

Welcome to...

MSK!

During your time at BCH, you will spend about one week in the musculoskeletal rotation (MSK). The majority of the studies you read will be radiographs. You will also read MR and CT studies to evaluate for tumor, infection, fracture, and intra-articular pathology.

THE WORK DAY:

The work day begins at 7:30 AM. When you first arrive, use Allocade to review the MSK MR and CT cases for the day. (Skip the cases happening on the “Binney 2” scanner. These are outpatient sports medicine studies that will be read by the MSK radiologist assigned to ortho clinic.) The attending and fellow will run the list and assign you to specific cases for the day. Review the indication for the study, any relevant information/prior imaging in the EMR, and the MR protocol. The fellow is expected to write helpful notes in the Allocade notes window, but if there is no fellow, then this is your responsibility.

The screenshot shows the ALLOCADe On-Cue software interface. At the top, there are tabs for different departments: MR - All Sites (22), MSK (6), CT - All Sites (5), Body/MSK (9), FL Boston (1), US Boston (2), Satellites - US, FL, XR (1), Body (3), and Neuro (12). The MSK (6) tab is selected, and a red arrow points to it. Below the tabs, the date and time are displayed as Sat, Jun 11, 2016 13:43. The main table lists cases with columns for Time, Status, Location, Patient, Scanner, Procedure, Staff, Lab, and Notes. The cases listed are:

Time	Status	Location	Patient	Scanner	Procedure	Staff	Lab	Notes
13:30	Start Scan	OP	Doe, John	3T Skyra	MR Hip Non-Contrast...	RN: MD:MB RT:KMB		Acute Hip (bilateral except for sag of affected side)...cd 4:05p 6/10
13:35	Start Scan	OP	Doe, John	Binne Y2	MR Lower Extremity...	RN: MD:MB RT:SC		NEEDS WAITER LEFT FOOT-4 th metatarsal distal stress fx Pt. has titanium...
13:45		OP	Doe, John	Binne Y2	MR Knee Non-Contr...	RN: MD:MB RT: 3		no clinic
15:15		OP	Doe, John	3T Skyra	MR Wrist	RN: MD:MB RT: 0		IV in the L arm would be helpful bc of patient positioning...cd...
16:15		OP	Doe, John	3T Trio	MR Knee	RN: MD:MB RT: 4		R Knee/medial thigh See notes...re: previous FOV...CD 6/10,10:45a

At the bottom of the screen, there is a section for 'OD' (Orthopedic) and 'MSK' (Musculoskeletal) with various sub-sections like 'Fetal', 'Board RT', 'B2/B7 Neuro', 'Anes 1', 'ROC RT', 'B2 RT', 'Chest/CV', 'Anes 2', 'Moonlighter', and 'GA Ascom'.

MR - All Sites (22)		CT - All Sites (5)		FL Boston (1)		US Boston (2)		Body (3)											
Body - Next Day (3)		MSK (6)		MSK - Next Day (3)		Body/MSK (9)		On Call (25)											
Satellites - US, FL, XR (1)		Fetal		Neuro (12)															
ALLOCADE On-Cue																			
MSK																			
Sat, Jun 11, 2016 13:43																			
				Reschedule		All CT		Add-On...											
						Clean up													
Time	Status	Location	Patient	Scanner	Procedure	Staff	Lab	Notes											
13:30 1:40Z Day 13:30	Start Scan 13:41	OP	Doe, John F/Age: 60y MRN: 0000000	3T Skyra	MR Hip Non-Contrast...	RN: SR: MD:MB RT:KMB RM:5528 0		Acute Hip (bilat except for sag of affected side)...cd 4:05p 6/10											
Comm:				Delay:	RT/RN Comm:														
13:35 1:40Z Day 13:30					MR Lower Extremity...	RN: SR: MD:MB RT:SC RM:5953 3		NEEDS WAIVER LEFT FOOT-4 th metatarsal distal stress fx Pt. has titanium...											
Comm:				Delay:	RT/RN Comm:														
13:45 1:41Z Day 13:45					MR Knee Non-Contrast...	RN: SR: MD:MB RT: RM:5953 3	B2/L Knee	no clinic											
Comm:				Delay:	RT/RN Comm:														
15:15 1:40Z Day 13:15					MR Wrist	RN: SR: MD:MB RT: RM:5528 0		I IV in the L arm would be helpful bc of patient positioning...cd...											
Comm:				Delay:	RT/RN Comm: IV needed (22g)														
16:15 1:41Z Day 13:15					MR Knee	RN: SR: MD:MB RT: RM:5752 4		R Knee/medial thigh See notes...re: previous FOV...CD 6/10,10:45a											
Comm:				Delay:	RT/RN Comm:														
N		OD		MSK		Chest/CV													
A		Fetal		Anes 1		Anes 2													
B		Board RT		ROC RT		Moonlighter													
B		B2/B7 Neuro		B2 RT		GA Ascom													

Scanner column tells you where the study is happening. Ask your attending/fellow to clarify this for you. This will affect which lists you subscribe to in Radstar. Binney 2 studies are typically only read by the attending in ortho.

MR - All Sites (22)

CT - All Sites (5)

FL Boston (1)

US Boston (2)

Body (3)

Body - Next Day (3)

MSK (6)

MSK - Next Day (3)

Body/MSK (9)

On Call (25)

Satellites - US, FL, XR (1)

Fetal

Neuro (12)

File

Patients

Order Settings

ALLOCADE

On-Cue

Sat, Jun 11, 2016 13:44

Reschedule

All CT

Add-On...

Clean up

Time	Status	Location	Patient	Scanner	Procedure	Staff	Lab	Notes
13:30 1:40Z Day 13:30	Start Scan 13:41	OP	Doe, John F/Age: 60y MRN: 0000000	Binne y2	MR Hip Non-Contrast...	RN: SR: MD:MB RT:KMB RM:5528 0		Acute Hip (bilat except for sag of affected side)...cd 4:05p 6/10
Comm: Delay: RT/RN Comm:								
13:35 1:40Z Day 13:30	Start Scan 13:38	OP	Doe, John F/Age: 60y MRN: 0000000	Binne y2	MR Lower Extremity...	RN: SR: MD:MB RT:SC RM:5953 3		NEEDS WAIVER LEFT FOOT-4 th metatarsal distal stress fx Pt. has titanium...
Comm: Approved/Protocolled 00:53 Delay: RT/RN Comm:								
13:45 1:41Z Day 13:45	Start Scan 13:47	OP	Doe, John F/Age: 60y MRN: 0000000	Binne y2	MR Knee Non-Contrast...	RN: SR: MD:MB RT: RM:5953 3	B2/L Knee	no clinic
Comm: Delay: RT/RN Comm:								
15:15 1:40Z Day 13:15	Start Scan 15:17	OP	Doe, John F/Age: 60y MRN: 0000000	3T Skyra	MR Wrist	RN: SR: MD:MB RT: RM:5528 0		IV in the L arm would be helpful bc of patient positioning...cd...
Comm: Delay: RT/RN Comm: IV needed (22g)								
16:15 1:41Z Day 13:15	Start Scan 16:17	OP	Doe, John F/Age: 60y MRN: 0000000	3T Trio	MR Knee	RN: SR: MD:MB RT: RM:5752 4		R Knee/medial thigh See notes...re: previous FOV...CD 6/10,10:45a
Comm: Delay: RT/RN Comm:								

N

A

B

B

OD

Fetal

Board RT

B2/B7 Neuro

MSK

Anes 1

ROC RT

B2 RT

Chest/CV

Anes 2

Moonlighter

GA Ascom

Right click here on the study for more information

Right click here on the study for more information

MR - All Sites (22) CT - All Sites (5) FL Boston (1) US Boston (2) Body (3)
 Body - Next Day (3) MSK (6) MSK - Next Day (3) Body/MSK (9) On Call (25) Satellites - US, FL, XR (1) Fetal Neuro (12)

File Patients Organize Settings **ALLOCADE On-Cue**

MSK Sat, Jun 11, 2016 13:43 Reschedule All CT Add-On... Clean up

Time	Status	Location	Patient	Scanner	Procedure	Staff	Lab	Notes
13:30 14:02 Ong 13:30	Start Scan	OP	Doe, John MRN: 0000000	3T Skyra	MR Hip Non-Contrast...	RN: MD:MB RT:KMB RM:5528		Acute Hip (bilateral except for sag of affected side)...cd 4:05p 6/10
13:35 14:00 Ong 13:35	Start Scan	OP						NEEDS WAIVER LEFT FOOT-4th metatarsal distal stress fx Pt. has titanium...
13:45 14:17 Ong 13:45	Comm: Approved/Protocolcd	OP						B2/L Knee no clinic
15:15 16:08 Ong 15:15		OP						IV in the L arm would be helpful bc of patient positioning...cd...
16:15 17:14 Ong 16:15		OP						R Knee/medial

Edit Notes
 Resident x-important clinical info.....
 OK Cancel

Left click on the box to add more information (write your initials for ease of reference).

OD: MSK
 A: Fetal
 B: Board RT
 B: B2/B7 Neuro

Anes 1: MSK
 ROC RT: Anes 2
 B2 RT: Moonlighter
 GA Ascom

MR - All Sites (22) CT - All Sites (5) FL Boston (1) US Boston (2) Body (3)
 Body - Next Day (3) MSK (6) MSK - Next Day (3) Body/MSK (9) On Call (25) Satellites - US, FL, XR (1) Fetal Neuro (12)

File Patients Organize Settings **ALLOCADE On-Cue**

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16:15 17:14 Ong 16:15		OP						R Knee/medial

Hip Acute Pain: FOV = pelvis, bilateral hips. Sag of affected side only.

Protocol Group: MR MSK
 Protocol: -- Add Protocol -- Load Delete

Sequence	Time (min)	Notes
Hip Acute Pain		
Coil: Flex (S)		
3 plane loc	1	
T1 Cor	6	
FSE T2 fs Cor	5	
FSE PD fs Sag	5	
FSE T2 fs Ax	5	

Total Sequence Time: 22
 Additional Time: 0
 Sed/Anes: Non-Sed 10
 Total Time: 32

Change 06/10/16 13:23 - by Instructions, Series
 Edited by: Enter Name

Left click on the "paper and pencil" to see the protocol for the study and the notes. Use this list to determine if all the desired sequences are complete, and check with attending before sending patient. The change log on the right gives the name of the radiologist who protocolled the study.

RT/RN Comm: MD:MB RT:SC
 RM:5553 3

NEEDS WAIVER LEFT FOOT-4th metatarsal distal stress fx Pt. has titanium...

RT/RN Comm: MD:MB RT:SC
 RM:5752 4

See notes, re: previous FOV...CD 6/10, 10:55a

OD: MSK
 A: Fetal
 B: Board RT
 B: B2/B7 Neuro

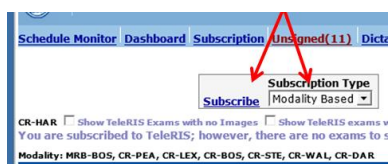
Anes 1: MSK
 ROC RT: Anes 2
 B2 RT: Moonlighter
 GA Ascom

THE WORKLIST:

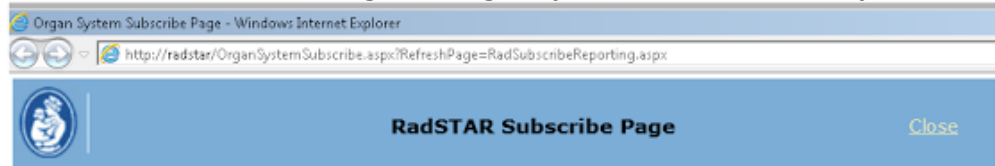
On Radstar, go to the “Subscribe” tab at the top and change it from “Modality” to Organ System. You want to subscribe to:

- 1) **ALL** radiographs. You will focus on the MSK radiographs performed in Boston, which should be read from the top of the list down (no cherry picking!) Don’t worry if you don’t know how to read the study, just click on it and try to draft a report. You will have a great learning opportunity when it is time for attending readout. Once all of the MSK radiographs have been read, you should next read the abdomen and chest radiographs in Boston, then the radiographs performed at the satellite locations (Lexington, Peabody, Waltham)
- 2) MSK CT and MR appropriate for the studies you have been assigned for that day.

Depending on which cross sectional studies you have been assigned, your subscription list will look something like....



Change to “Organ Systems” from “Modality Based”



Select the **Organ Systems** you wish to subscribe

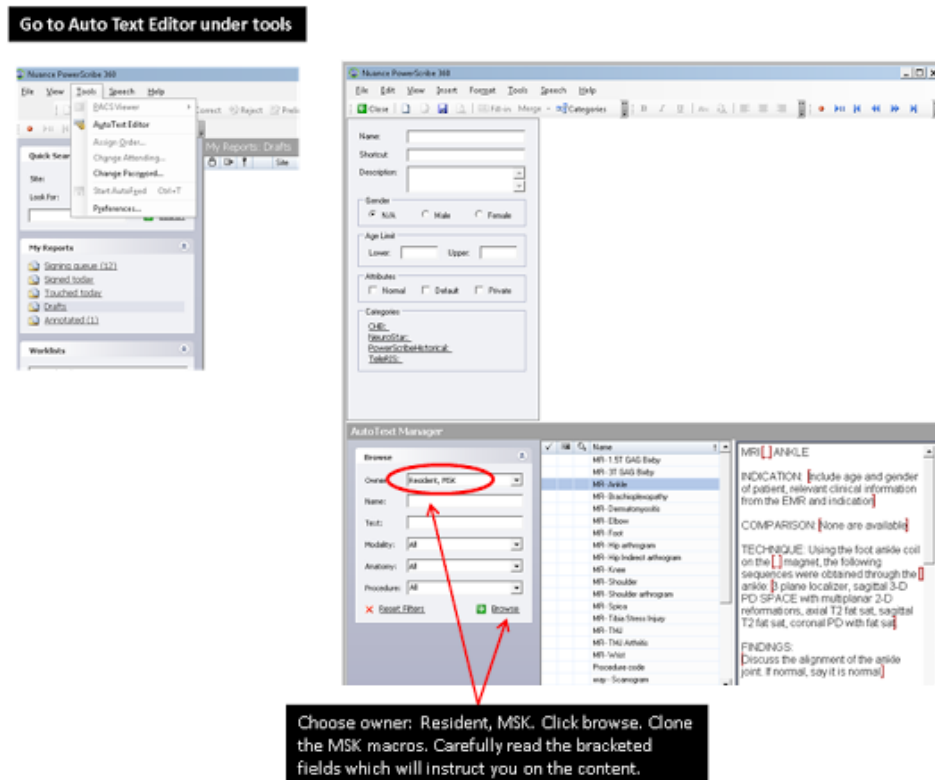
Organ System	Boston	Lexington	BCH North	BCH South	Waltham	North Dartmouth	TeleRIS-BWH	TeleRIS-BIDMC	TeleRIS-HMH
CR (non MSK)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CT/MR (non MSK)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chest (CR)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fetal MR/US	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
MSK (CR)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
MSK (CT/MR)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
MSK (MR Binney 2)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Save

THE REPORTS:

Go to the “Auto Text Editor” tab and copy the macros from “**Resident, MSK**” . Whenever possible, use these macros for your reports unless specifically told not to

do so by the attending of the day. If you are doing an uncommon exam with no appropriate macro available, try to structure your report in a similar manner. Carefully read all of the fields to make sure magnetic strength, coil type, sequences obtained are all accurate. If you are not sure, ask....



GOALS:

1) Cleveland Clinic Modules:

By Wednesday during your week of MSK, you should complete the following modules, and email the transcripts to Abby:

- Child Abuse: Skeletal Trauma
- Child Abuse: Cerebral Trauma
- Developmental Dysplasia of the Hip
- Ewing Sarcoma
- Legg-Calve Perthes Disease
- Osteogenic Sarcoma
- Rickets
- Septic Arthritis and Toxic Synovitis

Slipped Capital Femoral Epiphysis
Langerhans Cell Histiocytosis

2) Radiographs: By the end of the week, your goal should have a firm comfort level with identifying and describing most common pediatric MSK disorders. For the less common and more complex disorders, you should be able to at least recognize and systematically analyze the findings, as a basis for review with the attending.

3) Cross- Sectional : During your relatively short time in the MSK department, the types of CT and MR studies that you read and the breadth of pathology that you see will be highly variable. You should develop a sense as to how the approach to pediatric CT and MRI, how it differs from the approach in adults, and recognize the risks to children related to radiation dose and sedation/anesthesia. You should appreciate that these studies are often tailored to the clinical concern.

For all follow-up studies, be sure to review the original imaging studies, so that you would be able to appropriately diagnose a patient if you saw them at initial presentation.

To help ensure that you get to be involved in a variety of cases, we have created a checklist of the types of studies you should try to read over the course of the week. Your ability to complete all of the recommended studies will of course be dependent on the patient schedule for the week and the number of other residents and fellows in the reading room with you, so these cases are not a fixed requirement. Check off each case as you dictate them, and include the accession number of the study for future reference.

Radiographs

1. Hips and pelvis, e.g:
 - a. DDH and subluxation/dislocation due to neuromuscular disorders
 - b. Avascular necrosis
 - c. SCFE
 - d. Impingement
2. Spine for scoliosis (idiopathic, congenital, neuromuscular)
3. Long bones,
 - a. Fracture
 - b. Tumors (benign and malignant)
 - c. OCD
 - d. Osteomyelitis
 - e. Child abuse
4. Review at least one case of a genetic syndrome or bone dysplasia

MRI

- a. At least one knee MRI in a *child* for internal derangement, OCD, neoplasm or inflammatory process
- b. At least one other pelvic or extremity MRI for a pediatric disorder (tumor, infection, rheumatologic disorder)

CT

- a. At least one “Murphy” hip/pelvis CT for DDH or neuromuscular disease
- b. At least one extremity CT for trauma

We hope that you have a fun and educational time during your MSK rotation, and if you have any questions or concerns, don't hesitate to ask us

Sincerely,



Kirsten Ecklund