Providence HEALTH CARE

Adequate completion of Radiology request forms – are referrers helping us to help them?

Dr Bhim Ji Odedra

Department of Radiology, St Paul's Hospital, Vancouver, British Columbia.

bhimodedra@gmail.com

Why is effective communication so vital?

- Radiology request forms are key communication tools between the referring physician and the radiologist/technologist.
- Several standards described in reporting and communicating imaging studies.
- But there is a relative lack of guidelines describing the standards expected from a referrer when completing a radiology request form.
- Increasing number of imaging studies performed:
  - In 2012, Canadians underwent 1.7 million MRI exams and 4.4 million CT exams. Nearly double the number performed in 2003 [1].
- There is a challenge to provide the right radiological examination at the right time.

1 Canadian Insttitute of Health Information Report on Imagi

Why is effective communication so vital?

Canadian Association of Radiologists

CAR Standard for Communication of Diagnostic Imaging Findings

1 Canadian Insttitute of Health Information Report on Imagi

Why is effective communication so vital?

Standards for the communication of critical, urgent and unexpected significant radiological findings

Second edition

1 Canadian Institute of Health Information Report on Imagi

Why is effective communication so vital?

ACR PRACTICE GUIDELINE FOR COMMUNICATION OF DIAGNOSTIC IMAGING FINDINGS

1 Canadian Insttitute of Health Information Report on Imagi

Why assess the adequacy of Radiology requests?

- Most protocoling performed by fellows, ie me.
- Interventional Radiology performed by fellows, ie me.
- Without the correct information on request forms the right test or procedure may not be performed at the right time.
- Variable quality and quantity of information on a wide range of request form formats.

Why assess the adequacy of Radiology requests?

- Most protocoling performed by fellows, ie me.
- Interventional Radiology performed by fellows, ie me.
- Without the correct information on request forms the right test or procedure may not be performed at the right time.
- Variable quality and quantity of information on a wide range of request form formats.

Why assess the adequacy of Radiology requests?

Lab Last Creatinine Level: N/A

CT Head

Priority: Urgent

Required Date: 17-Nov-2013

Reason for Exam: Trauma

History: Wine and cheese party gone wrong

Why assess the adequacy of Radiology requests?

Computed Tomography (CT) Requisition

Providence
HEALTH CARE

☐ ST. PAUL'S HOSPITAL
1081 Burrard St., Vancouver, BC V6Z 1Y6
Phone: 604-806-8071 Fax: 604-806-8437

☐ MOUNT SAINT JOSEPH HOSPITAL
3080 Prince Edward Street,
Vancouver, BC V5T 3N4
Phone: 604-877-8323 Fax: 604-877-8132

MR. MISS	SURNAME	FIRST NAME	
PERMANENT ADDRESS			
POSTAL CODE	CELL PHONE	HOME PHONE	WORK PHONE
DATE OF BIRTH (MONTH / DAY / YEAR)	AGE	SEX	
HEALTH CARE #	MSP ☐ WCB ☐	ICBC ☐	OTHER ☐

TO SCHEDULE AN APPOINTMENT PLEASE FAX OR MAIL COMPLETED REQUISITION TO CT DEPARTMENT

Infection Concerns?
☐ YES ☐ NO
SPECIFY: ______

Is the Patient Pregnant?
☐ YES ☐ NO

Previous IV Contrast Reaction?
☐ YES ☐ NO

Diabetes Mellitus?
☐ YES ☐ NO
MUST HAVE CREATININE RESULTS FOR DIABETICS.

Is Patient Taking Metformin?
☐ YES ☐ NO

Renal Function?
☐ NORMAL ☐ ABNORMAL
DATE of COLLECTION: ______
eGFR (preferred): 69
or
CREATININE: 95

Exam Requested
Chest/abd Pelv

Relevant History – Reason for Scan
Reassess Rib #

Why assess the adequacy of Radiology requests?

northern health
the northern way of caring

Mills Memorial Hospital

REQUEST FOR CT SERVICES
FAX TO: 250-638-4020

DATE REQUEST RECEIVED:

PATIENT'S NAME:
DATE OF BIRTH:
PATIENT'S GENDER: F
PHN NUMBER: BC
PHONE: H:

☑ Outpatient ☐ Inpatient ☐ Emergency ☐ Urgent

For INPATIENTS and EMERGENCY patients, an up-to-date GFR and Creatinine MUST be done

CT EXAM REQUESTED: CT lumbosacral spine DATE:

ORDERING PHYSICIAN: PHYSICIAN SIGNATURE:

COPIES TO: If Urgent please note phone number:

HISTORY, CLINICAL FINDINGS, TENTATIVE DIAGNOSIS *(Please Attach Copies of Consultations, Radiology Reports)*

RT leg sciatic sx. Weakness with dorsiflexion Rt ankle, L4-5 decreased sensation to light touch.

RADIOLOGIST'S NOTES:

I	II	III	IV
C-	C+	C-/C+	

L3-S1

Patient Consent for IV Contrast - MUST BE SIGNED

Your examination will require the administration of a substance known as contrast, to improve the diagnostic value of the study. The need for the contrast agent is determined by a radiologist and your doctor. A technologist, a radiologist or a nurse will inject it into a vein in your arm. The risk of a serious reaction is exceedingly low, and even mild reactions are uncommon. Rarely, a life threatening reaction may occur. Your examination will be conducted in an area staffed and equipped to cope with such reactions.

I understand and accept the nature, anticipated effects and possible risks of the injectable dye (contrast) as described above and agree to its use in performing this x-ray procedure. I also attest that the above information is correct to the best of my knowledge. I have read and understand the entire contents of this form. I have had the opportunity to ask questions regarding the information on this form.

Signature: Date:
Relationship to patient:
Witness Signature: Witness Name:

Questionnaire MUST be completed prior to sending Request for CT Services.

1. Is there any possibility you are pregnant? ☐ YES ☐ NO
2. Do you suffer from asthma, hay fever? ☐ YES ☐ NO
   If you use an inhaler, have you brought it with you? ☐ YES ☐ NO
3. Have you ever had contrast or X-ray dye injected before? ☐ YES ☐ NO
   Example: IVP, Venogram, Arteriogram, CT Scan
4. Do you have a history of allergic reactions? ☐ YES ☐ NO
   Please describe:
5. Have you been diagnosed with Diabetes/Multiple Myeloma? ☐ YES ☐ NO
6. Do you take Metformin/Glucophage? ☐ YES ☐ NO
   If YES, you must stop taking these for 48 hours before and 48 hours after CT Scan!
7. Do you have decreased Kidney Function or are over 70 years of age? ☐ YES ☐ NO
   If YES, an updated blood test for Creatinine and GFR must be done within 3 months of this appointment.
   Creatinine: GFR:

Form 824-220-1006 (FD - Rev. 02/10pc)

Mills Memorial Hospital
Ordering
MRN:
PACS ID:
CT Spine Lumbar w/o Contrast

337

Vancouver CoastalHealth
Promoting wellness. Ensuring care.

MEDICAL IMAGING REQUISITION

☐ X-Ray ☑ CT ☐ Ultrasound ☐ Echo ☐ Angiogram/Interventional ☐ Nuclear Medicine

Any Site ☐ or Specify Site: Appointment Date: Time:

PATIENT

DOS: 14/Nov/2013
DOB: - Age: - M
H:
Phys:

PLACE MEDICAL IMAGING LABEL HERE

Tel: Other:
Date of Birth: M ☐ F ☐
Previous Images? Location:

Escort Required ☐ Nurse ☐ Porter ☐ Volunteer
Mode of transport ☐ Wheelchair ☐ Stretcher ☐ Bed
Other ☐ O₂ ☐ Isolation ☐ Portable ☐ IV Pump

DOCTORS COMPLETE THIS SECTION

EXAM(S) REQUESTED: CT LUMBOSACRAL SPINE L2 - S1

Priority ☐ Routine ☑ Urgent ☐ Stat

Physician should consult with Radiologist for Urgent and Stat cases

Able to give consent? ☑ Yes ☐ No If the patient does not speak English, an interpreter MUST accompany the patient

Pt diabetic ☐ Yes ☑ No
On metformin ☐ Yes ☑ No
Breast Feeding ☐ Yes ☑ No
Pregnant ☐ Yes ☑ No
LMP
G P A
Height Weight
Previous contrast reaction?

PERTINENT HISTORY / MEDICATIONS:
53 YEAR OLD c̄ acute onset of (R) FLANK / LOW BACK PAIN c̄ (R) ANTERIOR THIGH NUMBNESS. HAS DECREASED PATELLAR REFLEX ON (R). URINALYSIS NEG. CT KIDNEY NEG. PAIN IS "8/10." ?/o SUSPECT L3-L4 DISCOGENIC EVENT.

Physician's signature Tel

Dr.
Family Practice Centre
Vancouver,

Copies of report to: Tel

This section MUST be completed if requesting CT

Is Kidney Function abnormal? ☐ Yes ☑ No Has patient had L-spine surgery? ☐ Yes ☑ No

If YES for any of the above OR if requesting a CT Abdomen/Pelvis OR Angiogram: a current (within 3 months) eGFR and Creatinine are mandatory:

eGFR: 59 Date: Nov 13/2013
Creatinine: 113 Date: Nov 13/2013

This section MUST be completed for all Core Biopsies, Angiograms and Interventional Procedures

INR: Date: * Does the patient take anticoagulant/anti-platelet medication? ☐ Yes ☐ No
PLATELETS: Date: If yes please list medications:
eGFR: Date:
Creatinine: Date:

*Patients may have to stop taking anticoagulant or anti-platelet medication prior to their appointment. If this is unsafe for your patient please consult a radiologist.

DEPARTMENT USE

Technologist:
Date:
No. of Images:
Fluoro Time/Dose:
Shielding used:
Technologist comments on reverse

Nov 18/13 @ 11:30 am

Pt Name: ✓ Other: ✓
PDP: N/A
LMP:
Confirmed By:

00093312, VCH.0026 June 2010

Why assess the adequacy of Radiology requests?

MRI PENDED 7/23

REQUEST FOR MAGNETIC RESONANCE IMAGE (MRI) CONSULTATION

C, CAN

Orthopaedic Surgeon
MSP:
PO Box 1275
Whistler, BC, V0N-1B0
P: 604-905-4075
F: 604-905-4073

date of birth :
home phone :
work phone :
other phone :

age :
sex : Female

PHN :

copy to physician :
copy to physician :
additional copy to :

requisition date : July 18, 2013
appointment date :

RELEVANT PREVIOUS FILMS

X-Ray
date :
location :

Ultrasound
date :
location :

CT Scan
date :
location :

MRI Scan
date :
location :

EXAM REQUESTED :
left shoulder MRI

Routine (non arthro)
M) (4) large

TENTATIVE DIAGNOSIS :
rotator cuff tear

RELEVANT HISTORY:
night pain and supraspinatus weakness on examination, history of large contralateral rotator cuff tear

RENAL FUNCTION ABNORMAL?
creatinine :

ALLERGY/ASTHMA/HAYFEVER?
specify :

PATIENT CONDITION
pregnant : ☐ yes ☑ no
claustrophobic : ☐ yes ☑ no

SEDATION
sedation required
☐ yes ☑ no
prescription

ESSENTIAL PRE-EXAMINATION INFORMATION FOR PATIENT SAFETY: EXPLAIN IF YES. KNOWN IMPLANTED METAL OR DEVICE:

Device	No	Yes	
cerebral aneurysm clip	☑ no	☐ yes	type:
cardiac pacemaker	☑ no	☐ yes	
artificial heart valve	☑ no	☐ yes	type:
neural stimulator	☑ no	☐ yes	
middle ear prosthesis	☑ no	☐ yes	
orbital foreign body	☑ no	☐ yes	
metal worker (at any time)	☑ no	☐ yes	
shrapnel bullet	☑ no	☐ yes	
orthopedic device	☑ no	☐ yes	
harrington rod	☑ no	☐ yes	
swan ganz catheter	☑ no	☐ yes	
venous access device	☑ no	☐ yes	
other	☑ no	☐ yes	

patient's weight : 54.55 kg
patient's hight : 157.48 cm
PHONE REQUEST : ☐ yes ☑ no

SIGNATURE OF AUTHORIZING PHYSICIAN — M.D. — Dr. — PLEASE PRINT NAME — PRAC. NO
PHONE NUMBER :

** Please bring your CareCard, WCB and/or ICBC information **

PLEXIA Electronic Medical Systems Inc.
www.plexia.ca

UNIVERSAL REQUISITION

Seymour Health Centre

THE HEALTH CENTRE
Vancouver, B.C.
Telephone:

Patient Information:

Phone Number:

Weight: 71.7kg Sex: F

TEST REQUESTED:
Bone Scan

DIAGNOSIS:
?inflammation in cervical spine facet joints?

MEDICATIONS ____

(Doctor's Signature) Date:
Doctor's Number:

Sent report to:

With copies to: C. Reilkoff

YOUR APPOINTMENT IS ON:
Date: ____
Time: ____

All examinations take approximately 30 minutes.

Preparation required for the examination of:

☐ ABDOMINAL ULTRASOUND
- Fat free dinner the night before
- Nothing to eat or drink after midnight
- If scan is in the afternoon, you may have a light fat free breakfast (no cream in tea or coffee, no carbonated drinks and no lunch)

☐ PELVIS & OBSTETRICS
- A full bladder is necessary
- Two hours before the appointment time, empty your bladder
- One hour before the appointment time, you should take 24 oz. (3 large glasses) of non-carbonated fluid

Please bring this requisition with you for the examination

☐ GREIG ASSOC. XRAY & ULTRASOUND 604-321-6774
5732 Victoria Dr. at 41st Ave.
Vancouver V5P 3W6

☐ VANCOUVER GENERAL 604-875-4111
899 West 12th Ave., Vancouver V5Z 1M9

☐ WOMEN'S HOSPITAL & HEALTH CENTRE 604-875-2424
4490 Oak St., Vancouver V6H 3V5

☐ U.B.C. HOSPITAL 604-822-7121
2211 West Brook Mall, Vancouver V6T 2B5

☑ MT. ST JOSEPH HOSPITAL 604-874-1141
3080 Prince Edward St., Vancouver V5T 3N4

☐ ST PAUL'S HOSPITAL 604-682-2344
1081 Burrard St., Vancouver V6Z 1Y6

☐ CHILDREN'S HOSPITAL 604-875-2345
4480 Oak St., Vancouver V6H 3V4

☐ 505 – 750 WEST BROADWAY 604-879-4177
Vancouver V5Z 1H4

☐ OTHER ____

Why assess the adequacy of Radiology requests?

STANDARD OUT-PATIENT MEDICAL IMAGING REQUISITION

MEDICAL IMAGING ADDRESS
Please Take To The Radiological Clinic Of Your Choosing, BC SPH.
Phone: Fax:

BILLABLE TO: ☐ MSP ☐ ICBC ☐ WCB ☐ PATIENT ☐ OTHER:
WCB/ICBC
PERSONAL HEALTH NUMBER DOB YYYY/MM/DD
NAME OF PHYSICIAN & MSP PRACTITIONER NUMBER
SURNAME OF PATIENT
FIRST NAME AND MIDDLE INITIAL
KEVIN DEFOREST
TELEPHONE # (INCLUDE AREA CODE)
GENDER M
PREGNANT ☐ Yes ☑ No
MSP# 28918
ADDRESS
POSTAL CODE
COPY RESULTS TO

Interpreter needed? ☐ Yes ☑ No Language:

DIAGNOSIS AND INDICATIONS FOR DIAGNOSTIC PROTOCOL AND SPECIAL TESTS
adrenal tumor
CURRENT MEDICATION
Not included.

CT Scan

☑ ~~CT Head-Chest~~ Abdomen – CT adrenal protocol
ONLY CT adrenal ? why head chest? please find out

Clinical Details and Patient Instructions

CT scan in January 2014 at SPH noted left adrenal mass. Recommended follow up
?Adenoma or other.
Ongoing pain in Left lower quadrant likely unrelated

C.T. Adrenal Mass
start & ~~Exit~~ NC
Rad to check
CK
③

THREE BRIDGES COMMUNITY HEALTH CENTRE

Please contact our office by phone or fax with appointment information
REFERRAL DEPT
TEL: FAX:

Jan.18
GFR: 70
Creatinine: 96

Pt Name: Other: DOB
PDP: N/A
LMP:
Confirmed By:

FAXED
FEB 18 2014

TO BE COMPLETED BY MEDICAL IMAGING

PRIORITY	RADIOLOGIST USE	TECHNOLOGIST USE
☐ Stat ☐ Urgent ☐ Semi-Urgent ☐ Elective		
PREVIOUS FILMS/REQ: ☐ Yes ☐ No		SIGNATURE OF REQUESTING PHYSICIAN
IV CONTRAST: ☐ Yes ☐ No		
ORAL CONTRAST: ☐ Yes ☐ No		DATE SIGNED Feb 17 2014
OTHER: ☐		

Printed:07 Feb 2014 Investigations Footer Page 1 of 1

③ CT ABD → ADRENAL PROTOCOL WITHOUT

9/19/2013 4:14 AM FROM: Fax TO: 604-806-8437 PAGE: 001 OF 001

MRI RENDED

MRI SCREEN FORM MUST BE COMPLETED AND FAXED WITH REQUISITION TO MRI FACILITY

Surname First Name
Permanent address City Postal Code
Home Phone Work or Cell Phone
Date of Birth (MM/DD/YY) Age Sex Male
Health Care # WCB/ICBC Claim #
☑ MSP ☐ WCB ☐ ICBC ☐ Other:

INCOMPLETE REQUESTS WILL BE RETURNED

☐ Book at any site Or Indicate specific site(s)
☐ Abbotsford Regional Fax # 604-851-4904
☐ Burnaby General Fax # 604-412-6181
☐ Lions Gate Fax # 604-984-5885
☐ Peace Arch Fax # 604-542-4067
☐ Richmond General Fax # 604-244-5232
☐ Royal Columbian Fax # 604-520-4120
☑ St. Paul's Fax # 604-806-8437
☐ Surrey Memorial Fax # 604-588-3370
☐ UBC Fax # 604-822-0702
☐ Vancouver General Fax # 604-875-4175

Appointment Date: Mon Nov.18.13 @ Time: 22:00 (22:30)
☐ Infection concerns? Specify:
☐ Interpreter needed? Language:

MAGNETIC RESONANCE IMAGING (MRI) REQUISITION

Exam Requested: Bilateral knee MRI. Please send us the disc once images are completed.

Allergy/Asthma/Hay Fever?
Specify:

Relevant history / Reason for exam
Pain at quads tendon insertion both knees. ? partial tear quads vs tendonosis or other internal derangement

④ MC. Routine bilat knee MRI

Relevant Previous Exams?
☐ MRI ☐ CT ☐ Nuclear Medicine ☐ Angiogram ☐ X-Ray ☐ Ultrasound
Location: Date:

Requesting Physician: Billing #: Phone #: Fax #:
Additional copies to: Physician Signature:

Patients requiring IV Contrast with History of:
1. Renal disease
2. Hypertension
3. Diabetes
4. Severe hepatic disease or liver transplant
5. Age > 60 yrs
A recent (in the last 3 months or less) Estimated Glomerular Filtration Rate (eGFR) is
GFR result: Date:
Creatinine: umol/L

Essential Pre-Examination Information for Patient Safety. Explain if "YES".

Item	Yes	No
Cardiac pacemaker or defibrillator	☐ YES	☑ NO
Artificial heart valve	☐ YES	☑ NO
Cerebral aneurysm clip	☐ YES	☑ NO
Internal electrodes or wires	☐ YES	☑ NO
Neuro stimulator	☐ YES	☑ NO
Middle ear prosthesis or cochlear implant	☐ YES	☑ NO
Metallic orbital foreign body	☐ YES	☑ NO
Metal worker at any time in life	☐ YES	☑ NO
Shrapnel and/or bullet	☐ YES	☑ NO
Intravascular coil, stent, or filter	☐ YES	☑ NO
Venous access device	☐ YES	☑ NO
Breast tissue expander	☐ YES	☑ NO
Implanted infusion pump(s) or stimulator(s)	☐ YES	☑ NO
Harrington rod	☐ YES	☑ NO
Other:	☐ YES	☑ NO
Is the patient pregnant?	☐ YES	☑ NO
Is the patient breast-feeding?	☐ YES	☑ NO

Is the patient claustrophobic? ☐ YES ☑ NO
Is sedation required? ☐ YES ☑ NO
If Yes, please Rx sedation

Patient weight: 160 lbs
Maximum weight limit is 350 lb* at lower mainland MRI facilities
Exception: Richmond Hospital maximum limit is 550 lb. (250 kg)

DEPARTMENT USE ONLY
Priority ☐ 1 Emergent ☐ 2 Urgent ☐ 3 Semi Urgent ☐ 4 Routine (Non urgent) ☐ 5 Elective or Follow up
PROTOCOL:
Comments:
IV Contrast: ☐ YES ☐ NO
Orbital X-ray required: ☐ YES ☐ NO TECHNOLOGIST COMMENTS
Previous Imaging/Report required ☐ YES ☐ NO

Date/ Time Req Rcv'd (DD/MM/YY)
Patient Type: ☐ ER ☐ IP ☐ OP/OH
Priority: 1 2 3 4 5 Dis CH
Delay: ☐ OP Related or ☐ Office Related

Technologist EVE

② AM

Why assess the adequacy of Radiology requests?

MRI Requisition

IMPORTANT: Incomplete or illegible forms will be returned. Exam will be delayed or cancelled.

Date Received: Sep 27, 2013

Exam Requested: lumbosacral spine mri

Tentative Diagnosis:

Pertinent History / Reason for Exam: worsening right sided L3/4 dermatome sensory disturbance ? cause

Any Prior Contrast Reactions?

Creatinine 82 umol/L
Est GFR 61 mL/min
Date 30-Oct-2012, 30-Oct-2012

Date: Sep 27, 2013

For Radiology Department Use Only

Protocol

Sequence

Contrast ☐Yes ☐No ☐Check with Radiologist

Questionnaire (reverse) Must be Completed and Faxed. Each Question Must be Answered

SUN NOV 17 @ 1300 (1330)

Technologist Sandra

Jan. 24. 2014 2:08PM VANCOUVER FAMILY HEALTH CENTRE No. 0369 P. 1/2

Jan. 21. 2014 4:25PM VANCOUVER FAMILY HEALTH CENTRE No. 0490 P. 1/1

ER

fraserhealth

Vancouver Family Health Centre

Date Ordered 2014-01-21 | Date Received 2014-01-21

Interpreter needed? ☐ Yes ☒ No

Language: English

MEDICAL IMAGING REQUISITION

X-RAY | ULTRASOUND | CT | INTERVENTIONAL PROCEDURES / ANGIO

EXAM REQUESTED: CT thoracic and lumbar spine on pain

RELEVANT HISTORY / REASON FOR EXAM: pt was seen by Geriatrician Dr. Almoradi, CT thoracic, lumbar advised, pt has OP, already on fosamax

Recent eGFR (<3 months): 42 Date: Nov 16/13

Recent Creatinine level: 110 Date: Nov 16/13

• INCOMPLETE REQUESTS WILL BE RETURNED •

PORTION BELOW TO BE COMPLETED BY MEDICAL IMAGING

Wed. Feb 5/14 9:40am

T/L spine

trauma protocol

(& soft tissue windows)

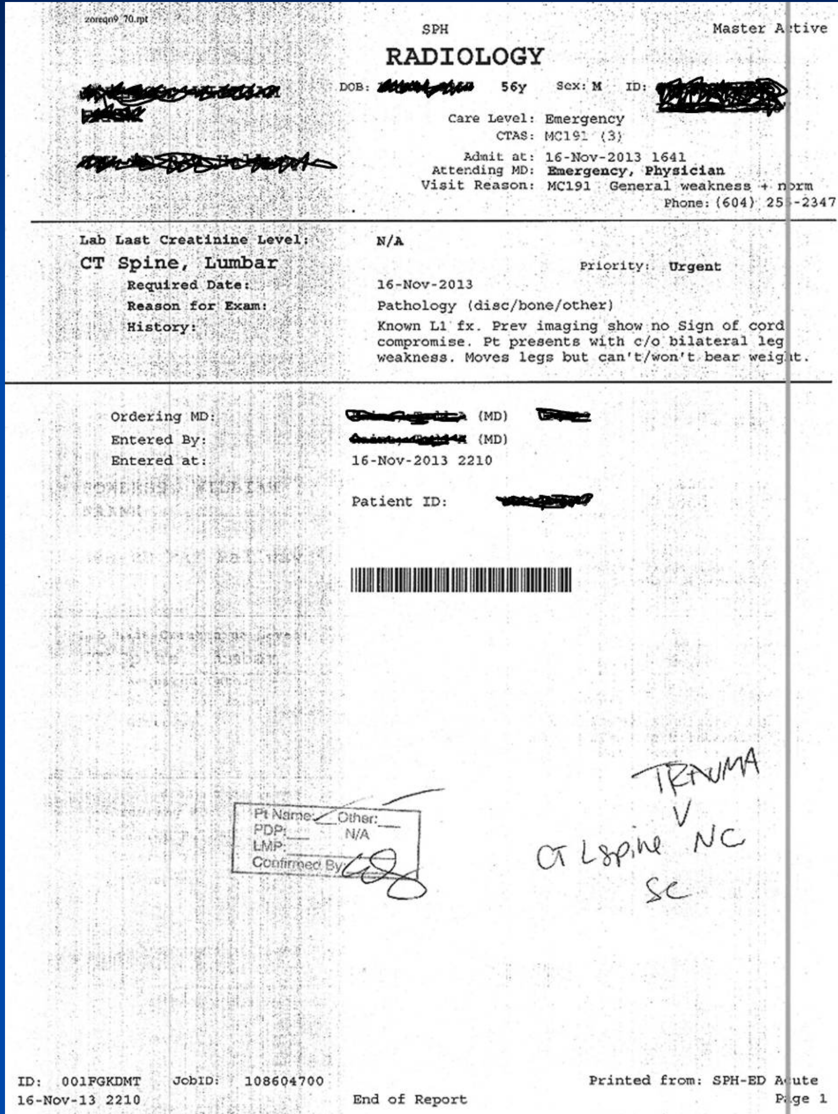
MC

pls refax.

Methodology

- Audit registered locally.
- PACS data of CT, MRI and IR (interventional radiology) procedures performed in a 7 day period (Monday to Sunday) in November 2013 obtained.
- Data downloaded onto work-based PC workstation in a password-protected Excel file.
- **Gold standards:**
  - **Local request forms**
  - **Royal College of Radiologists guidance**
  - **Regional IR guidelines (for blood work)**
- Each scanned form assessed against the standards expected, paper forms reviewed where scanned forms were not legible.

Methodology



SPH — RADIOLOGY — Master Active

DOB: 56y Sex: M ID:

Care Level: Emergency
CTAS: MC191 (3)
Admit at: 16-Nov-2013 1641
Attending MD: Emergency, Physician
Visit Reason: MC191 General weakness + norm
Phone: (604) 25 -2347

Lab Last Creatinine Level: N/A

CT Spine, Lumbar — Priority: Urgent

Required Date: 16-Nov-2013
Reason for Exam: Pathology (disc/bone/other)
History: Known L1 fx. Prev imaging show no Sign of cord compromise. Pt presents with c/o bilateral leg weakness. Moves legs but can't/won't bear weight.

Ordering MD: (MD)
Entered By: (MD)
Entered at: 16-Nov-2013 2210

Patient ID:

Pt Name: Other:
PDP: N/A
LMP:
Confirmed By:

TRAUMA
CT L spine NC
SC

ID: 001FGKDMT JobID: 108604700 — Printed from: SPH-ED Acute
16-Nov-13 2210 — End of Report — Page 1

MR **Magnetic Resonance Imaging (MRI) Requisition**

Providence HEALTH CARE

☐ ST. PAUL'S HOSPITAL
1081 Burrard St., Vancouver, BC V6Z 1Y6

Appointments: 604-806-8548
Filing/Reports: 604-806-8006
Fax: 604-806-8437

MR MISS MRS MS — SURNAME — FIRST NAME
PERMANENT ADDRESS
POSTAL CODE — CELL PHONE — HOME PHONE — WORK PHONE
DATE OF BIRTH (MONTH / DAY / YEAR) — AGE — SEX
HEALTH CARE # — MSP ☐ — WCB ☐ — ICBC ☐ — OTHER ☐

TO SCHEDULE AN APPOINTMENT PLEASE FAX OR MAIL COMPLETED REQUISITION TO MRI DEPARTMENT

Appointment Date: ______ Time: ______

Infection Concerns? ☐ YES ☐ NO
Specify: ______

Is the Patient Pregnant? ☐ YES ☐ NO

Relevant Previous Exams?
☐ X-Ray — Date: ______ Location: ______
☐ ULTRASOUND — Date: ______ Location: ______
☐ CT SCAN — Date: ______ Location: ______
☐ MRI SCAN — Date: ______ Location: ______

Renal Function Abnormal? ☐ NORMAL ☐ ABNORMAL
eGFR (preferred): ______
Or CREATININE: ______

Allergy / Asthma / Hay Fever?
Specify: ______

Is the Patient Claustrophobic? ☐ YES ☐ NO
Is Sedation Required? ☐ YES ☐ NO
If Yes, Please Prescribe Sedation
Patient's Weight: ______

Exam Requested

Tentative Diagnosis

Relevant History / Reason for Exam (Include any Medications)

Essential Pre-Examination Information
FOR PATIENT SAFETY: EXPLAIN IF "YES."
KNOWN IMPLANTED METAL OR DEVICE:

Device			
CEREBRAL ANEURYSM CLIP	☐ NO	☐ YES	TYPE:
CARDIAC PACEMAKER	☐ NO	☐ YES	
ARTIFICIAL HEART VALVE	☐ NO	☐ YES	TYPE:
NEURO STIMULATOR	☐ NO	☐ YES	
MIDDLE EAR PROSTHESIS	☐ NO	☐ YES	
ORBITAL FOREIGN BODY	☐ NO	☐ YES	
METAL WORKER (at any time)	☐ NO	☐ YES	
SHRAPNEL, BULLET	☐ NO	☐ YES	
ORTHOPEDIC DEVICE	☐ NO	☐ YES	
HARRINGTON ROD	☐ NO	☐ YES	
VASCULAR FILTER/STENT	☐ NO	☐ YES	
VENOUS ACCESS DEVICE	☐ NO	☐ YES	
OTHER	☐ NO	☐ YES	

Incomplete Requests will be Returned

______ M.D. ______ PRAC. NO. ______
SIGNATURE OF AUTHORIZING PHYSICIAN — PLEASE PRINT NAME
PHONE RESULTS: ☐ NO ☐ YES PHONE NUMBER: ______ ADDITIONAL COPY OF REPORT TO: ______

Form No. PHC – RA095 (R. Jun-07)

Methodology

nterventional
n a 7 day
vember 2013

-based PC
Excel file.

idance
d work)

he standards
ere scanned

MR

CT

IR

Interventional Radiology (IR) Requisition

Providence
HEALTH CARE

☐ ST. PAUL'S HOSPITAL
1081 Burrard St., Vancouver, BC V6Z 1Y6
Phone: 604-806-8071 Fax: 604-806-8437

☐ MOUNT SAINT JOSEPH HOSPITAL
3080 Prince Edward Street,
Vancouver, BC V5T 3N4
Phone: 604-877-8323 Fax: 604-877-8132

Patient demographics

TO SCHEDULE AN APPOINTMENT PLEASE TUBE REQUISITION TO RADIOLOGY AND PRINT FORM RA101

Isolation Precautions?

Exam Requested

Pregnancy status

Diabetes Mellitus?

Allergy / Renal function

History / Clinical question

IR blood work

Relevant Previous Exams?

☐ X-Ray ☐ CT ☐ U/S ☐ NM ☐ MRI

DATE:

LOCATION:

Hematology:

HGB:

WBC:

Referer details (names, contacts, signature, date)

Form No. PHC-RA130 (R. Apr-10)

ID: 001FGKD
16-Nov-13 22

Methodology

CT Computed Tomography (CT) Requisition

☐ ST. PAUL'S HOSPITAL
1081 Burrard St., Vancouver, BC V6Z 1Y6
Phone: 604-806-8071 Fax: 604-806-8437

☐ MOUNT SAINT JOSEPH HOSPITAL
3080 Prince Edward Street,
Vancouver, BC V5T 3N4
Phone: 604-877-8323 Fax: 604-877-8132

MR MISS MRS MS | SURNAME | FIRST NAME
PERMANENT ADDRESS
POSTAL CODE | CELL PHONE | HOME PHONE | WORK PHONE
DATE OF BIRTH (MONTH / DAY / YEAR) | AGE | SEX
HEALTH CARE # | MSP ☐ | WCB ☐ | ICBC ☐ | OTHER ☐

TO SCHEDULE AN APPOINTMENT PLEASE FAX OR MAIL COMPLETED REQUISITION TO CT DEPARTMENT

Infection Concerns? ☐ YES ☐ NO
SPECIFY: ____

Is the Patient Pregnant? ☐ YES ☐ NO

Previous IV Contrast Reaction? ☐ YES ☐ NO

Diabetes Mellitus? ☐ YES ☐ NO
MUST HAVE CREATININE RESULTS FOR DIABETICS

Is Patient Taking Metformin? ☐ YES ☐ NO

Renal Function? ☐ NORMAL ☐ ABNORMAL
DATE of COLLECTION: ____
eGFR (preferred): ____
or
CREATININE: ____

Allergies? ☐ YES ☐ NO
SPECIFY: ____

Patient's Weight? ____

Relevant Previous Exams? ☐ X-Ray ☐ CT ☐ U/S
DATE: ____
LOCATION: ____

Exam Requested

Relevant History – Reason for Scan

DATE | SIGNATURE OF AUTHORIZING PHYSICIAN
Please Print NAME ____ Prac. No. ____
ADDITIONAL COPY OF REPORT TO:

Department Use Only
☐ With ☐ Without ☐ Oral PRIORITY: ☐ 1 ☐ 2 ☐ 3
☐ Head ☐ Chest ☐ Abdomen ☐ Pelvis
Appointment Date: ____ Arrival Time: ____ CT Time: ____

Form No. PHC – RA090 (R. Nov-07)

IR Interventional Radiology (IR) Requisition

☐ ST. PAUL'S HOSPITAL
1081 Burrard St., Vancouver, BC V6Z 1Y6
Phone: 604-806-8071 Fax: 604-806-8437

☐ MOUNT SAINT JOSEPH HOSPITAL
3080 Prince Edward Street,
Vancouver, BC V5T 3N4
Phone: 604-877-8323 Fax: 604-877-8132

Patient demographics

TO SCHEDULE AN APPOINTMENT PLEASE T… …QUISITION TO RADIOLOGY AND PRINT FORM RA101

Isolation Precautions?

Pregnancy status

Diabetes Mellitus?

Allergy / Renal function

IR blood work

Hematology:
HGB: ____
WBC: ____

Exam Requested

History / Clinical question

Relevant Previous Exams? ☐ X-Ray ☐ CT ☐ U/S ☐ NM ☐ MRI
DATE: ____
LOCATION: ____

Referer details (names, contacts, signature, date)

Form No. PHC-RA130 (R. Apr-10)

Methodology

- Data form – At least 20 data items per patient.

Clinical audit: Adequate completion of Radiology request forms

	Y (yes) / N (no)	Notes (eg which part not legible?)
Patient number for audit data entry	number	
Name?		
DoB?		
Patient location at time of referral (IP / OP, address / number)?		
Patient age?		
Patient sex?	M / F	
Request typed?		
Request hand-written?		
If hand-written, is it legible?		
If not legible – which part? (eg patient demgraphics, clinical details, referrer details)		
Clinical question asked or adequate clinical history given?		
If child-bearing age female, pregnancy status given?		
Allergy status given (including IV contrast)?		
Renal function given (where IV contrast needed)		
Blood work-up given for IR procedures where relvant:		
INR / APTT		
Platelets		
Haemoglobin		
Referrer name given? (if form not completed by staff)		
Referrer contact details given? (if form not completed by staff)		
Staff name?		
Staff contact details?		
Is the form signed?		
Is the form dated?		

Methodology

	If child-bearing age female, pregnancy status given?		12
Patient nu	Allergy status given (including IV contrast)?		13
Name?			
DoB?	Renal function given (where IV contrast needed)		14
Patient lo OP, addre			

Referrer name given? (if form not completed by staff)		19
Referrer contact details given? (if form not completed by staff)		20
Staff name?		21
Staff contact details?		22
Is the form signed?		23
Is the form dated?		24

Methodology

If child-bearing age female, pregnancy status given?		12
Allergy status given (including IV contrast)?		13
Renal function given (where IV contrast needed)		14
Blood work-up given for IR procedures where relvant:		15
INR / APTT		16
Platelets		17
Haemoglobin		18

	Y (yes) / N (no)	Notes (eg which part not legible?)
Patient number for audit data entry	number	1
Name?		2
DoB?		3
Patient location at time of referral (IP / OP, address / number)?		4
Patient age?		5
Patient sex?	M / F	6
Request typed?		7
Request hand-written?		8
If hand-written, is it legible?		9
If not legible – which part? (eg patient demgraphics, clinical details, referrer details)		10
Clinical question asked or adequate clinical history given?		11

Results – Imaging studies performed

- 1274 diagnostic scan and IR requests.
  - 859 CT scans
  - 290 MRI scans
  - 125 IR procedures

- Missing requests (not available on PACS, no hardcopy available) and duplicate requests excluded:
  - CT 859 – 129 – 101 = **629**
  - MR 290 – 38 – 26 = **226**
  - IR 125 – 3 – 21 – 24 Thyroid FNAs = 77

} **932 patients**

Results – patient demographics

- Male : Female 56% : 44%
- Median age 56-years (average 55.8 years, range 15-101 years)
- Inpatient (IP) : Outpatient (OP) 27% : 73%
  - Inpatient = Emergency department and ward patients

	OP diagnostic	IP diagnostic	IR (IP and OP)
Handwritten	260	120	61
Typed	369	106	16

Results – Clinical question / relevant clinical details not provided?

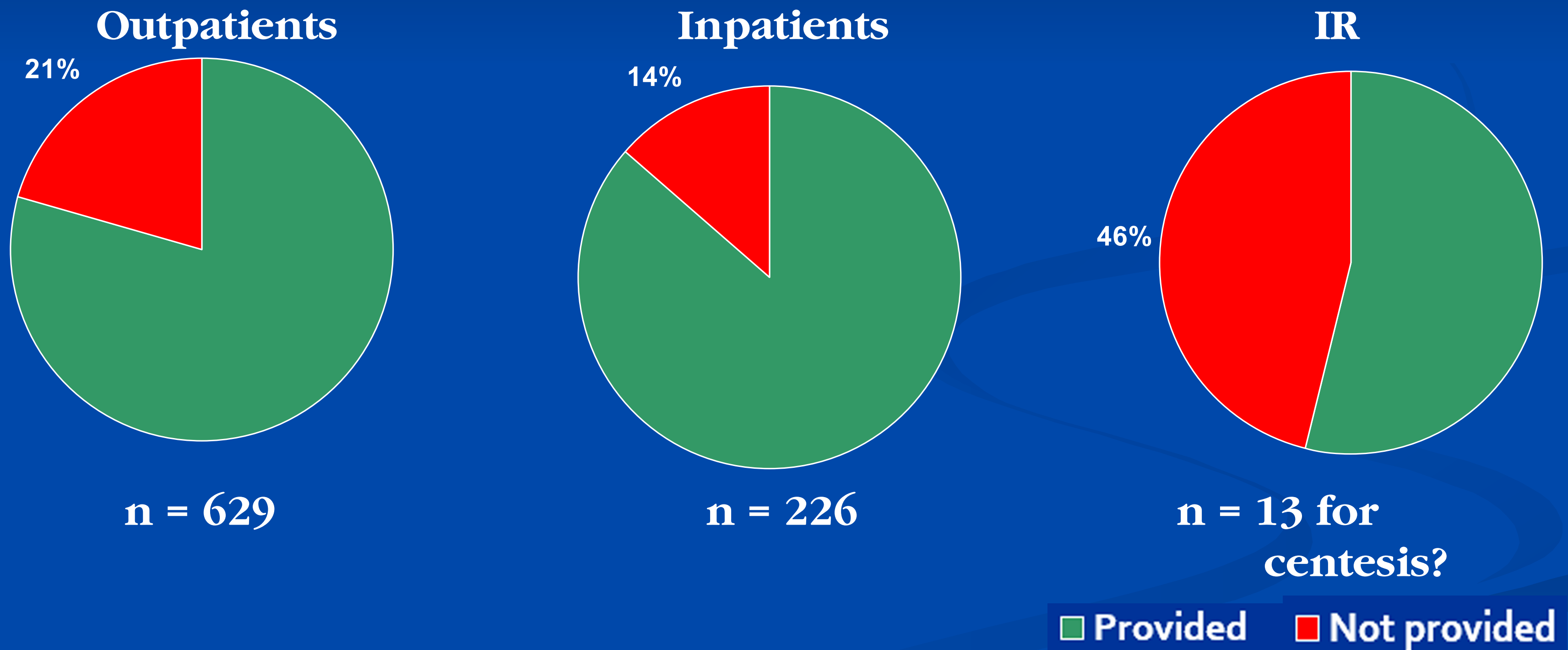
- Subjective assessment – Is there a clear clinical question or description of patient's symptoms enabling determination of an imaging protocol?

  "The difference between the right word and the almost right word is the difference between lightning and a lightning bug."

  Mark Twain.

- 13 patients referred with either ascites or pleural effusion: 6 of 13 requested either "Paracentesis" or "Thoracocentesis" with no indication as to whether aspiration or drain insertion was needed.

Results – Clinical question / relevant clinical details not provided?



Results – Clinical question / relevant clinical details not provided?

Infection precautions: ☐ None
☒ Contact
☐ Droplet
☐ Airborne
☐ Airborne & Contact
☐ Droplet & Contact

MRSA

Exam requested:
☐ Abdomen
☒ Aspiration/Biopsy
☐ Breast (MSJ only)
☐ Carotid
☐ Chest
☐ Extremity *(specify)*
☐ Miscellaneous
☐ Obstetrical
☐ Pelvic/Bladder
☐ Prostate (TRUS)
☐ Renal
☐ Scrotal
☐ Thyroid/Parathyroid
☐ Vascular *(specify)*

paracentesis - ultrasound-guided

Allergy/Intolerance Status:
Refer to completed Caution Sheet

Reason for exam:

HIV (+) ESLD.
ongoing neutrophilia.

Results – Clinical question / relevant clinical details not provided?

Exam requested:

CT Abdo/Pelvis (Po+/IV+)

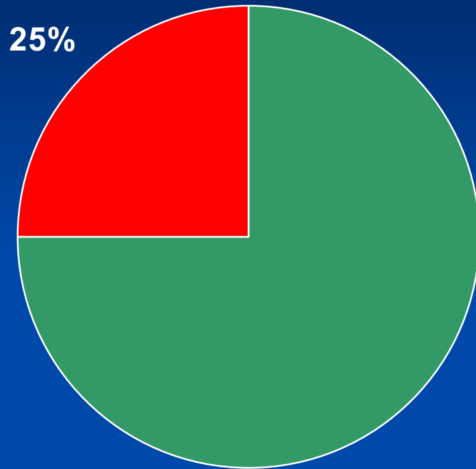
Reason for scan:

Known Colo-cutaneous fistula

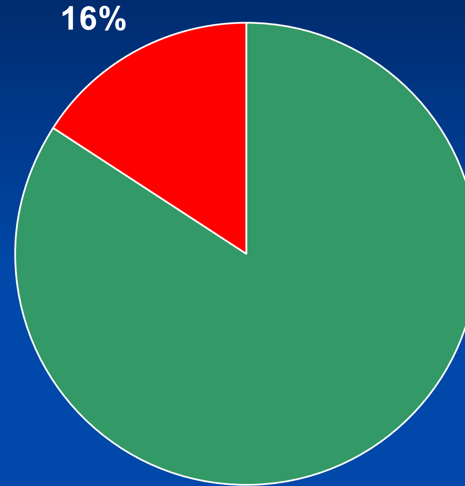
Relevant history:

Results – legibility of handwritten requests

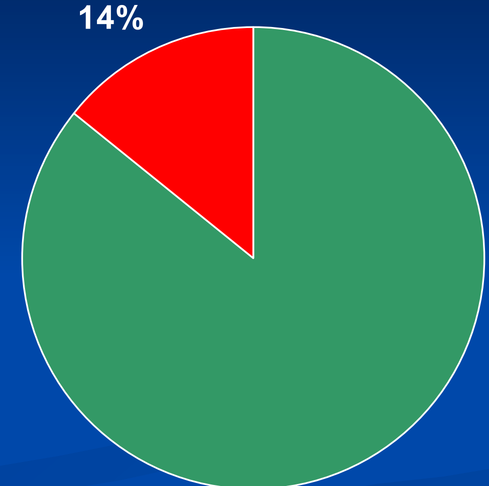
Outpatients



Inpatients



IR



Legible Illegible

n = 260

Clinical details 45

Referrer details 9

Clinical details & referrer 11

n = 120

Clinical details 13

Referrer details 4

Clinical details & referrer 2

n = 77

Clinical details 3

Referrer details 5

Clinical details & referrer

Results – legibility of handwritten requests

Allergy/Intolerance Status:
Refer to completed Caution Sheet

Previous IV contrast reaction:
☐ Yes ☑ No

Diabetes:
☐ Yes ☑ No
Must have creatinine results for diabetics

Is patient taking metformin:
☐ Yes ☐ No

Renal function:
☐ Normal ☑ Abnormal
Date of collection: Nov 22
eGFR (preferred): 79
OR
Creatinine: 82

Patient weight: ______

Reason for scan:
r/o SBO

Relevant history:
Hx multiple abd surgeries inc. Billroth II → n/v, abd pain x 1 day (+ pancreatic mass)

Relevant previous exams:
☐ **X-Ray** Date: ______ Location: ______
☐ **Ultrasound** Date: ______ Location: ______
☐ **CT Scan** Date: ______ Location: ______

Authorizing Physician:
Printed name
College ID

Date of request: Nov 22, 2013
Signature
Pager #

Additional copies of report to:

☐ Within 3 hours ☐ Today ☐ Within 24 hours ☐ Follow-up

Results – legibility of handwritten requests

Allergy/Intolerance Status:
Refer to completed Caution Sheet

Previous IV contrast reaction:
☐ Yes ☑ No

Diabetes:
☐ Yes ☑ No
Must have creatinine results for diabetics

Is patient taking metformin:
☐ Yes ☐ No

Renal function:
☐ Normal ☑ Abnormal
Date of collection: Nov 22
eGFR (preferred): 79
OR
Creatinine: 82

Patient weight:

Reason for scan:
r/o SBO

Relevant history:
Hx multiple abd surgeries inc. Billroth II → n/v, abd pain x 1 day (+ pancreatic mass)

Relevant previous exams:
☐ **X-Ray** Date:
Location:
☐ **Ultrasound** Date:
Location:
☐ **CT Scan** Date:
Location:

Authorizing Physician:
Date of request: Nov 22, 2013
Printed name
College ID
Signature
Pager #

Additional copies of report to:

☐ Within 3 hours ☐ Today ☐ Within 24 hours ☐ Follow-up

Results – legibility of handwritten requests

Exam requested:

Cardiac MRI.

Tentative diagnosis:

CHF. Ht. 5'10"

Reason for exam: (include any Medications)

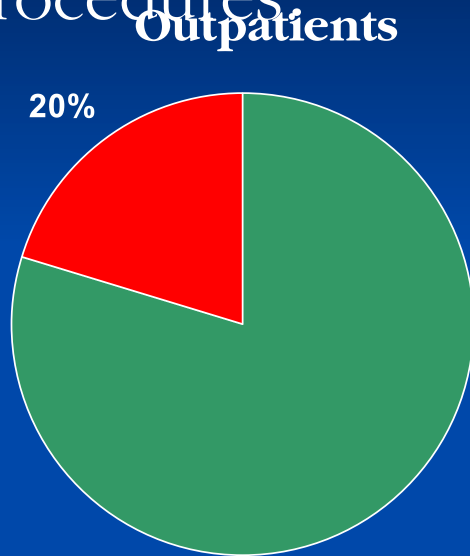
Evaluate [illegible] relevant causes of CHF & Non-ischemic cardiomyopathy

Relevant history:

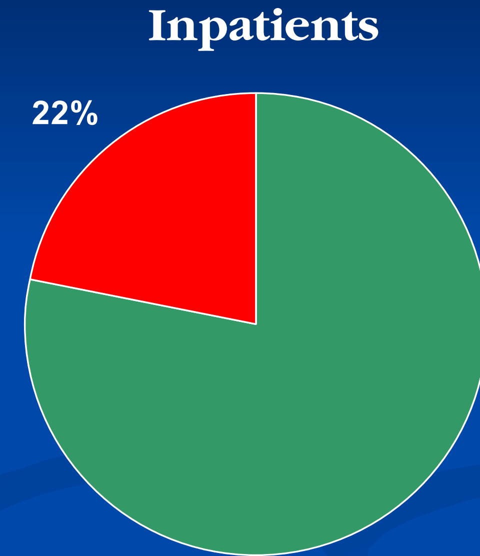
70 yo M, previously w/ CHF, EF 20%, [illegible], Cath [illegible] MRI to evaluate the [illegible] relevant cause.

Results - Renal function

- eGFR/creatinine provided for all relevant IR procedures.



n = 212 patients in whom IV contrast was indicated (CT and MRI)



n = 119 patients in whom IV contrast was indicated (CT and MRI)

- OP renal function tests often performed externally, hence not always immediately available.

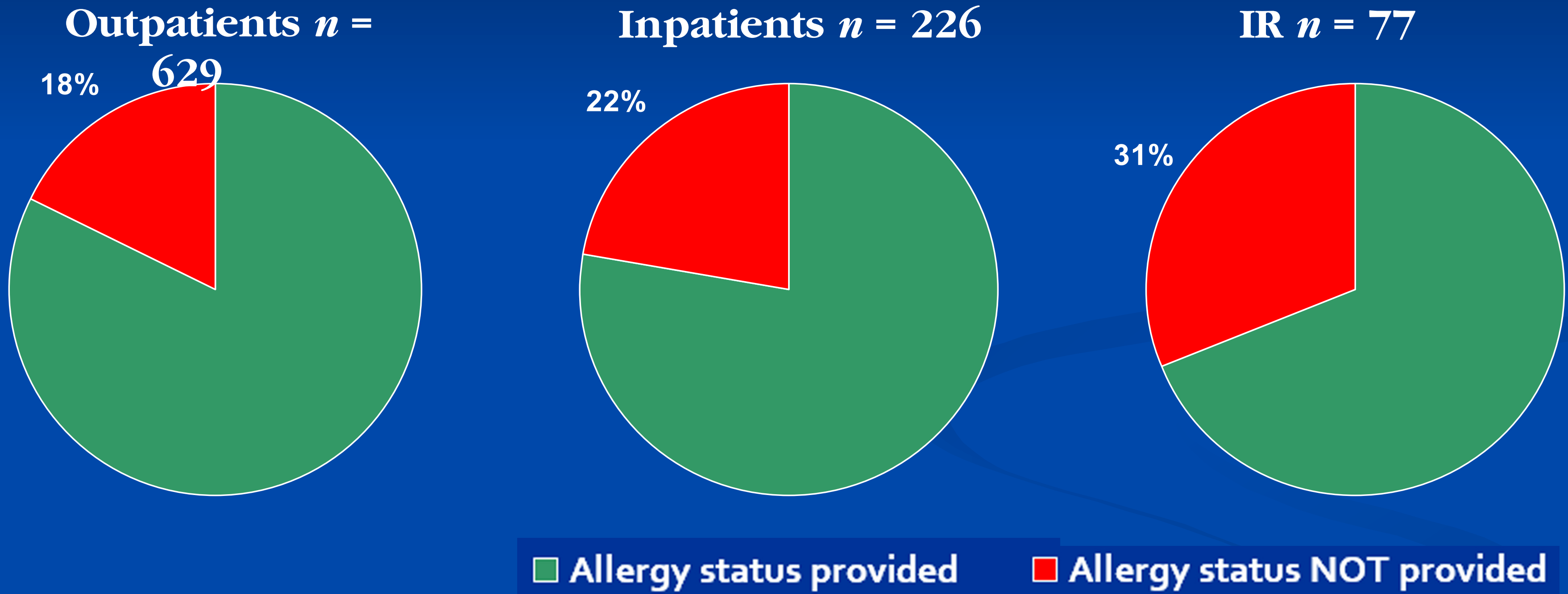
Results – blood work results for IR procedures

- Excluded – 3 low risk joint injections (77 → 74 patients)

- INR not given: 29/74 (40%)
- Platelets not given: 33/74 (45%)
- Hb not given: 35/74 (47%)

Results – Allergy and Pregnancy status

- Allergy status not stated on several forms across outpatients, inpatients and those undergoing IR procedures.



- Pregnancy status not given in a a small number of patients:
  - 9/156 outpatients
  - 2/32 inpatients
  - 6/9 patients undergoing IR procedures

} 17/197 (9%) women of child-bearing age (15-50years.)

Results - Referrers details on request forms

OP *n* = 629	Referrer name not given	Referrer contact not given	Staff name not given	Staff contact not given	Not signed
NON-Staff referrer (*n*=60)	15%	48%	13%	75%	20%
Staff referrer (*n*=569)	-	-	12%	23%	4%
IP *n* = 226					
NON-Staff referrer (*n*=201)	5 %	16 %	27%	49 %	0.5%
Staff referrer **staff (*n*=25)**	-	-	0%	16%	0%
IR *n* = 77					
NON-Staff referrer (*n*=30)	7 %	23 %	30 %	63 %	13 %
Staff referrer (*n*=47)	-	-	0%	49%	0%

Results - Referrers details on request forms

No referrer, no staff details & no signature:
4 **outpatient** imaging request forms

No referrer, no staff details & no signature:
1 **inpatient** imaging request form

OP *n* = 629					
NON-Staff referrer (*n*=60)					
Staff referrer (*n*=569)					
IP *n* = 226					
NON-Staff referrer (*n*=201)					
Staff referrer staff (*n*=25)					
IR *n* = 77					
NON-Staff referrer (*n*=30)	7 %	23 %	30 %	63 %	13 %
Staff referrer (*n*=47)	-	-	0%	49%	0%

Results - Referrers details on request forms

No referrer, no staff details & no signature:
4 **outpatient** imaging request forms

No referrer, no staff details & no signature:
1 **inpatient** imaging request form

OP *n* = 629 (no referral date provided 11%)					
NON-Staff referrer (*n*=60)					
Staff referrer (*n*=569)					
IP *n* = 226 (no referral date provided 14%)					
NON-Staff referrer (*n*=201)					
Staff referrer staff (*n*=25)					
IR *n* = 77 (no referral date provided 14%)					
NON-Staff referrer (*n*=30)	7 %	23 %	30 %	63 %	13 %
Staff referrer (*n*=47)	-	-	0%	49%	0%

Summary

- Several areas of information lacking across all request forms for OPs, IPs and IR procedures. Notably:
  - No clear clinical question or history in 14-21% of diagnostic imaging request forms.
  - Fluid aspiration *vs* drainage is not clarified in 46%.
  - 14-25% of hand-written forms are not fully legible.
  - 20-22% of forms lack renal function results, and >40% lack blood results relevant to IR.
  - Patients' allergy status not stated on 18-32% of forms .
  - Substantial proportion of forms with no referrer contact details – particularly from *junior colleagues*.
- Time wasted in chasing missing information – front desk staff, technologists, nurses and radiologists.

Action plan

- Formal letter to heads of each service about what is expected on radiology request forms and educate *junior colleagues* on a case-by-case basis at point of referral.
  - How to do this with GPs?

- Targeted education sessions for *junior colleagues* at the start of their training?

- Reject the worst requests on a case-by-case basis?

- Standardize the wide range of request form formats.

- Electronic requesting may reduce inadequate form completion if data entry fields are mandatory.
  - Cost implications.

Audit cycle

Issue: Are radiology request forms being adequately completed?

Gold standards of practice: **SPH request forms, RCR guidelines, Regional IR guidelines.**

Assessment of request forms against gold standards

Results: Issues with legibility, adequate clinical data, and referrers name / contact details.

Action plan / Implementing change:
• Write to heads of service of what is expected and educate *junior colleagues*
• Various longer term measures.

Partial re-audit of IR requests.

Audit cycle

Department of Radiology
1081 Burrard Street
Vancouver, BC Canada V6Z 1Y6

Tel 604 806 8026 Fax 604 806 8283
Direct: +1 604 992 2703

Jason Clement, MD, FRCPC
Email: jasclement@gmail.com

March 4, 2014

If you have requested a fluoroscopically guided lumbar puncture for one of your patients we require **all** of the laboratory forms relating to the LP to be completed prior to booking an appointment in the Radiology department. As is the case for any interventional procedure we also require written identification and contact numbers for both the ordering physician as well as the staff physician responsible for ordering the exam. We are hopeful that this policy will reduce confusion and incomplete CSF assessments as well as reduce the incidence of repeat LP exams.

Thank you for your consideration of this policy which will help to advance patient care in the Radiology department.

Audit cycle

	Initial audit *n = 77*	Re-audit *n = 88*
Patient demographics	Always given	Always given
Request typed?	16	19
Request hand-written?	61	69
If hand-written, is it legible? If not legible – which part? (eg patient demgraphics, clinical details, referrer details)	14% Not legible	5% Not legible
Clinical question asked or adequate clinical history given?	All adequate	All adequate
Aspiration (*centesis*) *vs* drain insertion unclear?	46%	7% (1/14 patients)
If child-bearing age female, pregnancy status given?	Not given in 6 patients	Not given in 2 patients
Allergy status given (including IV contrast)?	Not given on 31%	Not given in 27%

Audit cycle

Renal function given (where IV contrast needed)	Yes in all patients	Yes in all patients
Blood work-up given for IR procedures where relvant:		
INR / APTT	40% not given	20% not given
Platelets	45% not given	15% not given
Haemoglobin	47% not given	15% not given
Referrer name given? (if form not completed by staff)	7% not given	Always given
Referrer contact details given? (if form not completed by staff)	23% not given	9% not given
Staff name?	30% not given	31% not given
Staff contact details?	63% not given	50% not given
Is the form signed?	Not in 13% (non-staff)	Not in 5% (non-staff)
Is the form dated?	Not in 14%	Not in 4%

Audit cycle

- Radiology request forms can be inadequately completed.
- This can be detrimental to patient safety and departmental work-flow.
- We can reduce the frequency of inadequately completed request forms.

	Initial audit n = 77	Re-audit n = 88
Renal function given (where IV contrast needed)	Yes in all patients	Yes in all patients
Blood work-up given for IR procedures where relvant:		
INR / APTT	40% not given	20% not given
Platelets	45% not given	15% not given
Haemoglobin	47% not given	15% not given
Referrer name given? (if form not completed by staff)	7% not given	Always given
Referrer contact details given? (if form not completed by staff)	23% not given	9% not given
Staff name?	30% not given	31% not given
Staff contact details?	63% not given	50% not given
Is the form signed?	Not in 13% (non-staff)	Not in 5% (non-staff)
Is the form dated?	Not in 14%	Not in 4%
If child-bearing age female, pregnancy status given?	Not given in 6 patients	Not given in 2 patients
Allergy status given (including IV contrast)?	Not given on 31%	Not given in 27%

Audit cycle

- Radiology request forms will continue to be inadequately completed.
- This can be detrimental to patient safety and departmental work-flow.
- We can reduce the frequency of inadequately completed request forms.

Acknowledgements

- Dr Patrick Vos - supervisor
- Judy Lawson - PACS manager

bhimodedra@gmail.com