

Lecture # 4:
Pediatric, Geriatric, and Trauma
Considerations

MI 123

This slide features a dark gray header with white text. Below the header is a horizontal bar divided into three sections: a blue square on the left, a light gray rectangle in the center containing the text 'MI 123', and a dark gray square on the right.

1

Pediatrics

Infant to 17 years old

This slide features a dark gray header with white text. Below the header is a horizontal bar divided into three sections: a blue square on the left, a light gray rectangle in the center containing the text 'Infant to 17 years old', and a dark gray square on the right.

2

RT must:

- Be sensitive and effective
- Use age-appropriate methods of communication
- Establish a rapport and acquaint child to new environment
- Respect modesty

3

Parents or Guardians

- Provide them with an explanation
- Enlist their cooperation
- Explain your expectations of the guardian during the exam

4

Procedures Pediatrics May Come In For:

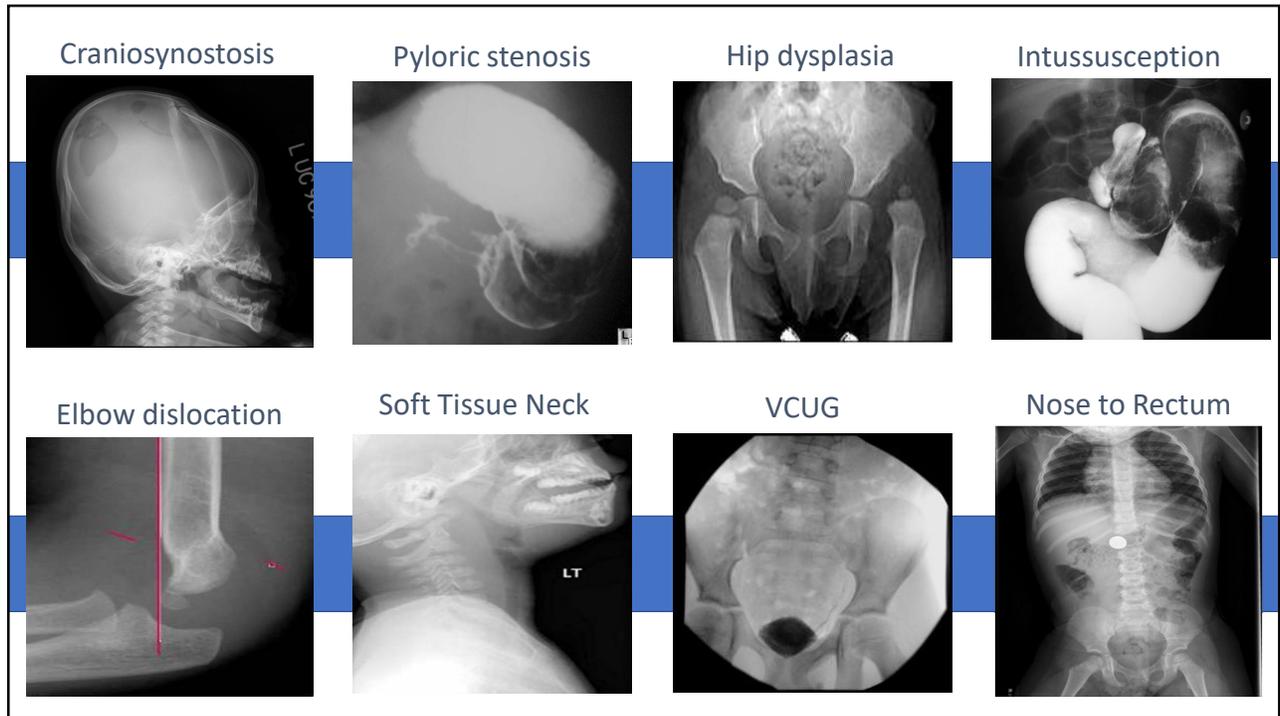
- Chest
- Nose to Rectum
- Pelvis/hips
- Skull
- Extremities
- Bone Age
- Scoliosis
- Bone Survey
- Soft tissue Neck
- Fluoro procedures

5

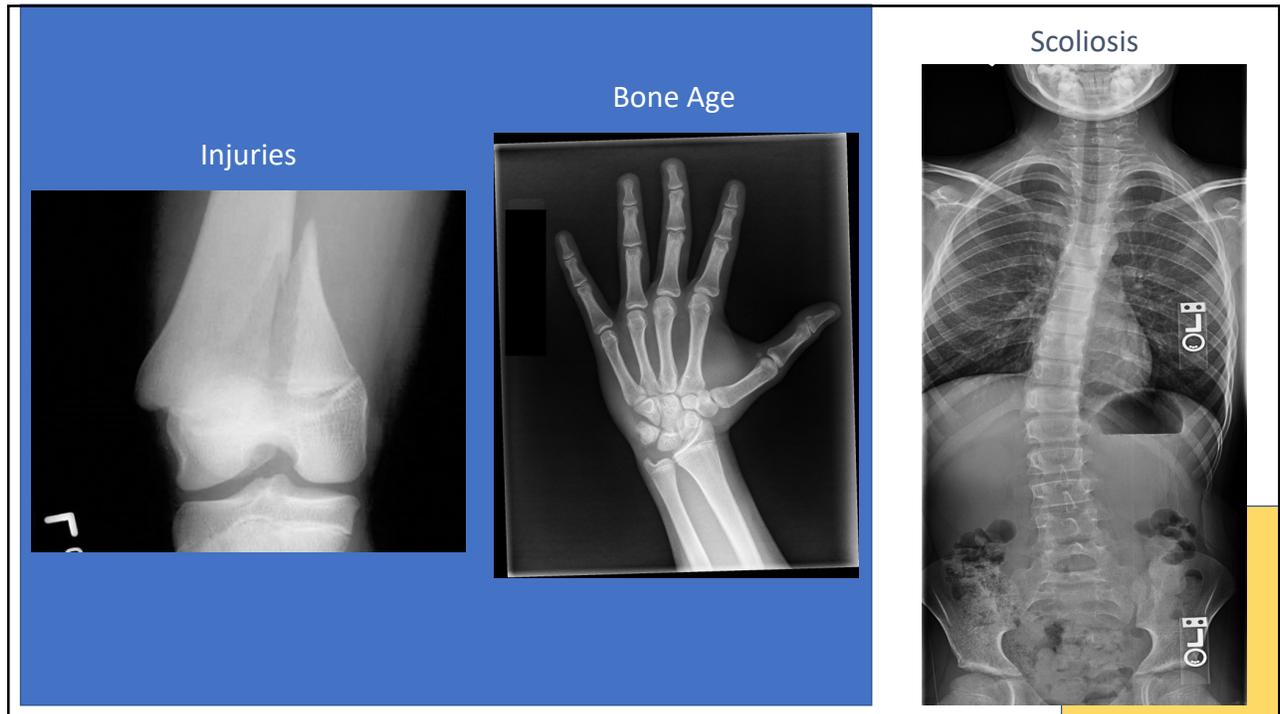
Diagnosis made from Radiographic Procedures:

- Pyloric stenosis
- Craniosynostosis
- Hip dysplasia
- Intussusception
- Urinary tract infections / Vesicoureteral reflux
- Enlarged adenoids/tonsils
- Child Abuse
- Physical trauma
- Various communicable viruses
- Nursemaids' elbow / dislocation
- Scoliosis

6



7



8

What to do if.....

- The child refuses to follow directions:
 - You may need to ask adult to leave the room
 - Explain the doctor or parents want the exam to be done
 - Repeat the directions and proceed
 - Remain nonjudgmental

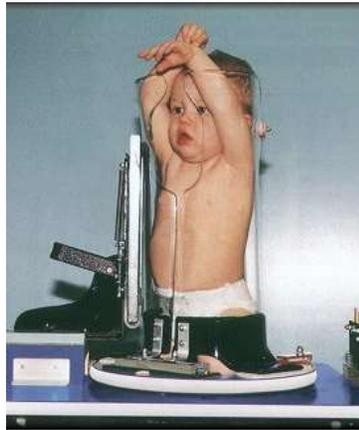
9

Pediatric Immobilization

- Assists with holding still or positioning
- Is NOT a method of punishment
- Made need to use creativity
- Provides patient safety

10

Pigg o Stat

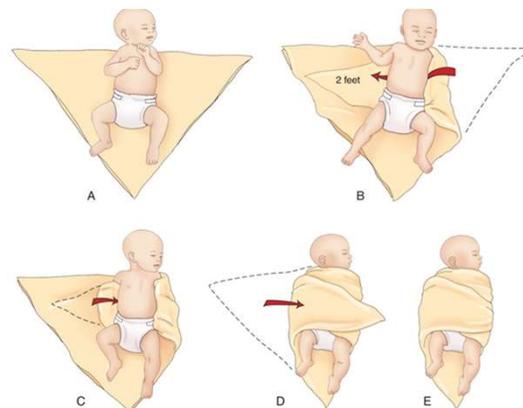


- Used during upright chest and abdominal radiography
- Inform parent of the use of the immobilizer
 - Reduces anxiety with observing child in the device
- Ask the parent if they have any questions

11

Sheet Immobilizer

- Fold a large sheet into any size or fashion
- Known as swaddling, mummification, or bunny method
- Used for Soft Tissue Neck Imaging



12



Octostop

- Octagonal metal frame attached to end of board
- Velcro straps for head, torso and limbs
- Patient can be rotated 360°
- Useful for Fluoroscopy exams
- Can be used on children up to 12 months of age

13

Pediatric: Image Gently Campaign

14

- Founded in 2007 by Alliance of Radiation Safety in Pediatric Imaging, the American College of Radiology (ACR), the American Association of Physicists in Medicine (AAPM), and the American Society of Radiologic Technologists
 - Goal: ensure that EVERY tech selects and uses the appropriate exposures when performing imaging and interventional procedures in children as safely as possible to reduce radiation dose.



15

One Size Does Not Fit All ...

There's no question – CT helps us save kids' lives! But... radiation matters! So, when we image, let's image gently.

More is often not better.
When CT is the right thing to do:

- Child size the kVp and mA
- One scan (single phase) is often enough
- Scan only the indicated area



image gently®

Visit www.imagegently.com



Pause & Pulse

Fluoroscopic procedures help us save kids' lives. But... when we image patients, radiation matters. Children are more sensitive to radiation. What we do now lasts their lifetimes.

- Image our kids with care.
- Pause and child-size the technique.
- Use lowest pulse rate possible.
- Consider fluoroscopy or MRI when applicable.



image gently®

For more information about pediatric radiation safety, visit www.imagegently.org.

16



CHILDREN CANNOT
STOP CHILD ABUSE.

ADULTS CAN...

Child Abuse

Nearly 200,000 children a year are victims of child abuse, including...

- Physical abuse and neglect
- Emotional abuse
- Sexual abuse

17

**THE 3 R'S OF
REPORTING CHILD ABUSE**

 **RECOGNIZE**

 **RESPOND**

 **REPORT**

Radiographer's Role in Reporting Child

- Radiographers have an ethical and legal obligation to become adept at the recognition of child abuse
 - Bruising, burns, or possible fractures that seem out of proportion to the report of how the injury occurred may be reasons to suspect abuse

Examples:

- The child's version of what happened is different from the parent's story
- Child states they have not eaten for a long period of time

18

**THE 3 R'S OF
REPORTING CHILD ABUSE**



R

ECOGNIZE



R

ESPOND



R

EPORT

- If your patient is here for imaging and you suspect child abuse, inform your supervising technologist or area supervisor
 - The referring physician may be contacted and additional images might be ordered
- Remain professional with the parent or caregiver at all times
 - If the physician orders additional images, you do not need to specifically tell the parents why. Simply state “the dr. would like more images”

19



20

Geriatrics

Fear of hospitalization is greatest in the elderly

- On average, 40% of the elderly people admitted to the hospital every year for a fall will not return to independent living

21

Geriatrics

- Persons 65 and older represent the fastest growing age group in America
 - 65 is an arbitrary age that designated for convenience as the age at which a person is eligible for Medicare benefits, Social Security benefits, and retirement
- Aging in humans refers to a multidimensional process of physical, psychological, and social change
- The elderly undergo almost **2.5** times more radiographic procedures than adults under 65 yrs of age



22

Common biological changes of aging:



- Arthritis
- Atrophied muscle mass
- Cataracts
- Declined cardiac function
- Decreased GI motility
- Loss of skin elasticity
- Osteoporosis
- Slowing of psychomotor processing and responses
- Decline in sensory function

23



Physical Health Concerns:

- Arthritis*
- COPD*
- Hypertension
- Osteoporosis
- Diabetes mellitus
- Pulmonary artery disease
- Cancer
- Parkinson's Disease

Mental Health Concerns:

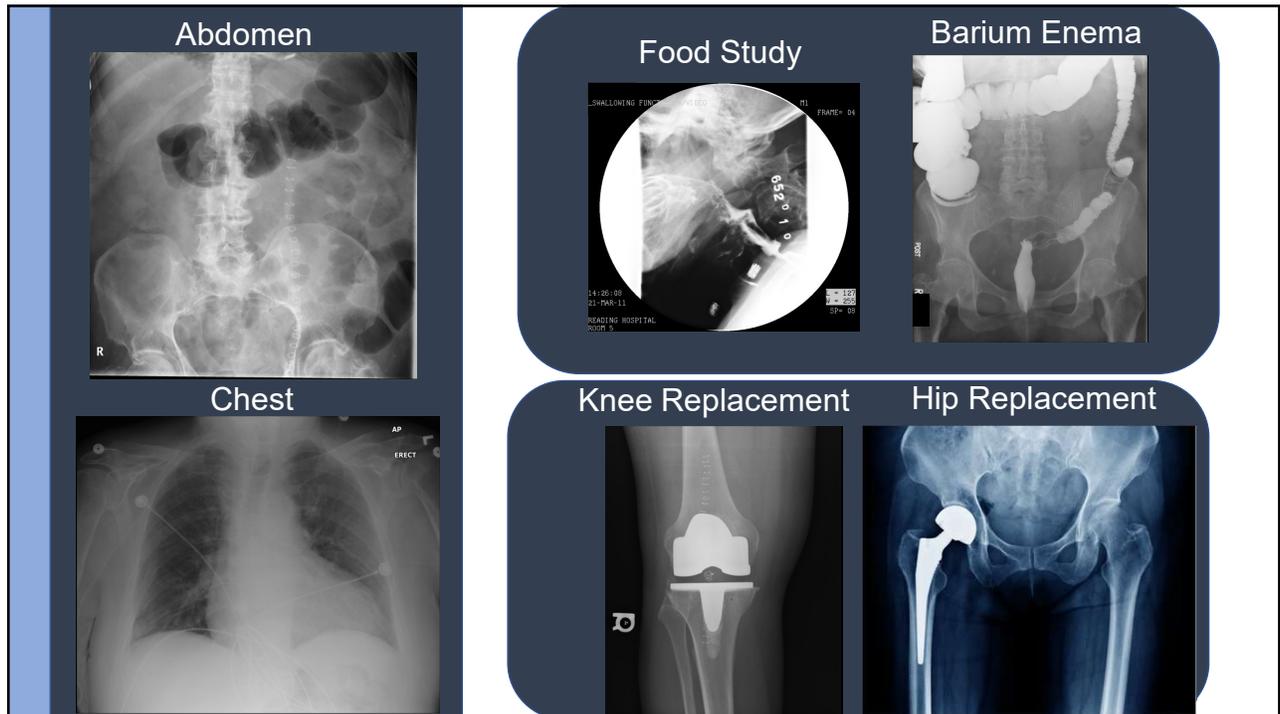
- Dementia
- Dependency
- Depression
- Fear of death
- Frustration with physical changes
- Alzheimer's

24

Procedures
Geriatrics
may come
in for...

- Chest
- Abdomen
- Knee
- Hip
- Spine
- Fluoro Procedures
- Bone Surveys

25



26

Positioning Considerations:

1. Maintain the patient's body temp with blankets
2. Transfer and position carefully to avoid causing skin tears
3. Allow a supine patient to sit for a bit before standing up to avoid postural hypotension
4. Don't make assumptions about what your patient, ask them instead
5. Have sponges and pillows available for the patient's head up or to elevate their knees
6. Never leave an elderly patient alone in the x-ray room

27

Must develop cultural knowledge,
awareness and sensitivity when
imaging elderly

28



IMAGE WISELY®
Radiation Safety in
Adult Medical Imaging

Geriatric: Image Wisely Campaign

29

Elder Abuse

- Affects 1 out of every 20 seniors through...
 - Physical abuse
 - Sexual abuse
 - Emotional / Psychological abuse
 - Isolation / Neglect
 - Financial abuse
- It is your ethical and legal obligation to report elder abuse to the person at your institution who makes inquiries

**STOP
ELDER
ABUSE**

30



Trauma Considerations

Trauma – “a deeply distressing or disturbing experience” or physical injury

31

RT Role

- Make sure the patient is comfortable while in your care
- Never ignore a patient’s complaint of pain
- Decide the most logical and least painful ways to perform the study
- Educate the patient about the study
- Communicate
- Stop the procedure if there is change in condition
- Confer with nurse or physician about the patient receiving pain meds
- HIPAA

32

General Guidelines for Trauma Patient Care:

Do not remove dressings or splints

Do not move patients who are on a stretcher or backboard until ordered to do so by the physician in charge of the patient

Do not disturb impaled objects. Support them so that they do not move as you image the patient.

Do not remove pneumatic antishock garments or CPR compression vests.

Do have an emesis basin ready for use.

Do work quickly, efficiently, and accurately to minimize repeat images.

33

Trauma Procedure Guidelines:

- Assess the situation and develop an action plan for the imaging procedure.
- Take at least two radiographs at 90 degrees angles to one another for each body part.
- Make sure that the central ray and image receptor alignment approaches routine positioning applications, adapting to the patient's condition.
- Include all anatomy of interest
- For long bone radiography, ensure entire bone is included, and support both joints
- Provide protective apparel for anyone who needs to be in the room caring for the injured patient

34

Trauma Immobilizations

Do not remove any immobilizers from ED trauma alert patient without Physician/RN OK



- Cervical Collar
 - Prevents life-threatening movement
 - **Must** remain on while images are taken
 - Need doctor's approval to remove

- Backboard
 - Supports entire body
 - Usually radio-translucent
 - Cassette can be placed directly below backboard
 - Can be used to move patient onto x-ray table



Fracture Immobilizations

- Traction
- Traction splint
- Air splints / casts
- Leg & arm immobilizers
- Back brace
- Fiberglass cast







35

STANDARD PRECAUTIONS

1. Hand Hygiene
2. Use Personal Protective Equipment (PPE)



Gloves



Gowns



Masks



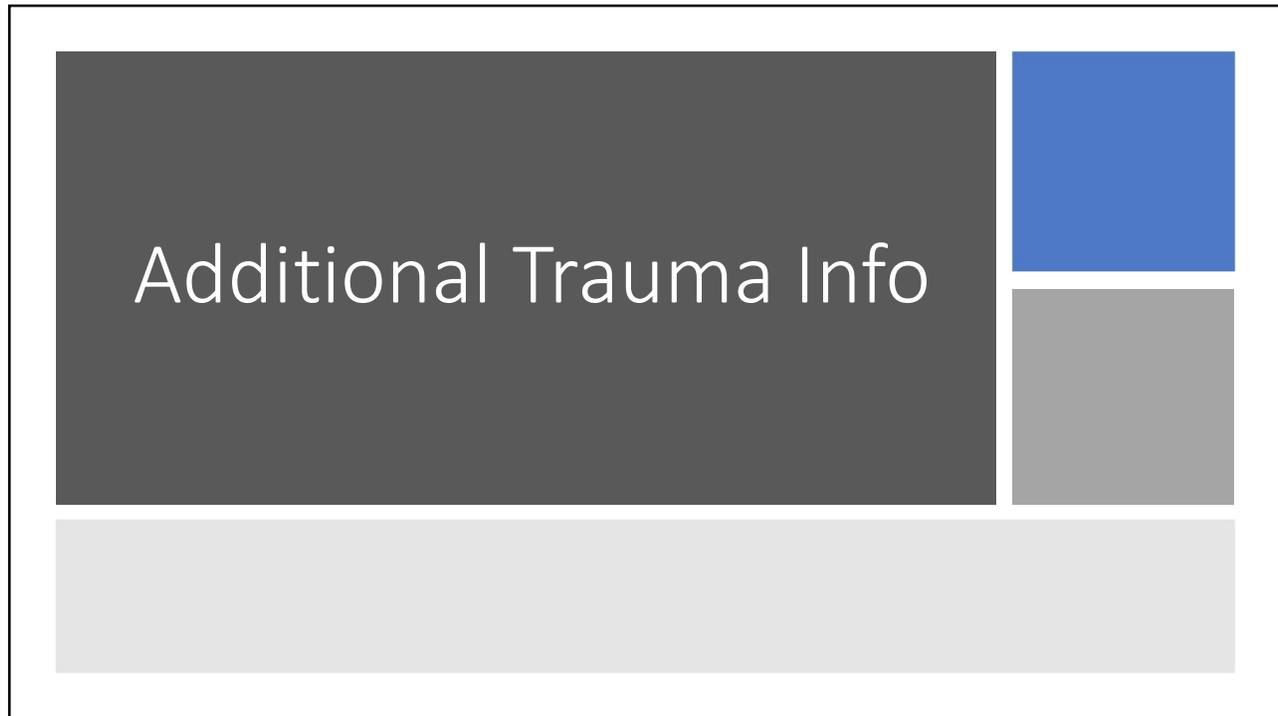
Eye Protection



Face Shields

Always follow OSHA - Maintain Standard Precautions!

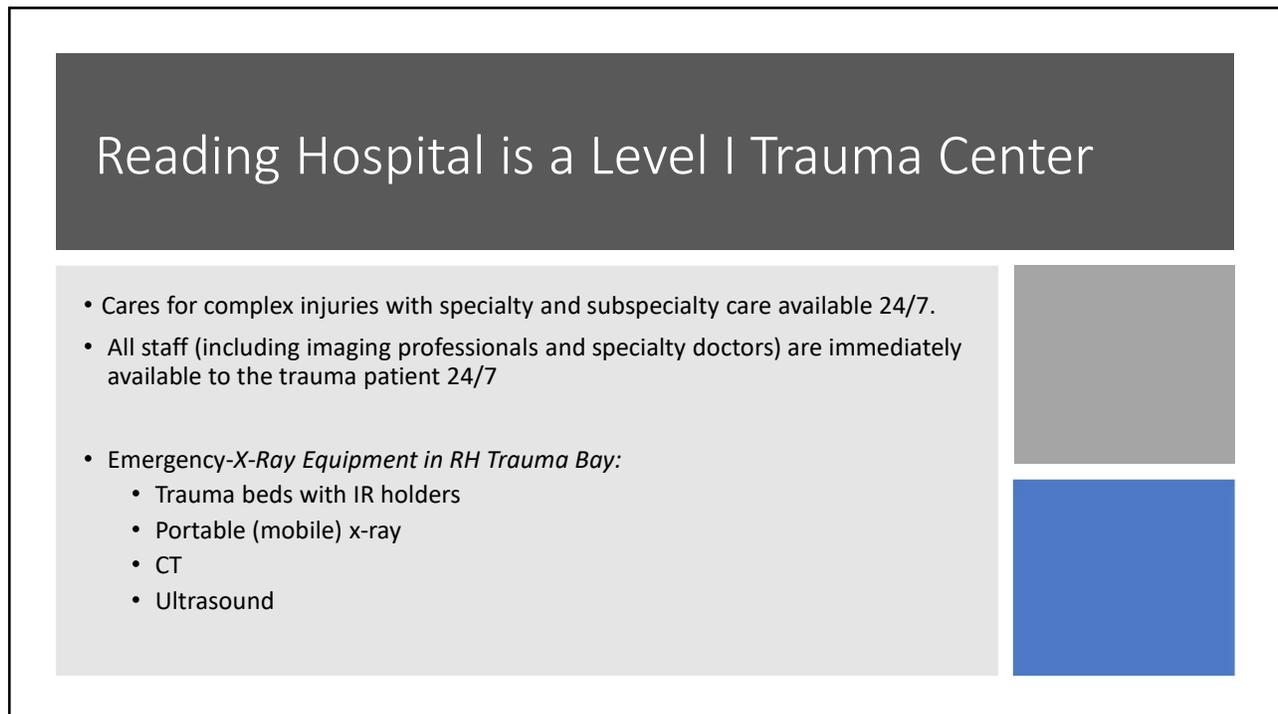
36



Additional Trauma Info

This slide features a dark gray header with the text 'Additional Trauma Info' in white. To the right of the header is a vertical stack of two colored squares: a blue square on top and a gray square below it. Below the header is a wide, light gray horizontal bar.

37



Reading Hospital is a Level I Trauma Center

- Cares for complex injuries with specialty and subspecialty care available 24/7.
- All staff (including imaging professionals and specialty doctors) are immediately available to the trauma patient 24/7
- *Emergency-X-Ray Equipment in RH Trauma Bay:*
 - Trauma beds with IR holders
 - Portable (mobile) x-ray
 - CT
 - Ultrasound

This slide features a dark gray header with the text 'Reading Hospital is a Level I Trauma Center' in white. Below the header is a light gray area containing a bulleted list. To the right of the list is a vertical stack of two colored squares: a gray square on top and a blue square below it.

38

