



DEPARTMENT OF THE AIR FORCE  
59TH MEDICAL WING (AETC)  
LACKLAND AIR FORCE BASE TEXAS

26 FEB 2016

MEMORANDUM FOR SGVT

ATTN: LT COL DOUGLAS W. BYERLY

FROM: 59 MDW/SGVU

SUBJECT: Professional Presentation Approval

1. Your paper, entitled **Crime Scene Investigation: Clinical Application of Chemical Shift Imaging as a Problem Solving Tool** presented at **Society of Skeletal Radiology (SSR) 2016, New Orleans, LA, 13-17 March 2016** with MDWI 41-108, and has been assigned local file #**16069**.
2. Pertinent biographic information (name of author(s), title, etc.) has been entered into our computer file. Please advise us (by phone or mail) that your presentation was given. At that time, we will need the date (month, day and year) along with the location of your presentation. It is important to update this information so that we can provide quality support for you, your department, and the Medical Center commander. This information is used to document the scholarly activities of our professional staff and students, which is an essential component of Wilford Hall Ambulatory Surgical Center (WHASC) internship and residency programs.
3. Please know that if you are a Graduate Health Sciences Education student and your department has told you they cannot fund your publication, the 59th Clinical Research Division may pay for your basic journal publishing charges (to include costs for tables and black and white photos). We cannot pay for reprints. If you are 59 MDW staff member, we can forward your request for funds to the designated wing POC.
4. Congratulations, and thank you for your efforts and time. Your contributions are vital to the medical mission. We look forward to assisting you in your future publication/presentation efforts.

*Linda Steel-Goodwin*

LINDA STEEL-GOODWIN, Col, USAF, BSC  
Director, Clinical Investigations & Research Support

PROCESSING OF PROFESSIONAL MEDICAL RESEARCH PUBLICATIONS/PRESENTATIONS			
TO: Clinical Research Division/SGVU (59 MDW/SGVU)		FROM: Author's Name, Rank, Grade, Office Symbol Douglas W. Byerly, Lt Col, O5, 959 CSPS/SGVT	
		PROTOCOL NUMBER: N/A	
<b>PROTOCOL TITLE - [NOTE: For each new release of medical research or technical information as a publication/presentation, a new 59 MDW Form 3039 must be submitted for review and approval.]</b> Crime Scene Investigation: Clinical Application of Chemical Shift Imaging as a Problem Solving Tool			
1. TITLE OF MATERIAL TO BE PUBLISHED OR PRESENTED Crime Scene Investigation: Clinical Application of Chemical Shift Imaging as a Problem Solving Tool			
2. FUNDING RECEIVED FOR THIS STUDY? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		FUNDING SOURCE: GME	
3. IS THIS MATERIAL CLASSIFIED? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO			
4. IS THIS MATERIAL SUBJECT TO ANY LEGAL RESTRICTIONS FOR PUBLICATION OR PRESENTATION THROUGH A COLLABORATIVE RESEARCH AND DEVELOPMENT AGREEMENT (CRADA), MATERIAL TRANSFER AGREEMENT (MTA), INTELLECTUAL PROPERTY RIGHTS AGREEMENT ETC.? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO NOTE: If the answer is "YES" then attach a copy to the Agreement to the Publications/Presentations Request Form.			
5. MATERIAL IS FOR (Check appropriate box or boxes for approval with this request.) (ATTACH COPY OF MATERIAL TO BE PUBLISHED/PRESENTED)		<input checked="" type="checkbox"/> DOMESTIC RELEASE <input type="checkbox"/> FOREIGN RELEASE	
<input type="checkbox"/>	PUBLICATION/JOURNAL (List intended publication/journal)		
<input type="checkbox"/>	PUBLICATION ABSTRACT (List intended journal.)		
<input type="checkbox"/>	POSTER (To be demonstrated at meeting/Name of Meeting, City, State, and Date of Meeting)		
<input type="checkbox"/>	PLATFORM PRESENTATION (At civilian institutions/Name of Meeting, State, Date of Meeting)		
<input checked="" type="checkbox"/>	OTHER (Describe: Name of Meeting, City, State, and Date of Meeting) Society of Skeletal Radiology (SSR) 2016, New Orleans, LA, 13-17 March 2016		
6. WHAT IS THE EXPECTED DATE YOUR PRESENTATION/PUBLICATION WILL BE SUBMITTED TO THE DEFENSE TECHNICAL INFORMATION CENTER (DTIC)?			
POINT OF CONTACT			
7. WHO IS THE PRIMARY 59 MDW POINT OF CONTACT? (Last, First, MI.) (Include email)			DUTY PHONE/PAGER No.
Quintero, Susan J susan.j.quintero.civ@mail.mil			292-5290
AUTHORSHIP AND CO-AUTHOR(S) (List in the order they will appear in the manuscript)			
LAST NAME, FIRST NAME AND MI.	GRADE/RANK	SQUADRON/GROUP/OFFICE SYM	INSTITUTION (If not 59 MDW)
a. Primary/corresponding author Byerly, Douglas W.	O-5/Lt Col	959 CSPS / SGVT	
b.			
c.			
d.			
e.			
f.			
g.			
I CERTIFY ANY HUMAN OR ANIMAL RESEARCH RELATED STUDIES WERE APPROVED AND PERFORMED IN STRICT ACCORDANCE WITH 32 CFR 219, AFMAN 40-401_IP AND 59 MDWI 41-108. I HAVE READ THE FINAL VERSION OF THE ATTACHED MATERIAL AND CERTIFY THAT IT IS AN ACCURATE MANUSCRIPT FOR PUBLICATION AND/OR PRESENTATION.			
AUTHOR'S PRINTED NAME/RANK/GRADE DOUGLAS W. BYERLY, Lt Col/ O5		AUTHOR'S SIGNATURE BYERLY.DOUGLAS.WILLIAM.12584 17328 <small>Digitally signed by BYERLY DOUGLAS WILLIAM 1258417328 DN: cn=US, o=U.S. Government, ou=DoD, ou=PR, ou=USAF, ou=BYERLY DOUGLAS WILLIAM 1258417328 Date: 2016.01.26 15:09:46 -0800</small>	DATE Jan 26, 2016
APPROVING AUTHORITY'S PRINTED NAME, RANK, TITLE MICHAEL A. TALL, Col, USAF, MC, Program Director		APPROVING AUTHORITY'S SIGNATURE TALL.MICHAEL.A.1035929360 <small>Digitally signed by TALL MICHAEL A 1035929360 DN: cn=US, o=U.S. Government, ou=DoD, ou=PR, ou=USAF, ou=TALL MICHAEL A 1035929360 Date: 2016.01.26 15:16:38 -0800</small>	DATE



**PROCESSING OF PROFESSIONAL MEDICAL RESEARCH PUBLICATIONS/PRESENTATIONS**

**1st INDORSEMENT (SGVU Use Only)**

TO: Clinical Research Division (59 MDW/SGVU) (Contact 292-7141 for email instructions)	1. DATE RECEIVED Feb 16, 2016	2. ASSIGNED PROCESSING REQUEST FILE NUMBER 16069
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3. DATE REVIEWED 16 Feb 2016	4. DATE FORWARDED TO PA
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5. AUTHOR CONTACTED FOR RECOMMENDED OR NECESSARY CHANGES  
 NO     YES If yes give date: 16 Feb 2016     N/A

6. COMMENTS  
 APPROVED     DISAPPROVED  
 The article is approved.

PRINTED NAME, RANK/GRADE, TITLE OF REVIEWER Rocky Calcote, PhD Clinical Research Administrator	DATE	SIGNATURE OF REVIEWER CALCOTE.ROCKY.D.1178245844 <small>Digitally signed by CALCOTE.ROCKY.D.1178245844 DN: c=US, o=U.S. Government, ou=CDRL, ou=PR, ou=USAF, cn=ALCOTE.ROCKY.D.1178245844 Date: 2016.02.19 12:37:05 -0600</small>
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**2nd INDORSEMENT (PA Use Only)**

TO: 59 MDW OFFICE OF PUBLIC AFFAIRS (PA)	1. DATE RECEIVED Feb 19, 2016	2. DATE FORWARDED TO 59 MDW/SGVU Feb 22, 2016
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6. COMMENTS     APPROVED (In compliance with security and policy review directives.)     DISAPPROVED

PRINTED NAME, RANK/GRADE, TITLE OF REVIEWER Christopher Carwile, TSgt/E-6, NCOIC, PA	DATE Feb 22, 2016	SIGNATURE OF REVIEWER CARWILE.CHRISTOPHER.S TEWART.1280477229 <small>Digitally signed by CARWILE.CHRISTOPHER.S DN: c=US, o=U.S. Government, ou=CDRL, ou=PR, ou=USAF, cn=CARWILE.CHRISTOPHER.S Date: 2016.02.22 10:09:03 -0600</small>
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**3rd INDORSEMENT (SGVU Use Only)**

TO: 59 MDW/SGVU	1. DATE RECEIVED
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2. SENIOR AUTHOR NOTIFIED BY PHONE OF APPROVAL OR DISAPPROVAL:     YES     NO     Could not be reached     Left message

3. DATE WRITTEN NOTICE OF APPROVAL AND CLEARANCE MAILED TO AUTHOR: \_\_\_\_\_

4. COMMENTS     APPROVED     DISAPPROVED

PRINTED NAME, RANK/GRADE, TITLE OF REVIEWER	SIGNATURE OF REVIEWER	DATE
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**Title:**

1. CSI: CLINICAL APPLICATION OF CHEMICAL SHIFT IMAGING AS A PROBLEM SOLVING TOOL
2. CRIME SCENE INVESTIGATION: CLINICAL APPLICATION OF CHEMICAL SHIFT IMAGING AS A PROBLEM SOLVING TOOL

**Purpose:**

Utilization of magnetic resonance imaging has significantly increased in the United States. The latest technological advances and the absence of ionizing radiation make this modality an attractive choice for imaging diagnosis. Whether or not the focus of the study, osseous structures are present on nearly all imaged body parts; therefore, inadvertent evaluation of the bone marrow is an intrinsic component of all MRI studies. Furthermore, during diagnostic evaluation of patients with known malignancy, bone marrow signal abnormalities are commonly encountered. Distinguishing between benign and malignant etiologies can sometimes be problematic. In the past, management of such indeterminate lesions included biopsy versus short-term follow up imaging. Chemical shift imaging (CSI), an MR technique commonly used in body imaging, can be helpful in evaluating these indeterminate lesions, potentially eliminating the need for biopsy in some cases.

**Materials and Methods:**

At our institution, CSI is not routinely included as part of our imaging protocols. Rather it is used as a problem-solving tool in difficult cases of bone marrow signal abnormality. In this presentation we will review several cases in which CSI was helpful in the diagnostic work up of patients. We will illustrate causes of diffuse infiltrative marrow, metastatic disease, benign osseous lesions and various patterns of red marrow.

**Results:**

Bone marrow signal abnormality is a common incidental finding in otherwise healthy individuals during the evaluation of musculoskeletal injuries, during the assessment of malignancy surveillance or staging, or during the work-up of lesions involving other internal structures. Marrow signal abnormality can be mass-like, diffuse infiltration or a patchy geographic distribution. The ability to distinguish between benign and malignant causes of marrow signal abnormality is essential to the management of patients. In our experience, CSI can be a useful MR technique to further assess marrow signal abnormality. The implementation of CSI at our institution has allowed us to distinguish between cases of atypical appearance of red marrow from those requiring further assessment with percutaneous biopsy or surveillance imaging.

**Conclusion:**

Management of incidental findings is a bane of medical imaging. There is a robust volume of radiology literature dedicated to discussing optimal management of these conundrums. Ideally, these so called incidentalomas should be assessed in the least invasive manner possible while adequately addressing the potentially worse possible outcomes, i.e. malignancy. CSI is a rapid, non-invasive, easily implemented MR technique, which has enabled us to avoid percutaneous biopsy or serial imaging in some cases.

"The views expressed are those of the [author(s)] [presenters(s)] and do not reflect the official views or policy of the Department of Defense or its Components."