

# RadTrainer

Training Radiographers the Safe Way

Realistic X-ray Learning with  
No X-ray Exposure

**DRGEM**

*Your Best Healthcare*

**RadTrainer**

**A pre - clinical training platform designed  
for students before real hospital practice**

RadTrainer is a radiography training solution that allows students to learn the full X - ray room workflow safely, with no X - ray exposure.

# Configuration Options

## BASIC

Standalone Software

✓ **RadTrainer**

- Runs directly on a PC or laptop
- Ideal for classroom learning and theory - based practice
- Full access to positioning guidance, simulated workflow, and image viewing
- No additional hardware required

## PLUS

With Simulator

✓ **RadTrainer**

✓ **Simulator**

- Connects RadTrainer to Simulator
- Enables hands - on operation with physical buttons and knobs
- Delivers a more real workflow experience
- Suitable for skill - based practical training environments

## Integration

Complete system

✓ **RadTrainer**

✓ **Simulator**

✓ **X- ray System**

- Complete setup with RadTrainer, Simulator and DRGEM X - ray systems
- True- to - life workflow from positioning to exposure
- Ideal for advanced clinical and skill- based training environments

# Compatible with DRGEM DR Systems

## Integration

Complete system

- ✓ RadTrainer
- ✓ Simulator
- ✓ X-ray System

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- True-to-life workflow from positioning to exposure
- Ideal for advanced clinical and skill-based training environments

## RadTrainer

## Simulator



Auto Positioning System



Floor Mounted System



Motorized Mobile System



Manual Mobile System

# DRGEM

Your Best Healthcare

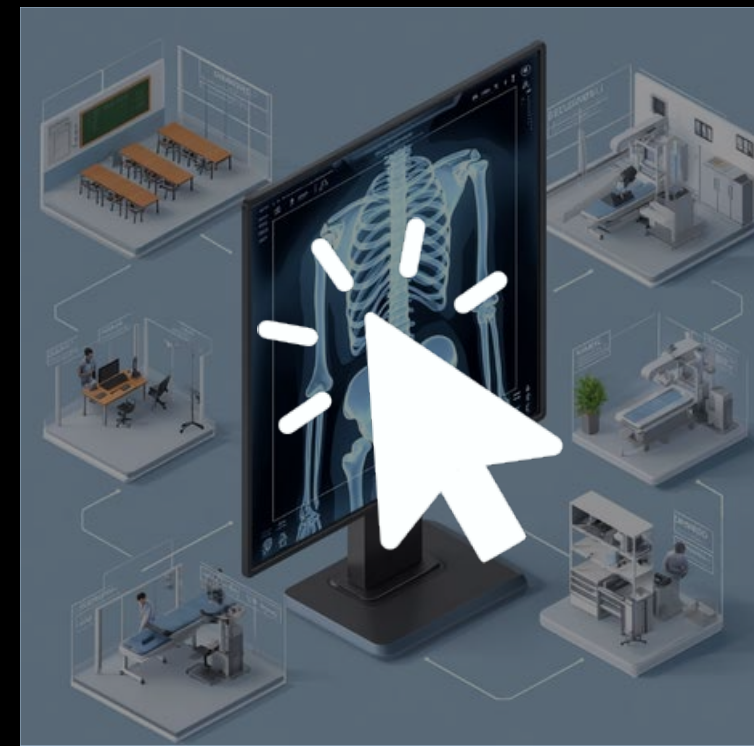
## RadTrainer



Efficient X - ray learning  
with real workflows



Full library of clinical images  
across all body parts



Flexible training in any  
non - hospital environment



Safe practice with  
no X - ray exposure



**DRGEM**

*Your Best Healthcare*

**RadTrainer**

Designed for  
Radiography Education

## ✓ Target Users

- Hospitals and clinical training teams
- Universities and schools offering radiography education

## ✓ Objectives

- Standardize basic radiographic skills before entering clinical practice
- Improve confidence in operating radiography equipment
- Enhance understanding of PACS and image processing workflows
- Reduce training costs and maximize educational efficiency

# 23 Body Parts 337 Positioning

The screenshot displays the DRGEM software interface for a mandible X-ray study. The interface is organized into several sections:

- Top Left:** Shows the time (11:40) and date (2025.09.02), along with the DRGEM logo.
- Left Panel:** Contains navigation options: "Worklist", "Procedure" (highlighted in blue), "Study List", and "Viewer".
- Top Center:** Displays the patient name "홍길동" and the study name "1-1 MANDIBLE". A "Close&Send" button is visible.
- Worklist:** A list of study items including "MANDIBLE AP", "MANDIBLE LT LAT", "MANDIBLE LT OBL", "MANDIBLE PA", "MANDIBLE RT LAT", and "MANDIBLE RT OBL".
- Technical Parameters:** A vertical column on the left shows settings: 75 kV, 320 mA, 50 msec, 16.00 mAs, and DAP (uGym<sup>2</sup>).
- Main View:** A 2x3 grid of X-ray images. The top row shows AP, LT LAT, and LT OBL views. The bottom row shows PA, RT LAT, and RT OBL views. Each image includes technical data such as "2025-09-02 11:39:05", "75.00 [kV]", "320.00 [mA]", "50.00 [ms]", "16.00 [mAs]", and "EI : 623".
- Right Panel:** A vertical toolbar with various icons for image manipulation, including zoom, pan, and window settings. The user name "admin" is displayed at the top of this panel.

# Sample: CHEST PA

16:36  
DRGEM

1-1  
JONE DOE  
Date of birth: Year, Month, Day  
Sex: Female  
Accession Number: 20251124163649  
Procedure Description: CHEST  
Physician  
Comment

CHEST

- CHEST
- AP
- AP PED
- APICO
- INFANTO PA
- LT DECUBITUS
- LT DECUBITUS PED
- LT LAT
- LT LAT PED
- LT OBL
- PA
- PA PED

Added Step List

- CHEST PA
- CHEST LT LAT
- CHEST RT LAT

GUI SERIES FAVORITE Add Open Cancel

NAME **JONE DOE** BIRTH ID **1-1**

**CHEST PA**  
Chest PA Projection  
kV : 115 mA : 320 Time : 8

Region  
lung, trachea, bronchus, heart, diaphragm, mediastinum, costophrenic angle

Pathology  
lung disease, mediastinal disease and heart disease

SID  
180 cm (72 inches)

Central  
The central ray is directed perpendicular to the center of the chest cage at the level of the 7th thoracic vertebrae.

Respiration  
suspended with deep inspiration

Position  
1. The patient is place either in an erect position or in a supine position.  
2. Place the chin on the vertical image receptor device. Place the hands either on the hip region or on the back of the device with arms surrounding

16:39  
DRGEM

JONE DOE  
1-1  
CHEST PA  
20251124163649

115 kV  
320 mA  
8 msec  
2.56 mAs  
DAP (uGymP2)

**CHEST PA**  
Chest PA Projection  
kV : 115 mA : 320 Time : 8

Region  
lung, trachea, bronchus, heart, diaphragm, mediastinum, costophrenic angle

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Position

16:40  
DRGEM

JONE DOE  
1-1  
CHEST PA  
20251124163649

115 kV  
320 mA  
8 msec  
2.56 mAs  
DAP (uGymP2)

13 cm  
4  
3072 x 3072  
WL:32767 WW:65536  
Zoom:34%

# Image Processing



Global Contrast

Global Brightness

Local Contrast

Small Enhancement

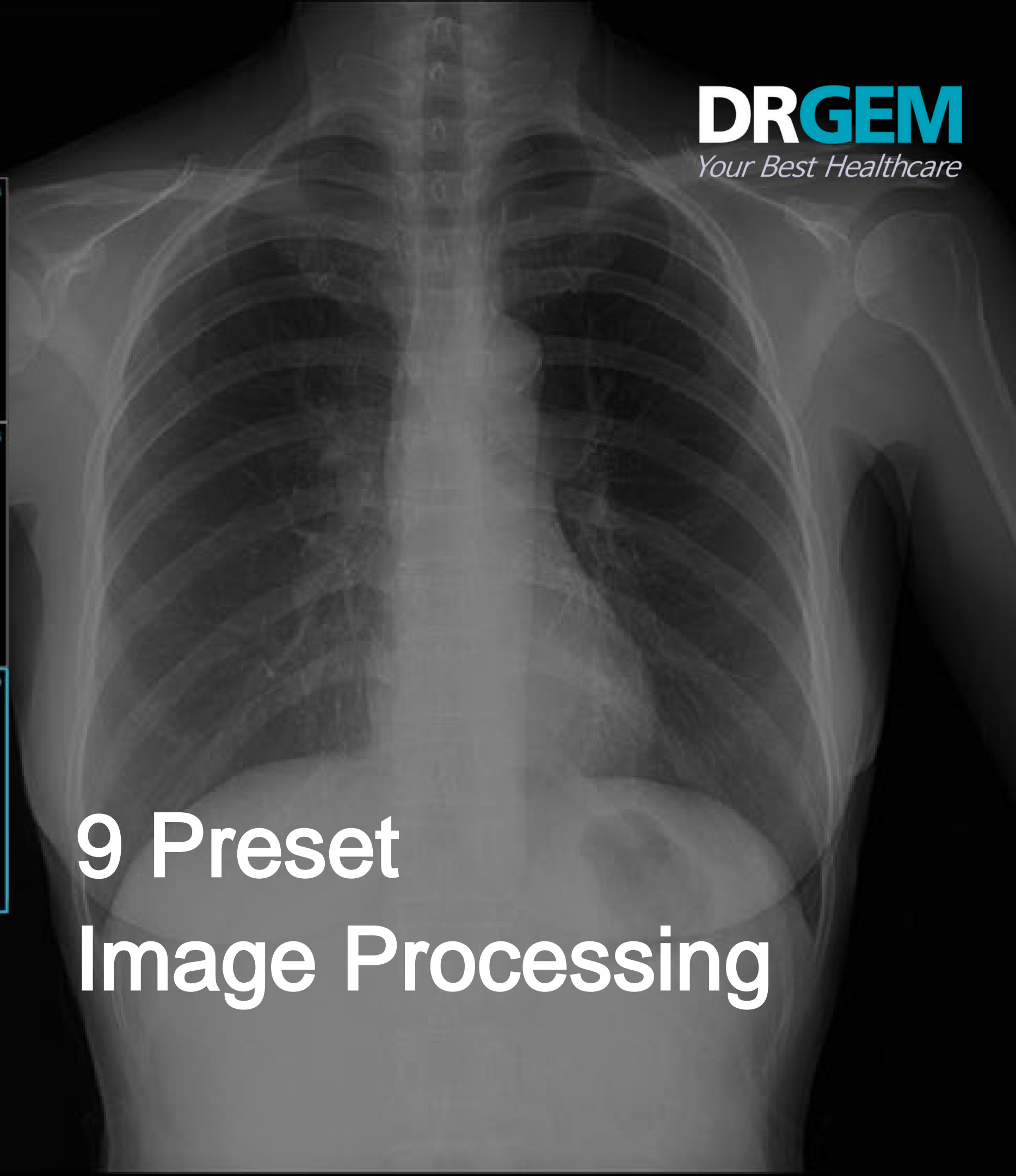
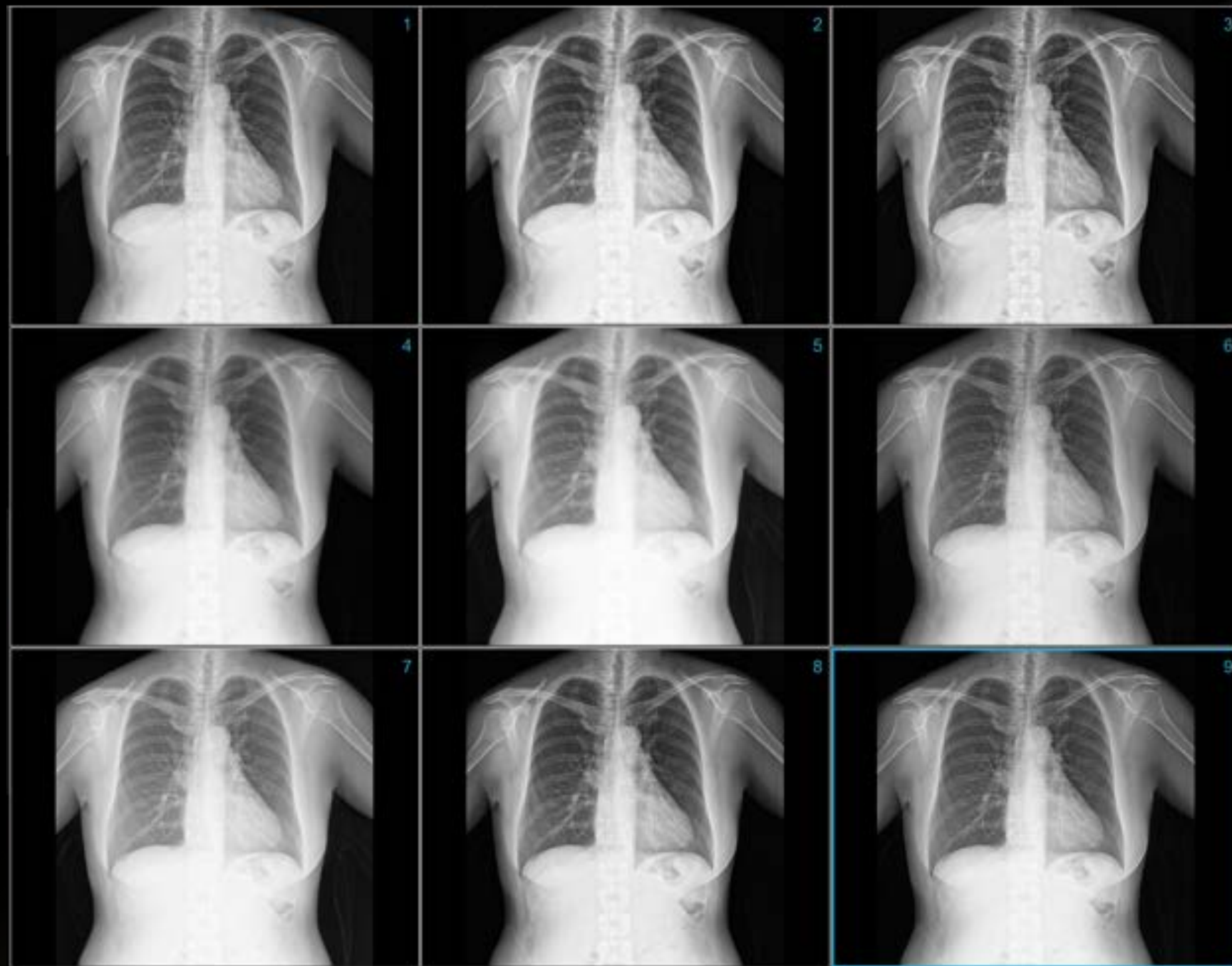
Latitude Reduction

Noise Reduction

< 18 >
< 10 >
< 15 >
< 10 >
< 13 >
< 8 >

Post Digital Image Processing





# 9 Preset Image Processing

# PACS Connectivity

## On a Single workstation



# GEMPACS

### NETWORK STATUS

Function	Server 1	Server 2	Server 3	Server 4
Worklist	Verify: ON	OFF	OFF	OFF
	Ping: OFF	OFF	OFF	OFF
PACs	Verify: ON	OFF	OFF	OFF
	Ping: OFF	OFF	OFF	OFF
Print	Verify: ON	OFF	OFF	OFF
	Ping: OFF	OFF	OFF	OFF
Query Retrieve	Verify: OFF	OFF	OFF	OFF
	Ping: OFF	OFF	OFF	OFF

# Print Connectivity

including DICOM print

**홍길동**  
1-6  
FOOT

**Print Information**

Server: STR\_SCP

Film Orientation: Landscape

Film Size: 14INCH X 17INCH

Film Layout: 2, 3

Divide, Merge, Zoom In, Fit Screen, Real Size, Zoom out, Print, Paper, Close

**FOOT LT AP**  
2025-09-02 16:50:00 54.00 [kV] 100.00 [mA] 50.00 [ms] 5.00 [mAs] EI: 3807

**FOOT LT LAT**  
2025-09-02 16:50:00 54.00 [kV] 100.00 [mA] 50.00 [ms] 5.00 [mAs] EI: 1525

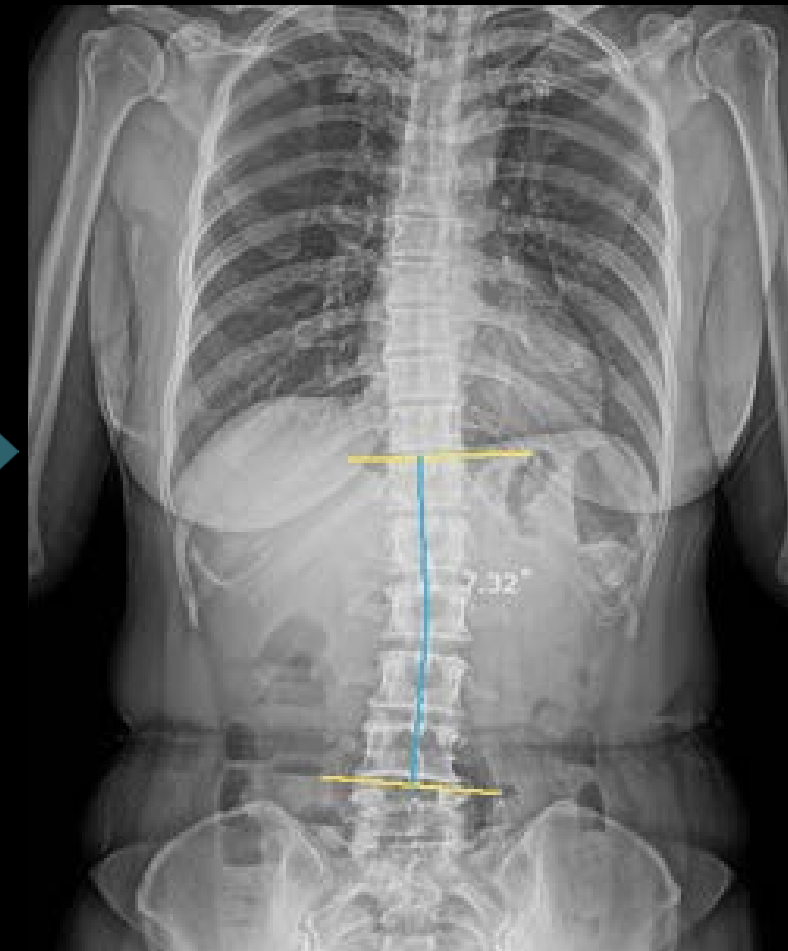
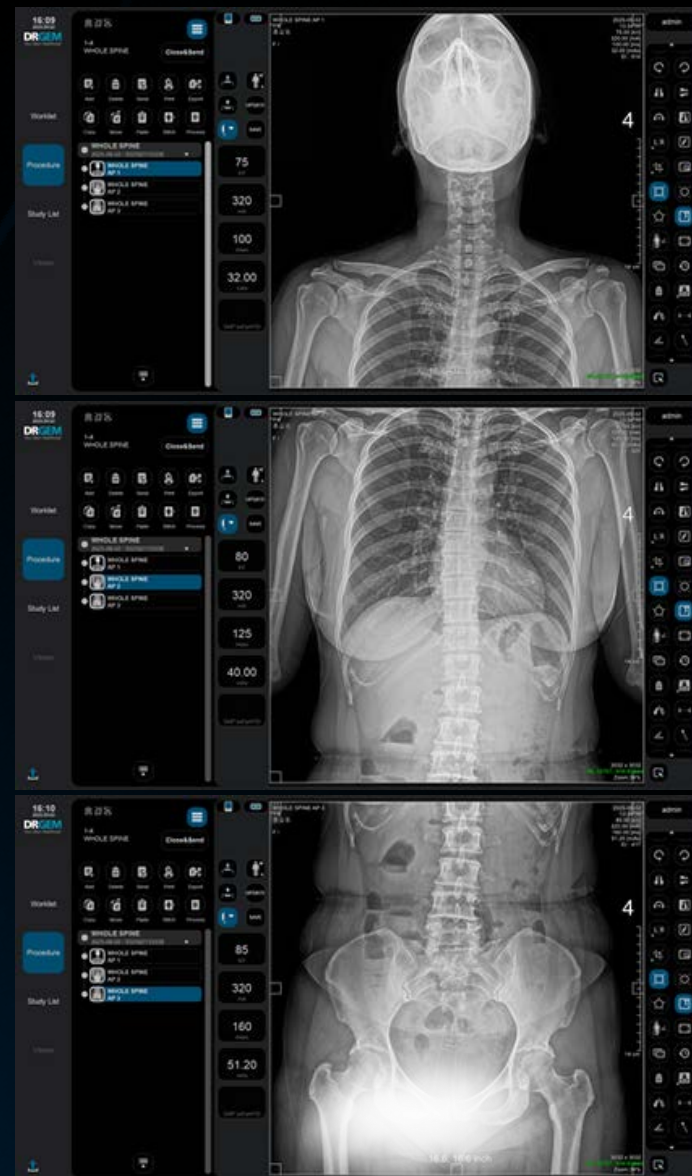
**FOOT LT OBL**  
2025-09-02 16:50:04 54.00 [kV] 100.00 [mA] 50.00 [ms] 5.00 [mAs] EI: 1693

**FOOT LT SESAMOID**  
2025-09-02 16:50:07 54.00 [kV] 100.00 [mA] 50.00 [ms] 5.00 [mAs] EI: 310

**FOOT LT STANDING AP**  
2025-09-02 16:50:10 54.00 [kV] 100.00 [mA] 50.00 [ms] 5.00 [mAs] EI: 1067

**FOOT LT STANDING LAT**  
2025-09-02 16:50:14 54.00 [kV] 100.00 [mA] 50.00 [ms] 5.00 [mAs] EI: 337

# Whole Spine Stitching



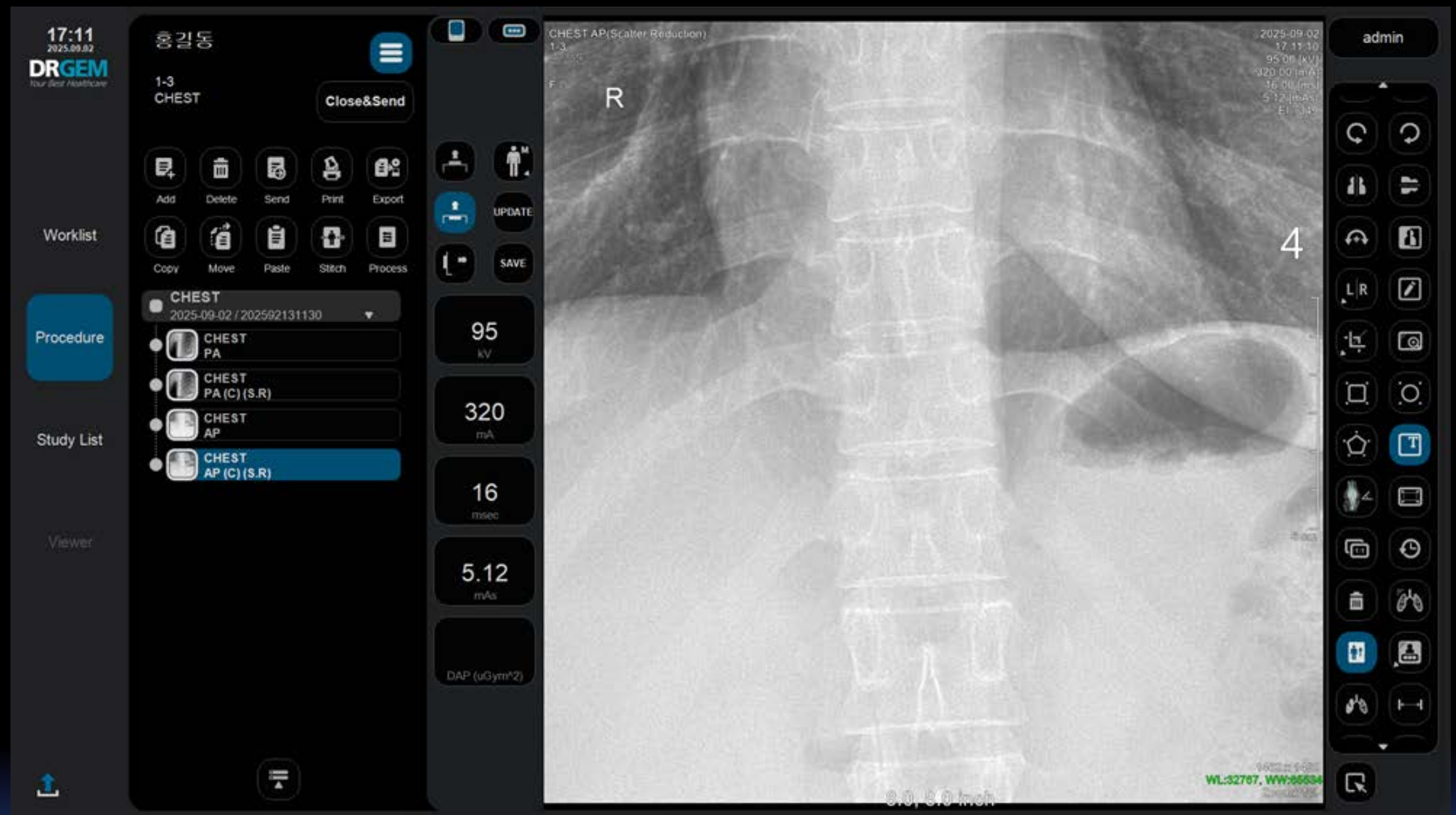
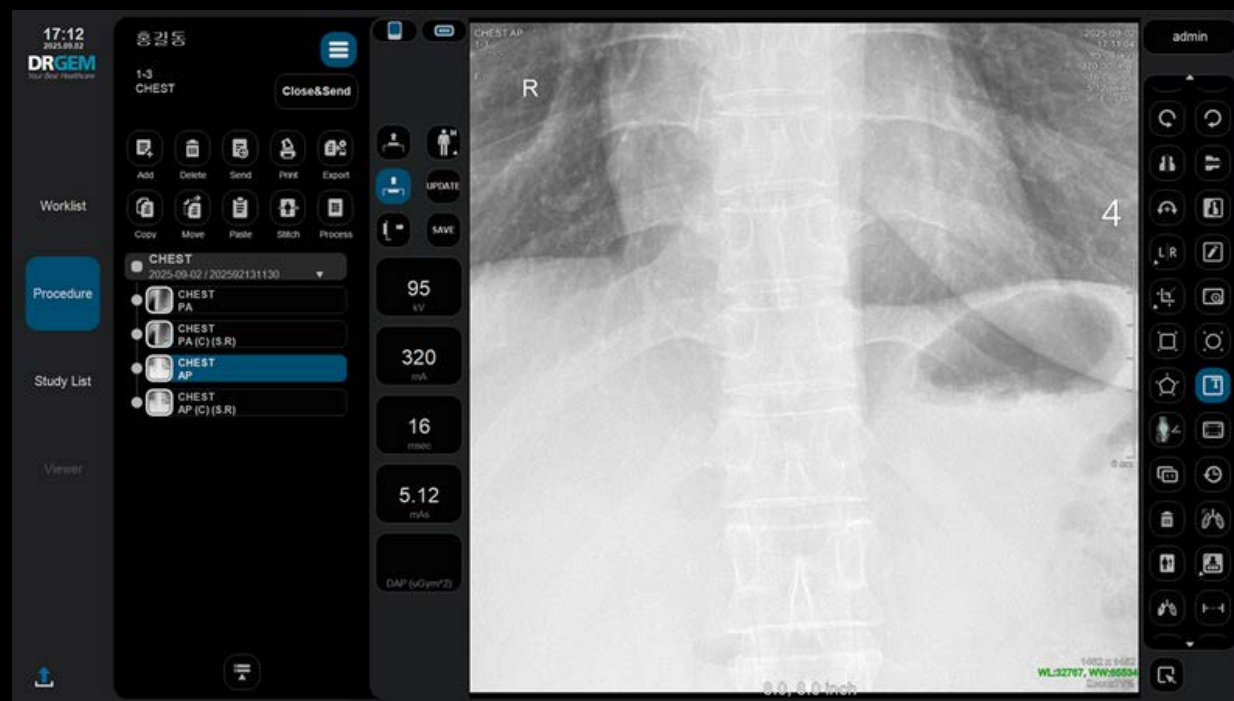
Cobb's Angle

# Long Bone Stitching



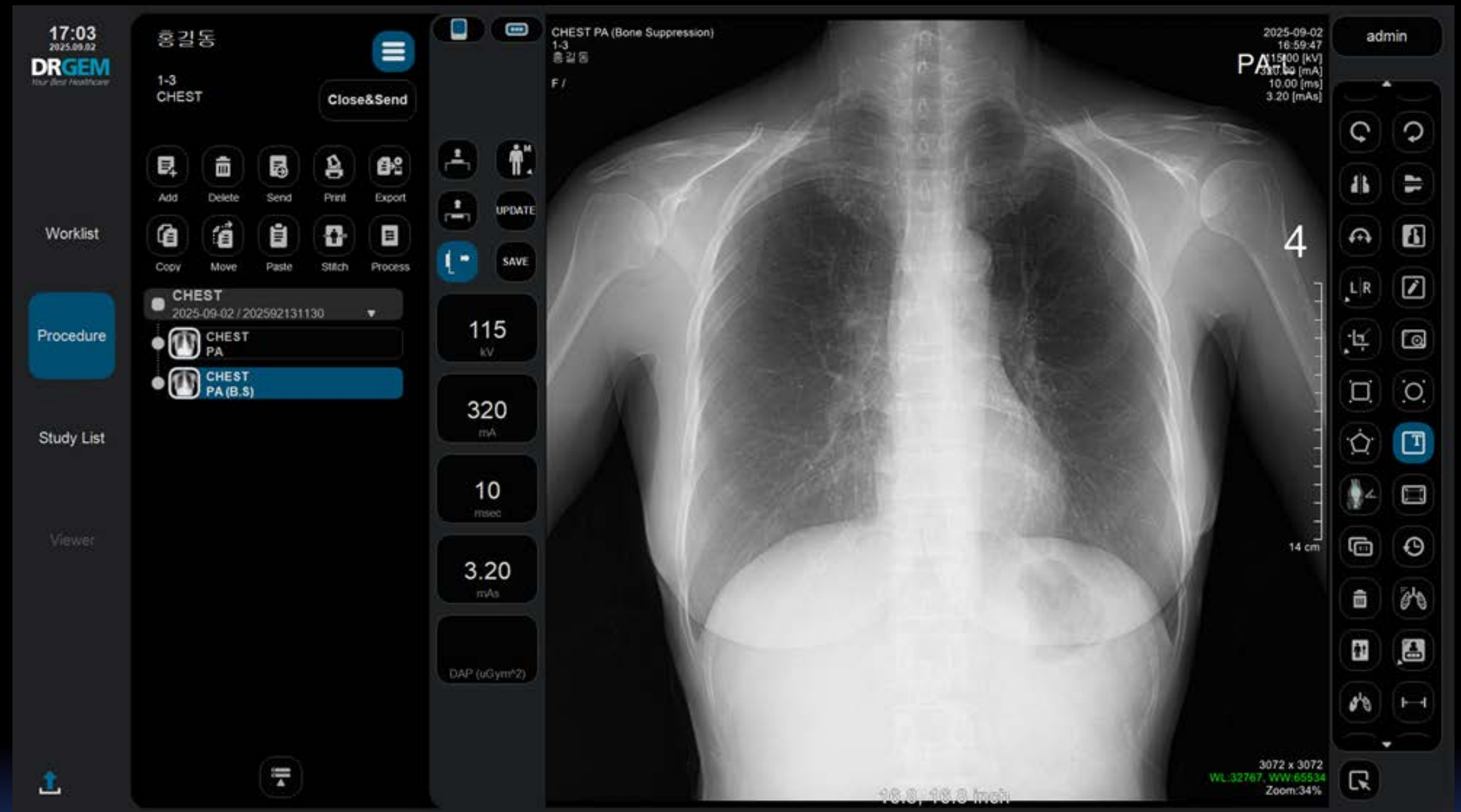
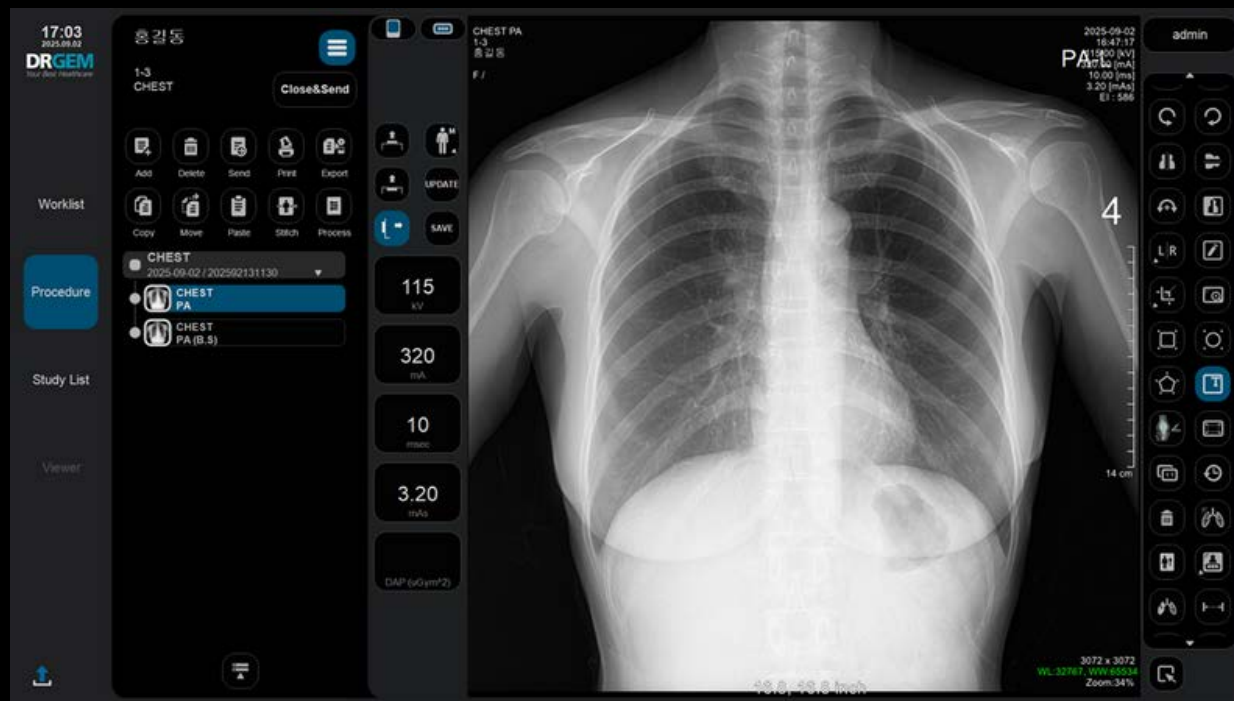
Q- Angle

# Chest X - ray Scatter Reduction



# Chest X - ray

# Bone Suppression



# How to Operate RadTrainer

Flowchart for **WORKLIST** >

## Patient Registration

- Select WORKLIST Menu
- Choose Patient from LIST  
- Double - Click / Click **Open**



## X- ray preparation

- Review Positioning Guidance
- Perform Patient Positioning
- Select Patient Size
- Adjust Exposure Condition (kV, mA, Exposure Time)



## X- ray Exposure

- PRESS HAND SWITCH (2 - STAGE)
  - **Stage 1**  
preparation (Rotor sound)
  - **Stage 2**  
Simulated exposure (short beep)  
**\*\*No real X - ray**
- Simulated X - ray image Appears



## X- ray Image Evaluation

- Adjust Brightness or Contrast  
- Hold right mouse button & drag
- Click **PROCESS**  
- Adjust image processing parameters
- Editing Tools  
- Crop, Rotate, Annotate
- Apply Scatter Reduction  
- S/W - based Grid Effect
- Apply Bone Suppression  
- S/W - based Soft tissue images



## DICOM Image Sending

- Select the Step (acquired image)
- Select the **Send** or **Close** & **Send** to send images to GEMPACS

# How to Operate RadTrainer

Flowchart for **MANUAL** >

## Patient Registration

- Select WORKLIST Menu
- Click 'New' & enter patient info  
ID, Name, Date of Birth, Gender, Accession Number, Procedure Description
- Select Body part, Exam, Projection
- Click **Open**



## X-ray preparation

- Review Positioning Guidance
- Perform Patient Positioning
- Select Patient Size
- Adjust Exposure Condition (kV, mA, Exposure Time)



## X-ray Exposure

- PRESS HAND SWITCH (2-STAGE)
  - **Stage 1**  
preparation (Rotor sound)
  - **Stage 2**  
Simulated exposure (short beep)  
**\*\*No real X-ray**
- Simulated X-ray image Appears



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- Adjust Brightness or Contrast  
- Hold right mouse button & drag
- Click **PROCESS**  
- Adjust image processing parameters
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