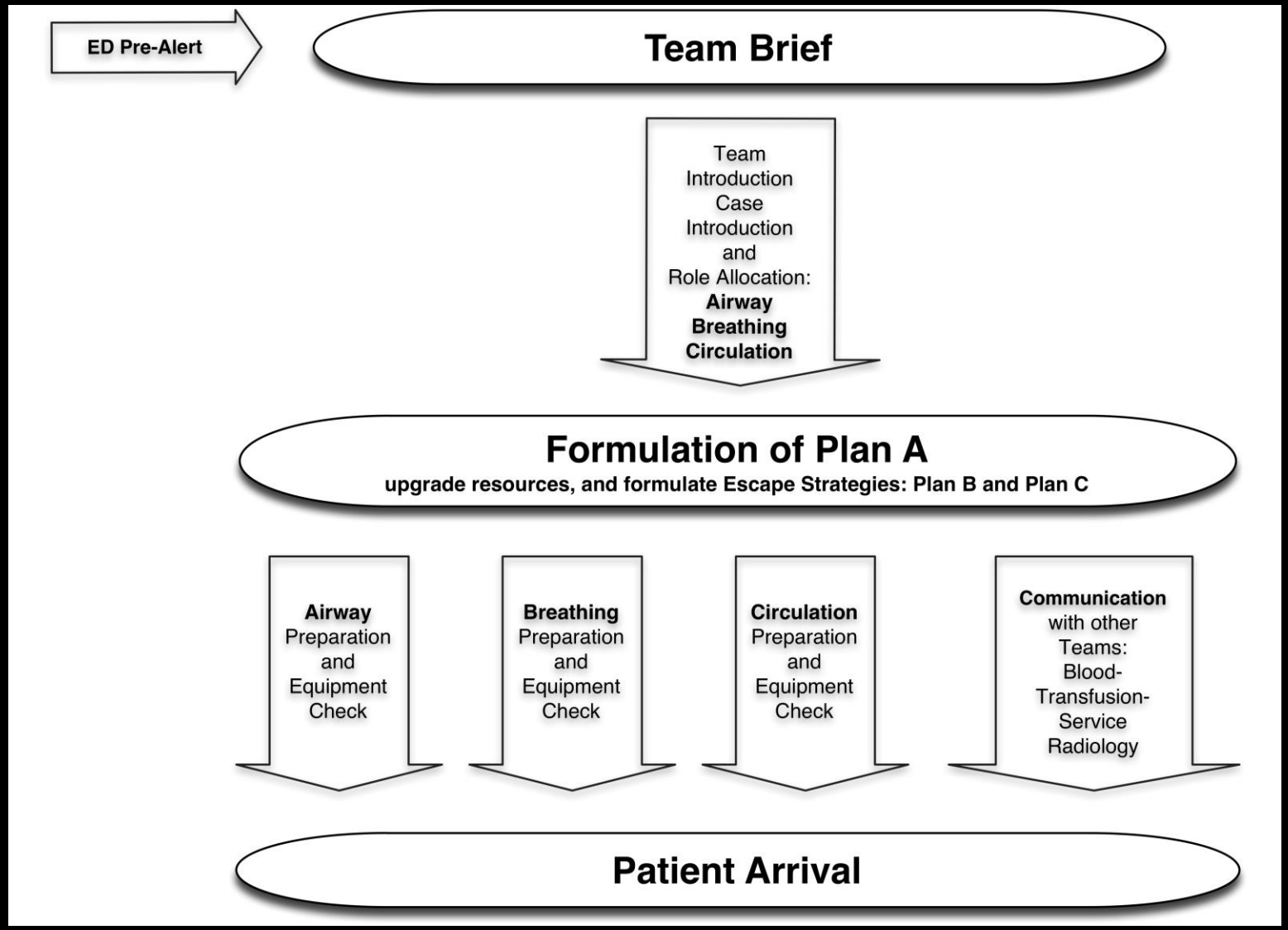
The scenario’s

- Each workshop contains 2-4 scenario’s
  - 31 scenarios in the course

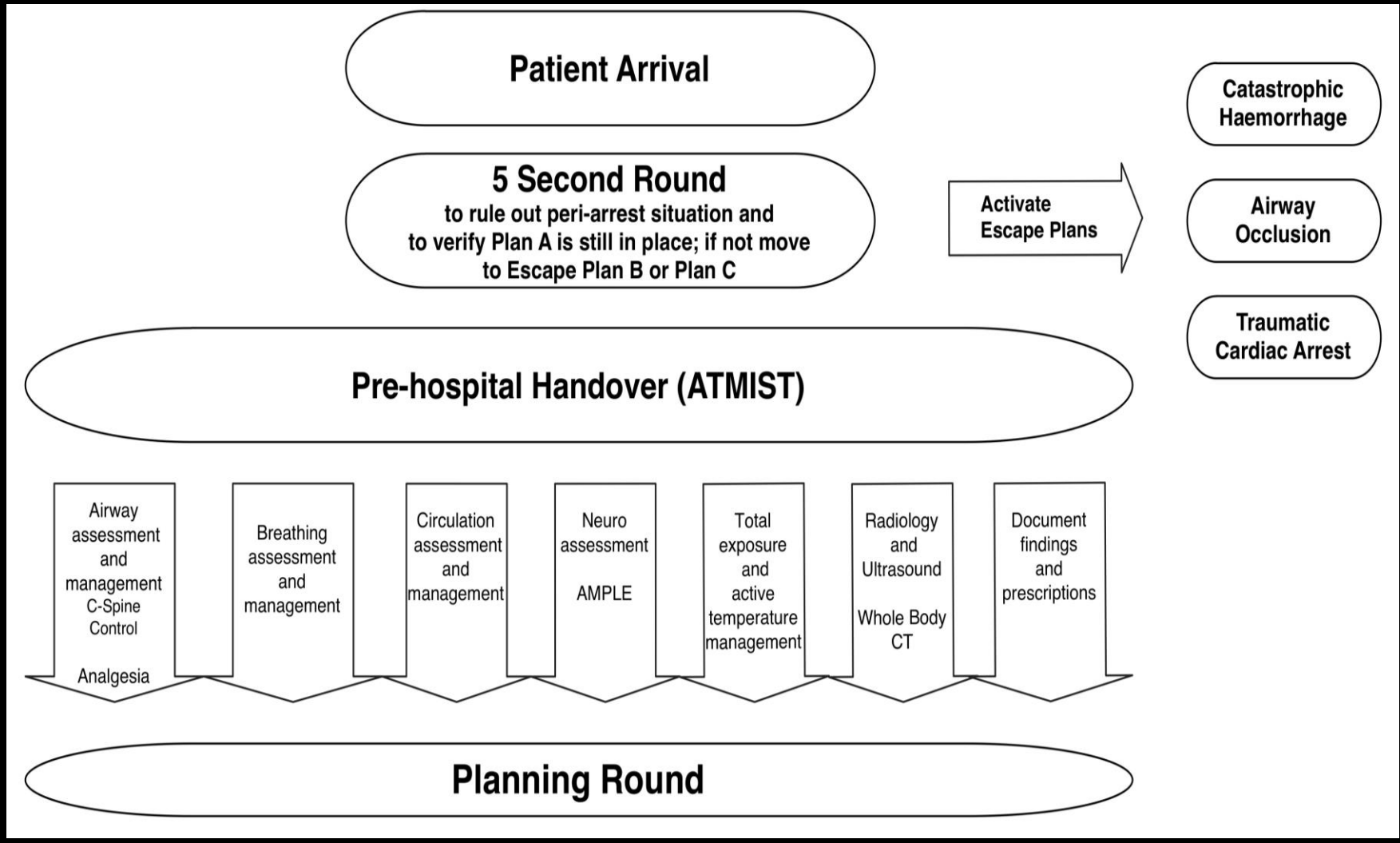
- Each scenario has a specific learning objective

- Each scenario contains
  - Briefing
  - One guided trauma admission scenario
  - Integrated skills teaching
  - Team debriefing

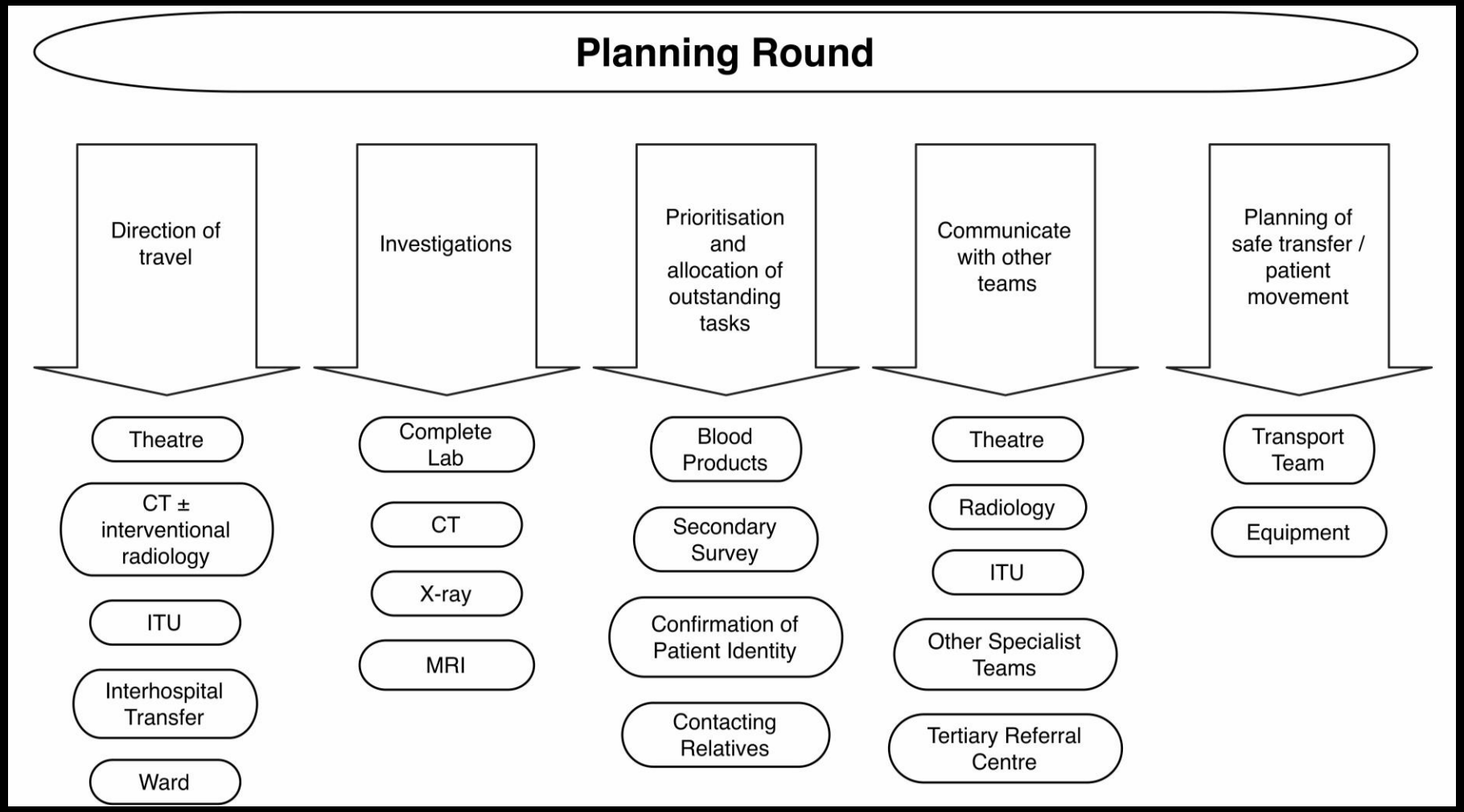
Briefing & Preparations



The team approach



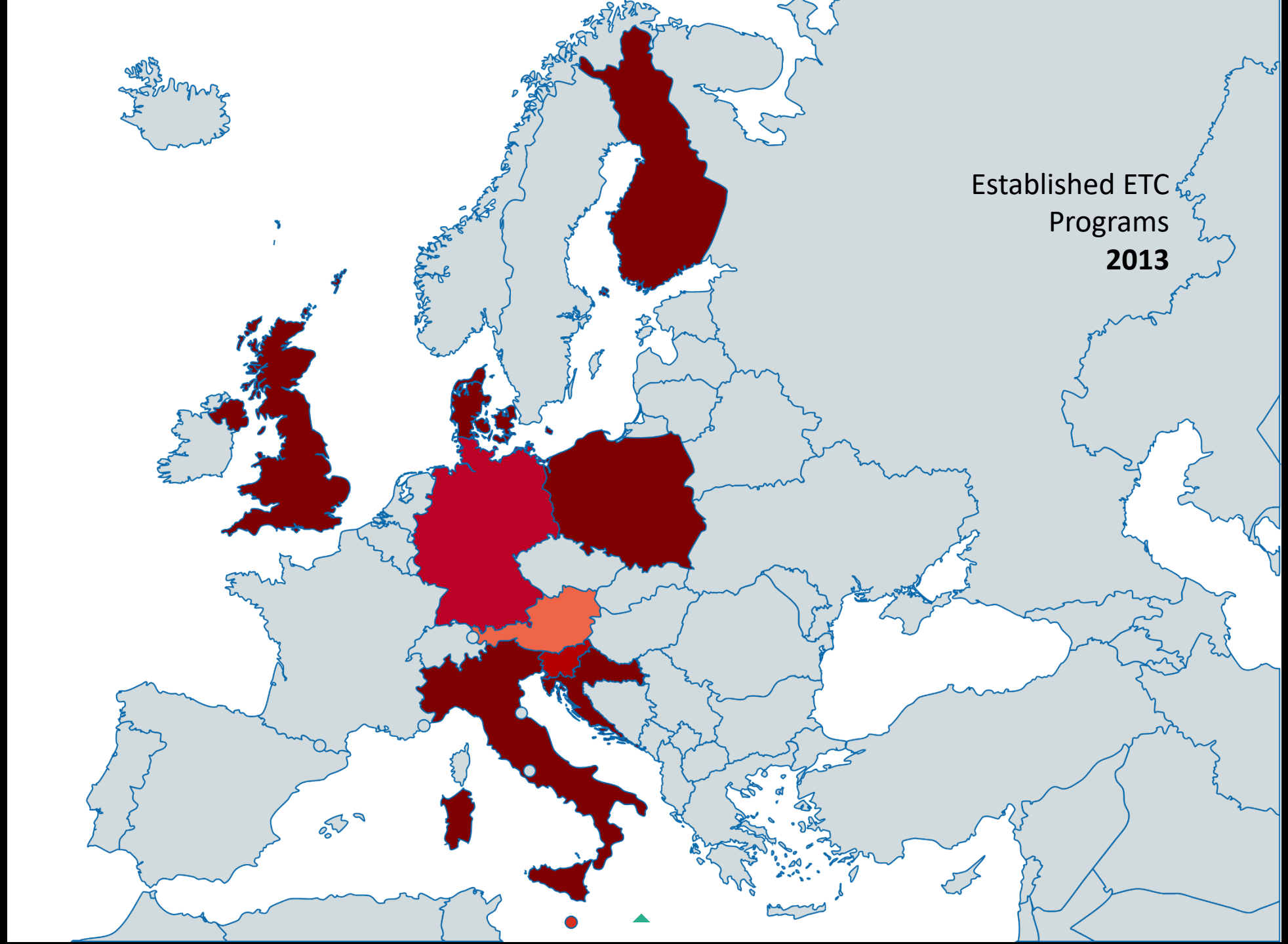
Individual Patient Pathway

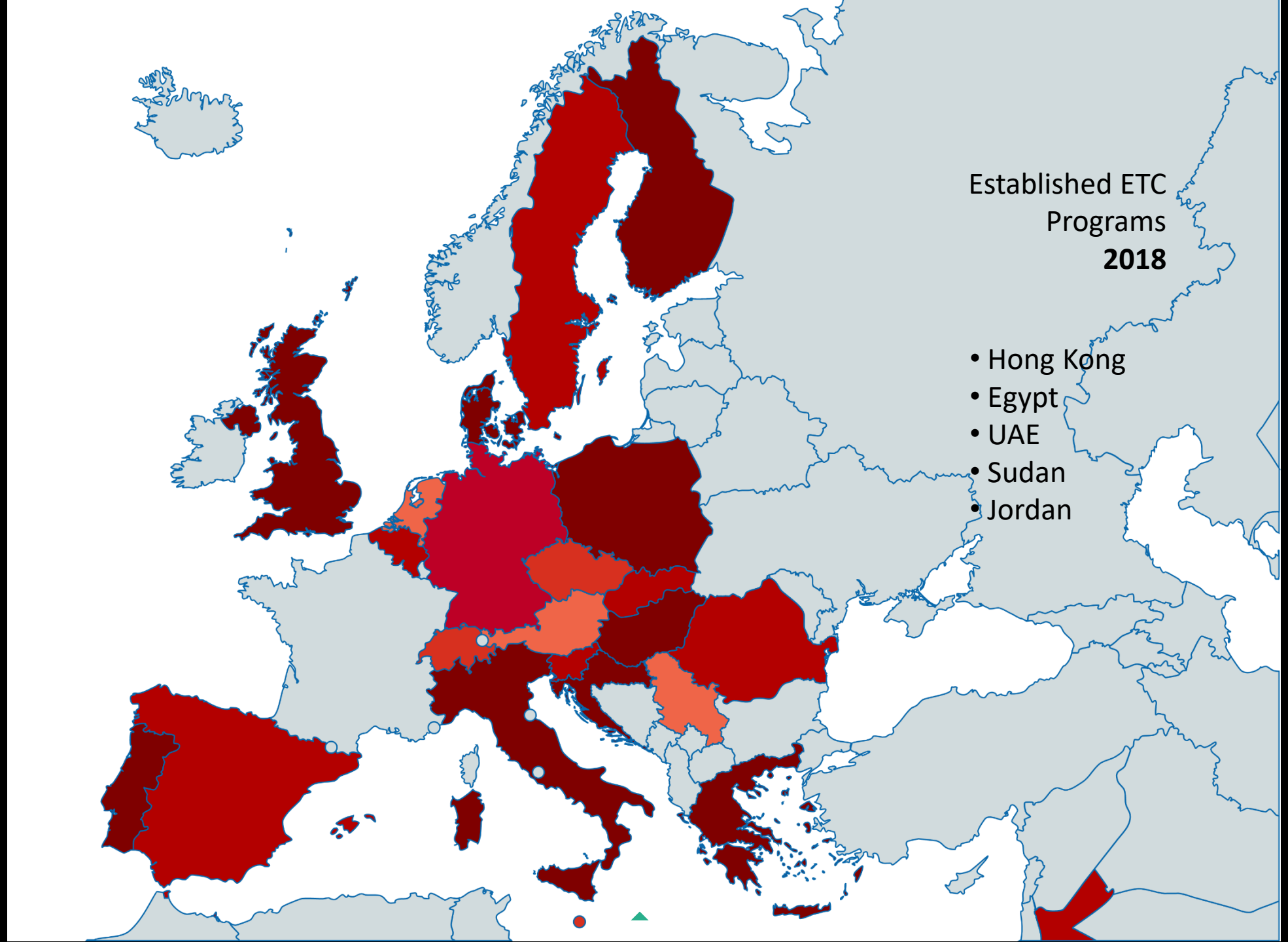


Debriefing

Learning Conversation

- Most crucial part of the learning experience
- Appraisal of individual and team aspects
- Reflecting on learning objectives

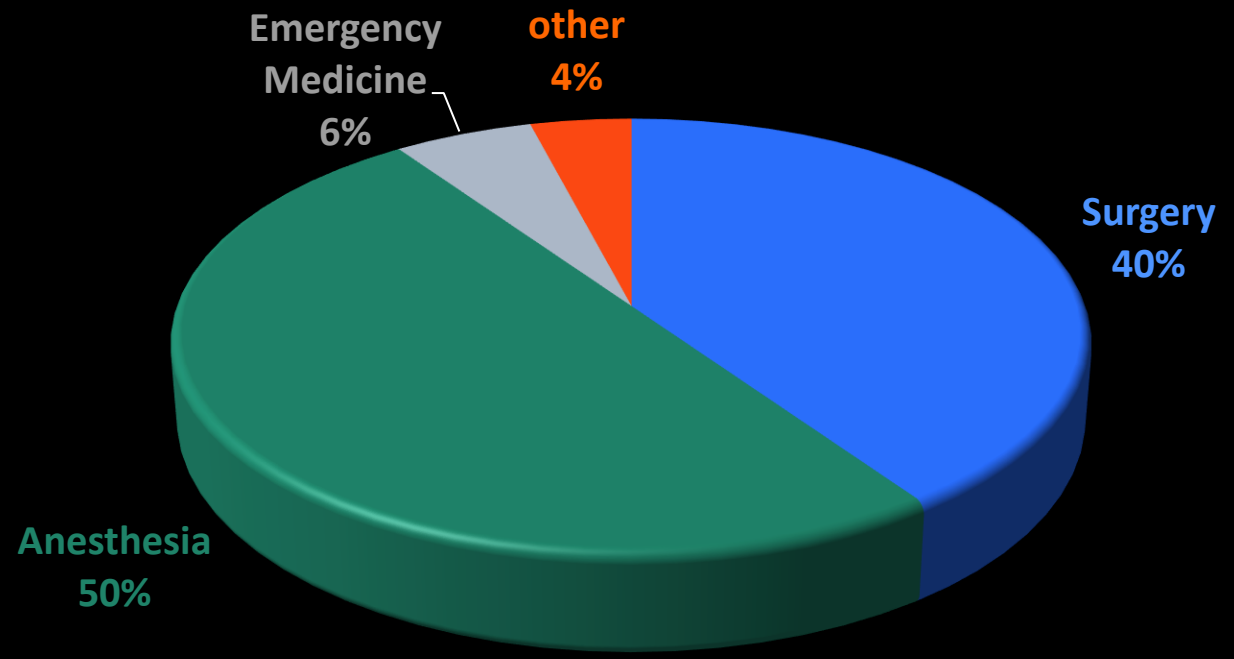

Established ETC
Programs
2013


Established ETC
Programs
2018
• Hong Kong
• Egypt
• UAE
• Sudan
• Jordan

ETC in numbers

- 400 courses since start of the programme

- Faculty
  - 70 course directors
  - 550 instructors
  - 900 instructor candidates



Case

Preliminary information

- F 64 yrs
- Pedestrian vs car

- Abdominal pain
- HD stable
- GCS max, unconscious 5 min
- Suspected tibial # re

Preperation as a team

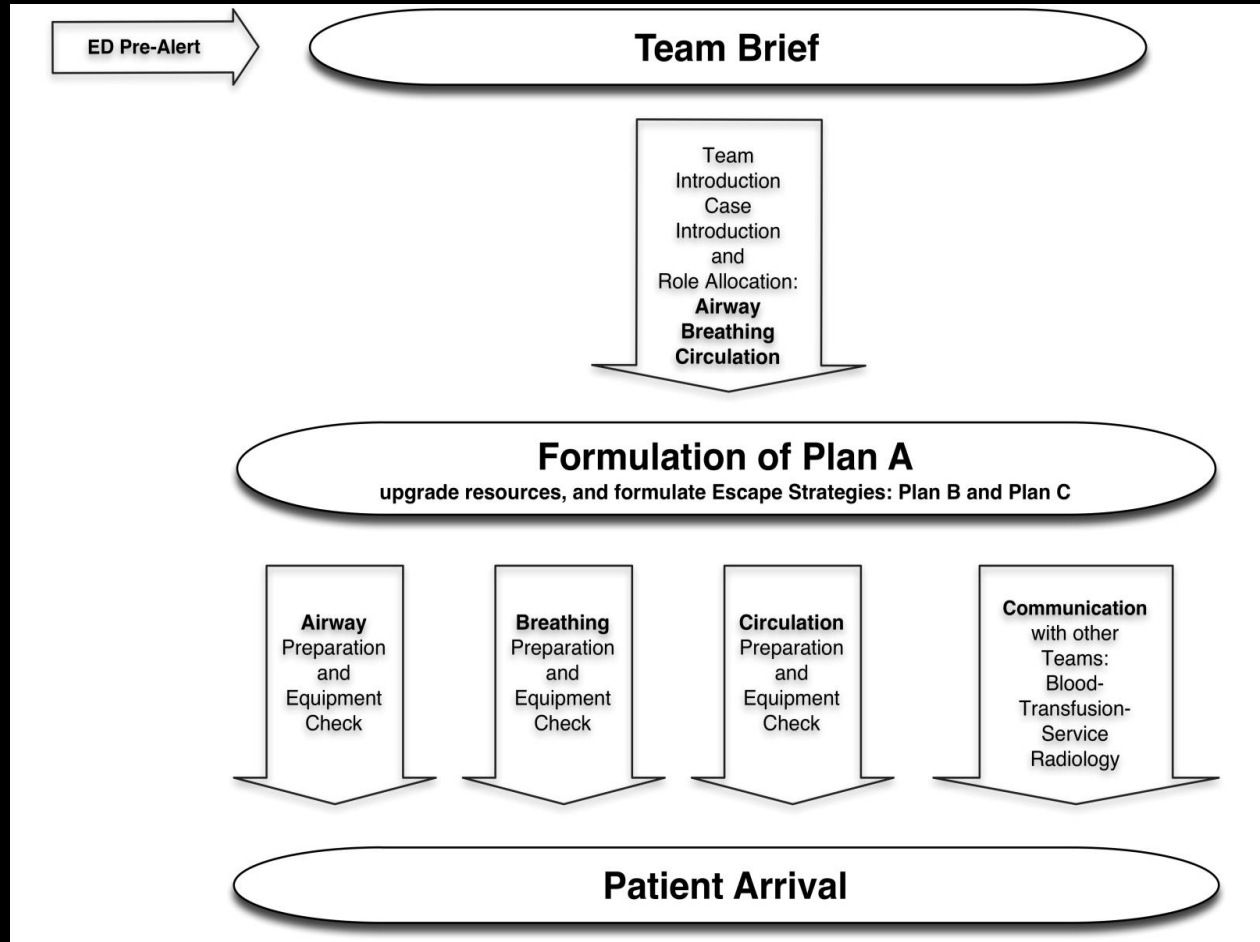
Trauma severity

- Trauma mechanism
- Expected injuries

Role team members

Indications for imaging

Materials/ transfusion

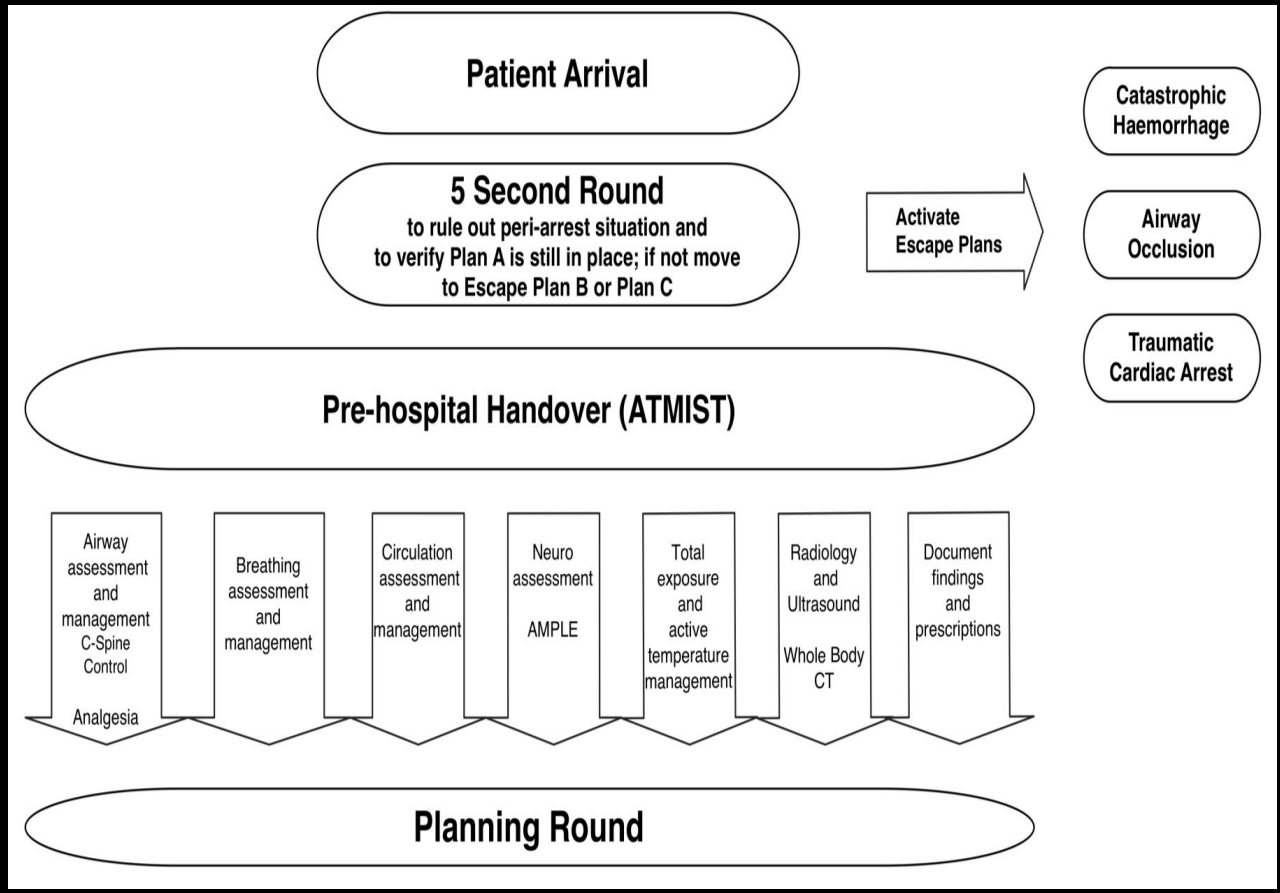


Additional information on arrival

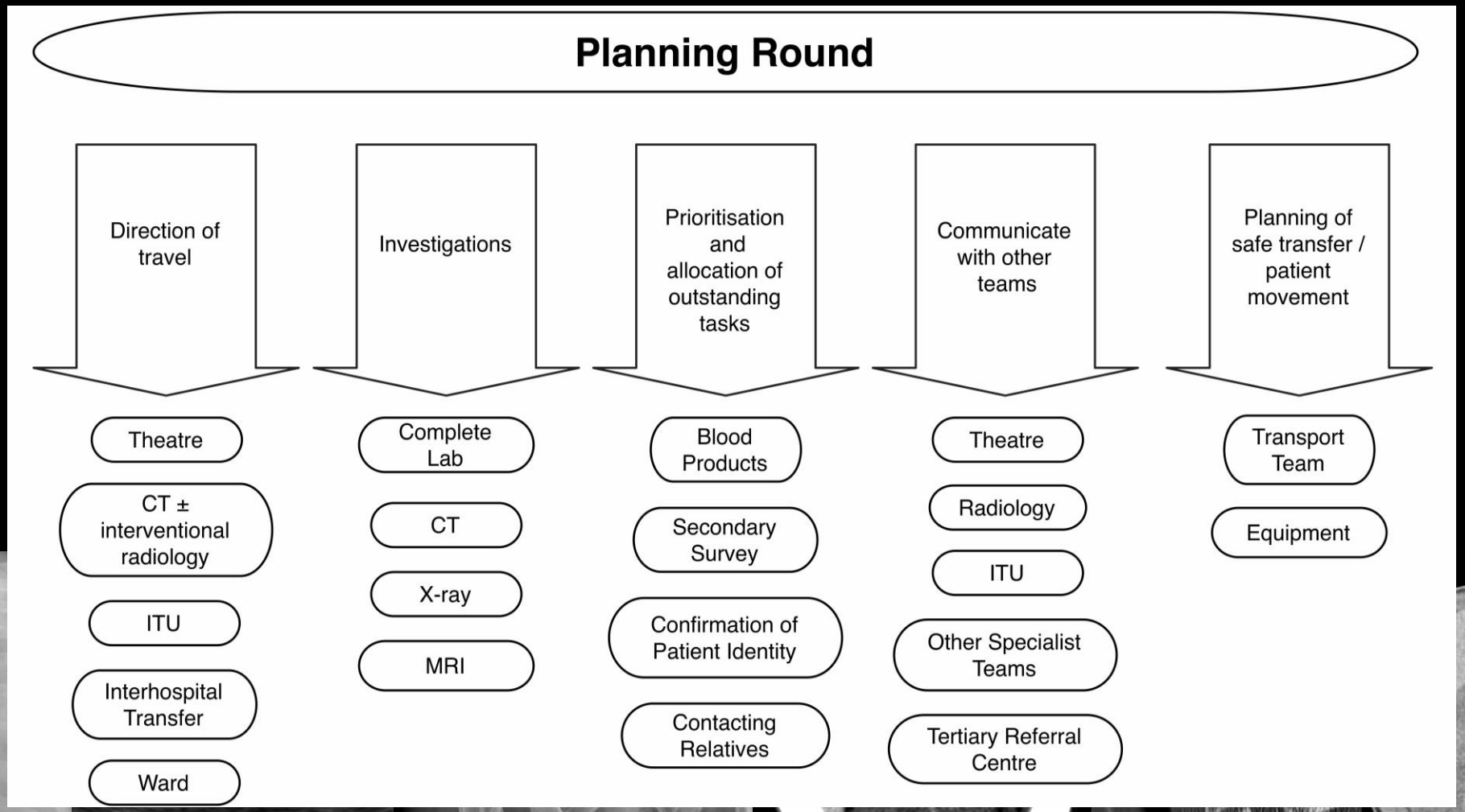
Car speed 50 km/hr

Pt 10 mtr from car

High impact trauma !!



Team decision



Wirth et al. Insights Imaging (2020) 11:135
https://doi.org/10.1186/s13244-020-00947-7

Insights into Imaging

GUIDELINE Open Access

European Society of Emergency Radiology: guideline on radiological polytrauma imaging and service (short version)

Stefan Wirth[1,2,3*†], Julian Hebebrand[2†], Raffaella Basilico[1,4], Ferco H. Berger[1,5], Ana Blanco[1,6], Cem Calli[1,7], Maureen Dumba[1,8], Ulrich Linsenmaier[1,9], Fabian Mück[1,9], Konraad H. Nieboer[1,10], Mariano Scaglione[1,11,12], Marc-André Weber[1,13] and Elizabeth Dick[1,8]

Abstract

Background: Although some national recommendations for the role of radiology in a polytrauma service exist, there are no European guidelines to date. Additionally, for many interdisciplinary guidelines, radiology tends to be under-represented. These factors motivated the European Society of Emergency Radiology (ESER) to develop radiologically-centred polytrauma guidelines.

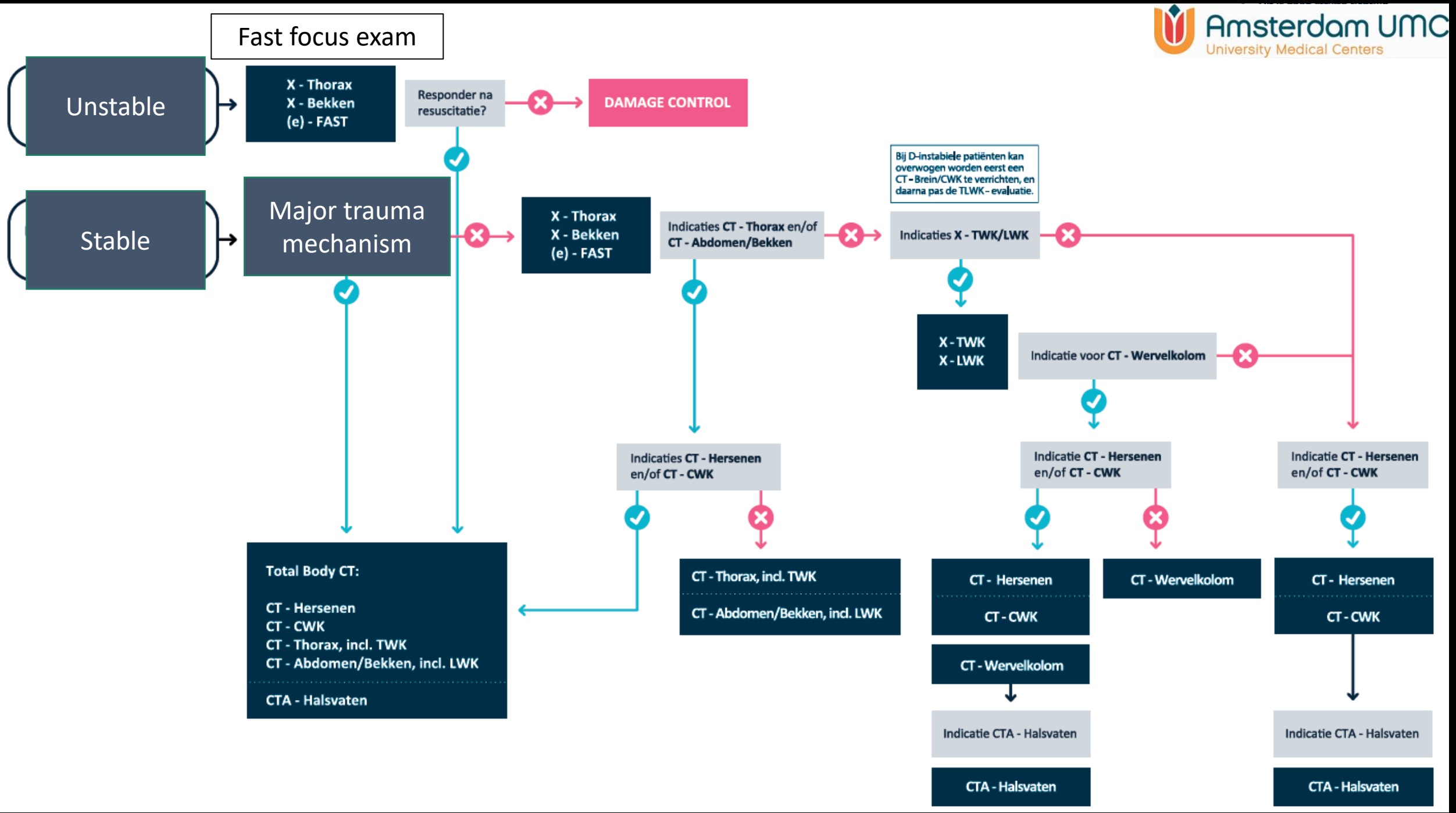
Results: Evidence-based decisions were made on 68 individual aspects of polytrauma imaging at two ESER consensus conferences. For severely injured patients, whole-body CT (WBCT) has been shown to significantly reduce mortality when compared to targeted, selective CT. However, this advantage must be balanced against the radiation risk of performing more WBCTs, especially in less severely injured patients. For this reason, we recommend a second lower dose WBCT protocol as an alternative in certain clinical scenarios. The ESER Guideline on Radiological Polytrauma Imaging and Service is published in two versions: a full version (download from the ESER homepage, https://www.eser-society.org) and a short version also covering all recommendations (this article).

Conclusions: Once a patient has been accurately classified as polytrauma, each institution should be able to choose from at least two WBCT protocols. One protocol should be optimised regarding time and precision, and is already used by most institutions (variant A). The second protocol should be dose reduced and used for clinically stable and oriented patients who nonetheless require a CT because the history suggests possible serious injury (variant B). Reading, interpretation and communication of the report should be structured clinically following the ABCDE format, i.e. diagnose first what kills first.

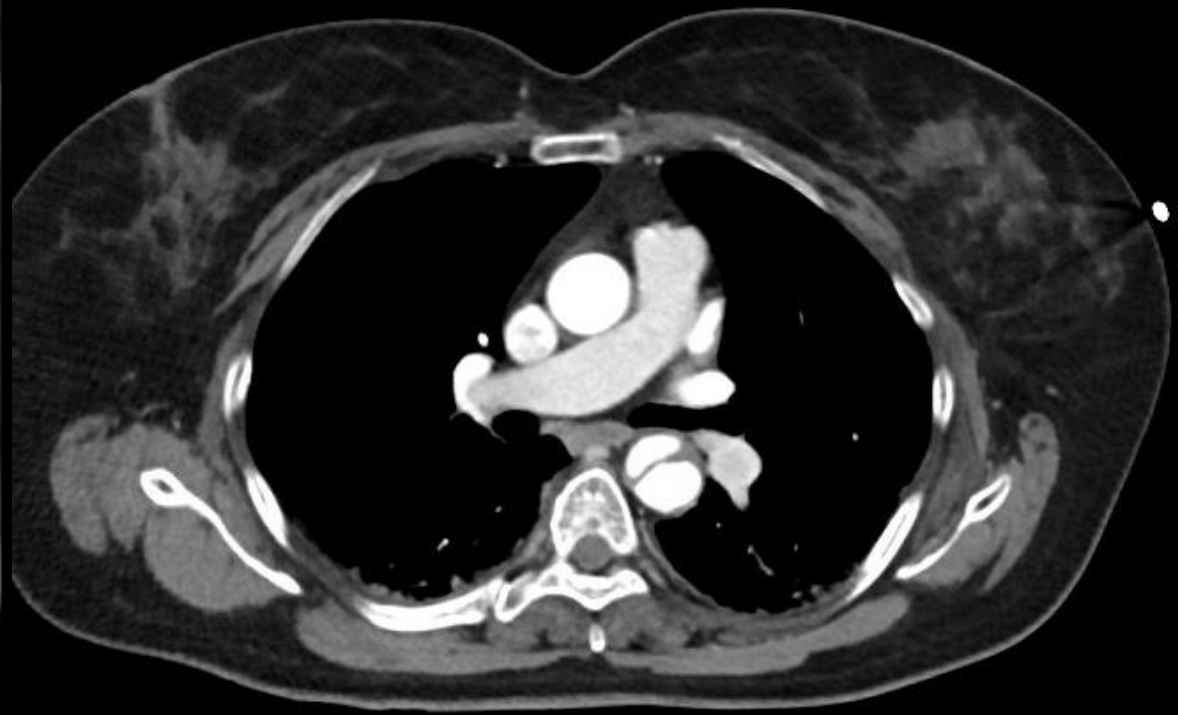
Keywords: Europe, Guideline, Radiology, Polytrauma, Whole-body-CT

SCAN ME

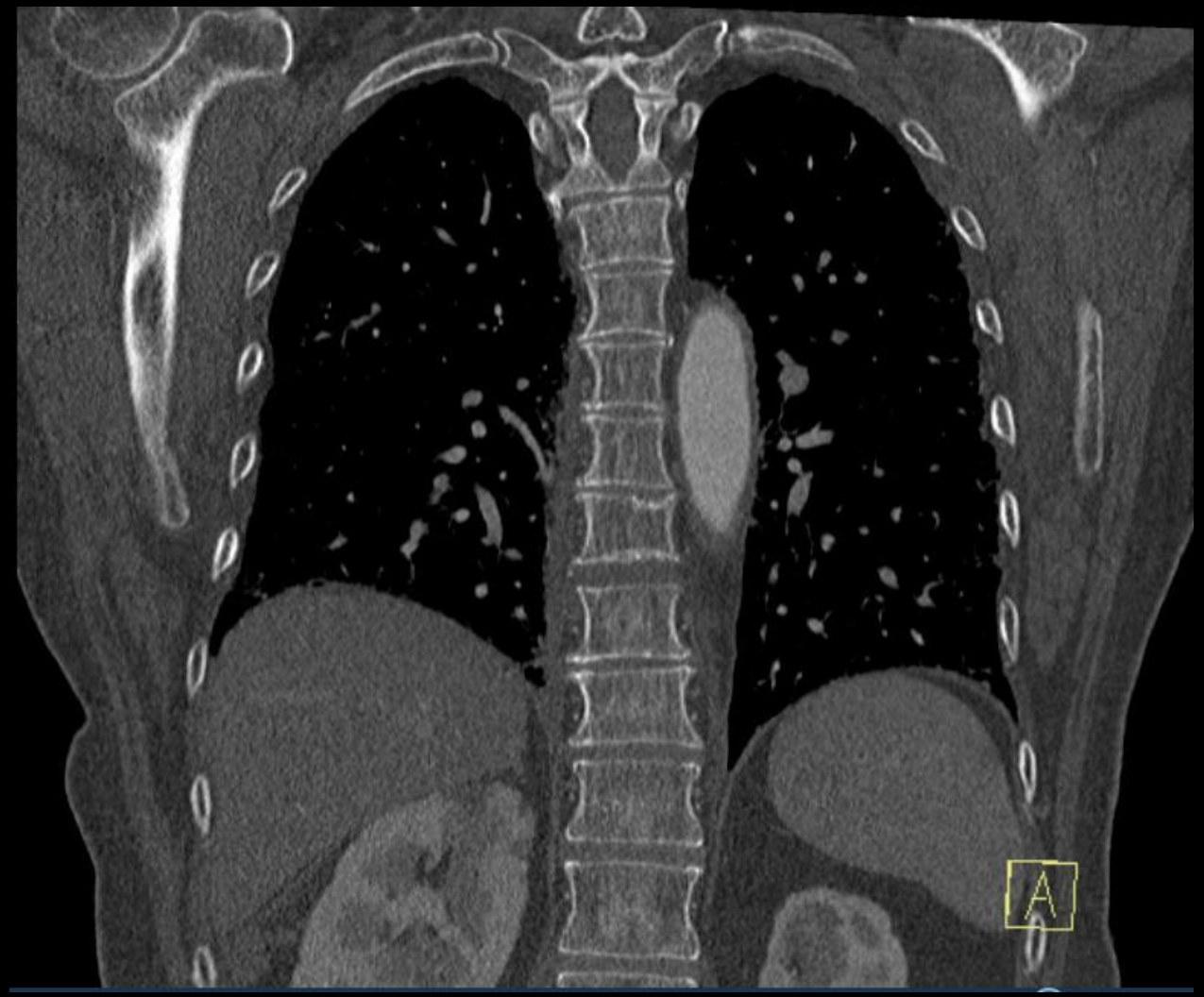
European Society of Emergency Radiology: guideline on radiological polytrauma imaging and service (short version) Wirth et all. Insights Imaging (2020) 11:135

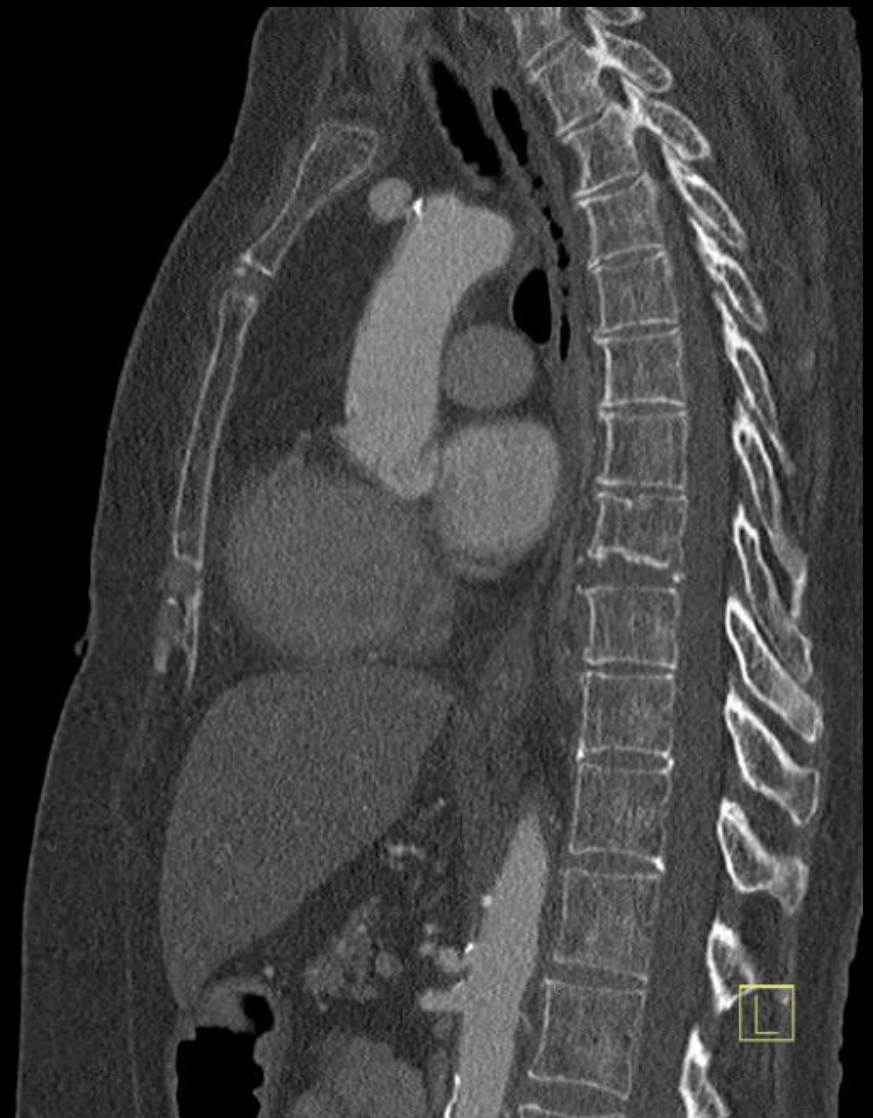

Fast focus exam
Amsterdam UMC
University Medical Centers
Unstable
Stable
X - Thorax
X - Bekken
(e) - FAST
Responder na resuscitatie?
DAMAGE CONTROL
Major trauma mechanism
X - Thorax
X - Bekken
(e) - FAST
Indicaties CT - Thorax en/of CT - Abdomen/Bekken
Bij D-instabiele patiënten kan overwogen worden eerst een CT - Brein/CWK te verrichten, en daarna pas de TLWK - evaluatie.
Indicaties X - TWK/LWK
X - TWK
X - LWK
Indicatie voor CT - Wervelkolom
Indicaties CT - Hersenen en/of CT - CWK
Indicatie CT - Hersenen en/of CT - CWK
Indicatie CT - Hersenen en/of CT - CWK
Total Body CT:
CT - Hersenen
CT - CWK
CT - Thorax, incl. TWK
CT - Abdomen/Bekken, incl. LWK
CTA - Halsvaten
CT - Thorax, incl. TWK
CT - Abdomen/Bekken, incl. LWK
CT - Hersenen
CT - CWK
CT - Wervelkolom
Indicatie CTA - Halsvaten
CTA - Halsvaten
CT - Wervelkolom
CT - Hersenen
CT - CWK
Indicatie CTA - Halsvaten
CTA - Halsvaten

IMAGING



IMAGING





Intergration radiologist in trauma tear

- Treat the patiënt, NOT images
- Review images in their entirety
- If inconsistency findings → re-examine and/or re-review
- Communication with surgeons / other colleagues

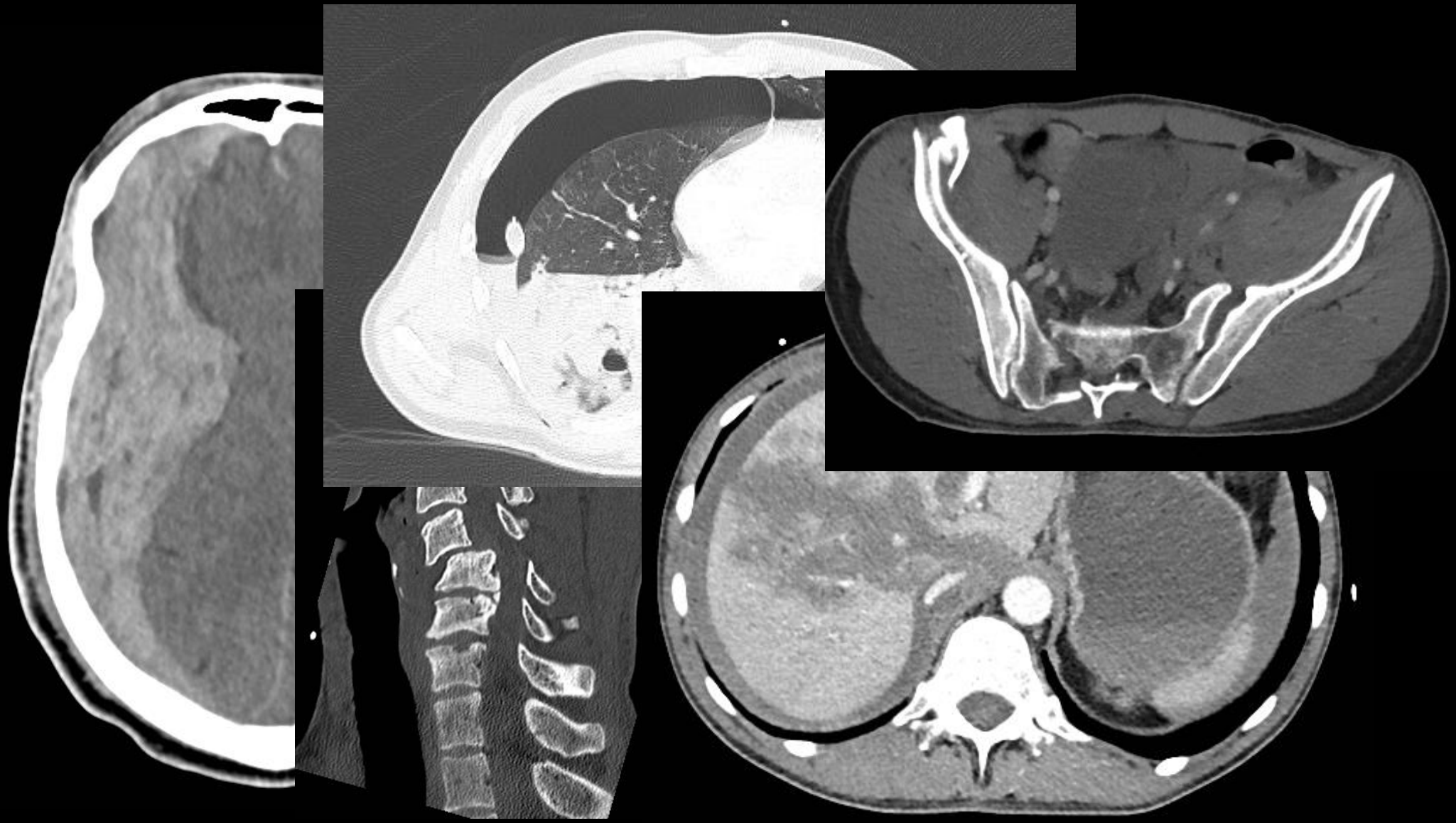
Polytrauma patients and the significant role of the radiologist diagnosis through the imaging manegement. Dr Alhosan et all. J Health, Medicine an Nursing vol 40 2017

ETC benefits

- Personal experience
- Valued team member
- Team improvement
- All over improvement patient care

P

Head to Toe



Whole body scan

- Lots of images → structure

- ATLS, ABCD
- Checklist
- Standard report

Dutch multidisciplinairy guideline of imaging in trauma patients

Amsterdam Trauma CT Checklist

Radiologist: .....

Date: .....

Life Threatening injuries

Chest		*Abdomen*		*Head / spine*
	Airway obstruction	Massive hemoperitoneum		Brain herniation
	Tension/open pneumothorax	Pelvic ring fracture (type B/C)		Subdural hematoma
	Massive hemothorax			Epidural hematoma
	Pericardial tamponade			Spinal cord injury

Primary injuries

	Malposition tube	Active arterial extravasation		Midline shift brain
	Larynx / trachea / bronchial injury	Liver injury		Skull base /Le Fort fracture
	Pneumomediastinum	Splenic injury		Cervical body fracture
	Flail chest / multiple rib fractures	Retroperitoneal hematoma		Suspected ligamentous injury
	Active arterial extravasation	Other vascular injury (venous)		Cerebrovascular injury
	Pneumopericardium	Intraperitoneal air		
	Myocardial injury	Retroperitoneal air		Thoracic spine fracture
	Aortic injury	Bowel / mesenteric injury		Lumbar spine fracture
	Other serious chest injuries	Other serious abdominal injuries		Sacrum / Acetabular fracture

Secondary injuries

	Pulmonary contusion / laceration	Limited hemoperitoneum		Subarachnoidal hemorrhage
	Aspiration	Renal injury		Brain contusion
	Simple pneumothorax	Adrenal injury		Brain ischaemia/infarction
	Simple hematothorax	Pancreatic injury		Diffuse axonal injury
	Pulmonary edema	Gallbladder / biliairy injury		Zygomatic complex fracture
	Esophageal rupture	Pubic fracture		Orbital injury
	Mediastinal hemorrhage	Genital injury		Naso-orbito-ethmoid fracture
	Diaphragm injury	Other abdominal injuries		Nasal fracture
	Chest-abdominal wall injury			Mastoid fracture
	Clavicle fracture	*Skeletal / Extremities*		Skull vault fracture
	Scapula fracture	Humeral fracture/ dislocation		Mandible fracture
	Sternum fracture	Femoral fracture		
	Rib fracture	Vascular injury extremity		Spinal canal stenosis
	Other chest injuries	Other extremity injuries		Other craniocervical injuries

Take home message

Radiologist increasingly important role

- Become team member (ATLS / ETC)
- Trauma mechanisme & expected injury
- Knowledge (techniques / protocols / guidelines)

Time is life

Visible and present!

European Trauma Course

Radiologists can do it!

http://www.europeantraumacourse.com


THANK YOU

Maeke Scheerder
Emergency/Trauma and MSK radiologist
Amsterdam University Medical Centers

Amsterdam UMC
University Medical Centers