STUDY OF OSTEOPOROTIC FRACTURES
Densitometry Procedures and Quality Assurance Manual

for use with the Hologic QDR-1000

Year 12 (VISIT 7)

Dept. of Epidemiology and Biostatistics, Box 0886
University of California
San Francisco, CA 94143

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I. INTRODUCTION

The purpose of this manual is to standardize the scanning and evaluation procedures among the clinical centers participating in the Study of Osteoporotic Fractures. It provides information specific the Hologic QDR 1000 to insure consistent data collection and analysis. It is intended as a supplement to the Hologic Users' Manual.

Prior to reading this document, it is essential that the Hologic Users' Manual for the QDR 1000 be understood. The study operators are all experienced Hologic users and are expected to be familiar with all the instrument features and procedures discussed in the Hologic Users' Manual. Some of the information from each of the Hologic manuals is repeated in this document for emphasis; note, however, that some of the scanning evaluation protocols for this study differ from those detailed by Hologic. In these cases, the protocol changes are clearly explained below.

The Hologic software for the QDR 1000 should be version 6.20.

> **Unauthorized software changes must be avoided. Contact the coordinating center regarding any recommendation concerning a change in software.**

II. DUAL ENERGY X-RAY ABSORPTIOMETRY (DXA)

High quality bone mineral and body composition densitometry requires competent and consistent quality assurance. This manual contains information that will help to obtain accurate and reproducible results. Procedures for three major areas are covered:

Scanning the participant
Analysis of participant data
Quality control measures

Each of these procedures is of equal importance. To obtain consistent results, the technologist in charge of the densitometry has to be aware of possible sources of error that may affect data collection and analysis.

Bone density measurements for this particular study will be obtained at four clinical centers. Quality control measures will be carried out to cross-calibrate the individual scanners. Care should be taken to ensure that every participating clinical center obtains results of comparable precision. The SOF study coordinating center will be reviewing the data and will notify the clinical centers

if inconsistencies are detected. Possible error sources and solutions will be suggested. The coordinating center will not be responsible for the solution of hardware or software problems; that will rest with the clinical center and the scanner manufacturer.

During the study, any questions regarding procedures that arise should be directed to the coordinating center. Instances in which the operator is unsure of the analysis should be identified on the patient data log sheet (see Appendix A: "When to Flag Scans For Review"). These cases should be compiled and forwarded to the coordinating center for review. Often these problem cases have been analyzed correctly and will require no further action; however, in some instances the coordinating center may request re-analysis of a scan. Such instances of re-analysis must be re-archived at the clinic as well as returned to the coordinating center.

Data for the study will be sent monthly to the coordinating center using the Batch Record Form (see Appendix B: "Batch Record Form"). In addition any questions or correspondence regarding the DXA manual, technical aspects of the DXA measurements or other DXA quality control issues should be directed to:

Maurice Dockrell/Elizabeth Edwards
UCSF Prevention Sciences Group
New Montgomery, Suite 600
San Francisco, CA 94105
(415) 597-9318 (Elizabeth) 597-9287 (Maurice)
FAX (415) 597-9213

III. PATIENT BIOGRAPHY

Throughout Visit 7, baseline and follow-up scans will be acquired. If the participant has been scanned at an earlier SOF visit, check the patient biography for accuracy, and correct any errors following the instructions in the Hologic Users' Manual. The following fields should have been entered at baseline:

NAME
PAT ID
SCAN CODE
DOB
SEX
WEIGHT
HEIGHT

All other fields may be left blank. If the participant has not been scanned previously create a new patient biography per the directions in the Hologic Users' Manual.

Important: Enter the SOF staff ID number for the person performing the scan in the SCAN CODE field. Also update the patient height and weight in the biography with the current (Visit 7) values. Note that no further biography entry action is needed for a follow-up scan. Do not create duplicate biographies.

Hip DXA scans will be acquired on the QDR 1000. Lumbar spines **will not** be scanned at Visit 7.

IV. HIP MEASUREMENTS on the QDR 1000

A. SCANNING PROCEDURES

Before scanning the participant use the <LOCATE> function at the Hologic main menu to find the most recent analysis of the hip baseline scan. Load the baseline scan onto the hard drive and have a printout of the baseline available. In general, scan on the same side as the baseline. For most participants, baseline refers to visit 2 and the **right** hip was scanned. (Refer to lists from visit 4 sent by the CC or check visit 4 exam questionnaire where this information was recorded.) Refer to the baseline printout for the positioning of the participant at the follow-up; this is to ensure consistent scanning of the same area. Careful positioning and visual comparison of the current scan with baseline are essential for producing precise measurements. (Do not replicate poor positioning.) Consistent projection of the femur is more important than the actual angle of the foot rotation. Use the rescan feature as soon as any positioning errors are detected during the current scan.

If no baseline examination exists for the participant, or a different hip is to be scanned from that scanned at baseline, treat the examination as a baseline scan. Follow the scanning protocol below and analyze the scan without the COMPARE feature.

When performing hip scans, the following guidelines must be adhered to:

No metal or plastic object should remain in the scanning area. Check for jewelry, coins or other objects in the hip pockets, zippers, buttons, rivets, belts or any other clothing fasteners, as well as hip and back braces.

Lower any thick clothing that might obscure the scanning area.

Keep the participant's hands out of the scanning area by placing them well away from the hips.

Whenever possible, scan the same hip which was scanned at baseline. If the participant has suffered a hip fracture in that hip since baseline, scan the other hip. If she fractured both hips, scan the one with the least hardware. In the presence of bilateral hip replacement, do not scan the hip.

Ensure rotation of the hip by holding the knee and the ankle when positioning the leg. Optimum positioning of the legs is most important.

Attach the measured leg to the angled foot block supplied by the manufacturer.

The participant should be made as comfortable as possible to reduce the chance of unwanted movements. Use a pillow for the head and a small pillow under the knee opposite to the scanned hip. Maintain the participant at a comfortable body temperature for the duration of the scan.

Instruct the participant to remain still until the end of the measurement. Make sure that the leg is not moved during the scan. Flag any scans, in which the participant has moved and has not been rescanned. Movement during a hip scan appears as either a discontinuity or as a smear.

Use the default settings for the hip scan.

Verify that the proximal femur is projected identically in every follow-up measurement. This requires that the corresponding foot is rotated inward by the same angle. Check the projection of the lesser trochanter -- it should be projected the same as at the baseline measurement.

If the scan shows a "short" neck with little space between itself and the ischium, this could be due to poor rotation of the leg. If the positioning is not consistent with the baseline, then reposition the participant and rescan.

In order to improve the positioning for the measurement, the rescan option (F3 key) should be used freely. Start the hip scan and keep scanning until the lateral contour of the greater trochanter becomes clearly visible. Initiate rescan (F3) and position the blue arrow that appears in a way that it points to the most lateral aspect of the greater trochanter. Allow for approximately 5 scan lines between the arrow and the trochanter. Restart the scan.

Interrupt scanning about 1.5cm (15 lines) beyond the medial extent of the acetabulum if scan width limit has not yet been reached.

B. ANALYSIS PROCEDURES

High quality data analysis is strongly dependent on the ability to duplicate the placement of each of the four subregions of the hip. The Hologic analysis software calculates and displays all four regions using default values without any required operator interaction. The default size and location of these regions is usually not altered by the operator. However, to adapt them more closely to the optimal anatomic location for an individual participant, changes can be made as detailed in the sections which follow.

In a given population, large variations in weight, hip condition, and hip anatomy can result in scans that are difficult to analyze. Adjustment of the brightness and contrast will frequently be necessary to improve the appearance of the image so that regions of interest can most easily be placed.

Baseline Analysis Procedures

Global Region of Interest The procedures outlined in the Hologic Manual are to be followed. The points listed below are for emphasis.

The left (lateral) side of the global ROI should be at least 5mm (5 lines) beyond the outer edge of the greater trochanter, the right (medial) side and the top of the global ROI should be 5mm (5 lines) beyond the femoral head, to provide sufficient soft tissue for analysis.

The bottom edge of the global ROI should be at least 1cm (10 lines) below the lesser trochanter to provide sufficient soft tissue for analysis.

In the event that the global ROI must be expanded to allow complete filling of the bone edges (see below) in low BMD participants, all edges must be at least two steps away from the border of the scan field. This will be important when the baseline scan is used with the COMPARE feature on the follow-up scan analysis.

Bone Edges If the bone edges are not properly determined by the analysis program, increase the size of the global ROI by first moving the top border up 10 lines further from the femoral head, then by moving the medial border 10 lines further out, if possible, to include more soft tissue in the analysis. Repeat as needed. Do not move the bottom or lateral border. Do not fill in bone edges manually unless absolutely necessary. The software will automatically fill any "holes" within the bone. Occasionally, the bursa or tendons surrounding the greater trochanter can be calcified. This will produce "knobs" that can merge with the trochanter and throw off the automatic placement of the four regions. Expanding the global ROI will not always separate these from the trochanter and they will have to be manually excluded. Flag for review by the coordinating center any cases in which the bone edge is manually altered.

Femoral Midline Unevenness (notches) in the upper or lower edge of the femoral neck can throw off the femoral midline so that it does not run down the center of the neck. This will in turn cause the femoral neck box to twist. If the midline looks like it might be off or the box is twisted on either the baseline or follow-up scan, it may be necessary to adjust the bone mask (e.g. filling in neck notches, deleting the ischium) in order to obtain appropriate positioning of the midline. **The position of the midline itself should not be altered.** If changes have been made to the scan such as filling in bone in order to alter the midline, or if the midline is still off, flag these cases for review by the coordinating center.

Femoral Neck Box If the default neck box provided by the Hologic program looks reasonably placed, leave it unchanged.

The femoral neck region (the area of the neck covered by the neck box as listed on the scan analysis) should be at least 2.5 cm^2 (about 8-10 lines wide), and the neck box should be perpendicular to the neck axis. If the maximum area of the neck that can be covered by the femoral neck box is less than 1 cm^2, the participant should be rescanned with special care taken to improve the rotation and degree of adduction of the leg. Since such a narrow neck box would be only 2-3 lines wide, you will only rarely have a problem with this constraint.

If the area of the neck region is less than 2.5 cm^2, attempt to increase the width of the neck box to the maximum possible while still avoiding inclusion of the trochanter, ischium, or femoral head and acetabulum.

If the default neck box partially extends into the trochanter, ischium, or femoral head and acetabulum, adjust its location or size while maintaining the maximum possible area.

The Hologic software is sometimes unable to provide an appropriate placement of the neck box and other regions. This can occur if the projected neck axis is too short or the neck is too close to the ischium. Soft tissue between the neck and ischium will be read as bone, and the automatic placement of the femoral midline will fail. If this happens, use the procedures given in the Hologic manual for deleting the bone of the ischium. Deleting this will not adversely affect the analysis, as this bone is not included in the reported regions of interest.

Ward's Triangle The Hologic software should place the square marking Ward's triangle in or adjacent to the femoral neck box. In participants with low BMD or short femoral neck projections, the Ward's Triangle box may be

misplaced considerably. If this happens, follow the instructions in the Hologic manual to modify the search region. Flag extreme cases for review by the coordinating center.

Trochanteric Line The trochanteric line should intercept the bone edge just below the lateral aspect of the greater trochanter. There is no need to correct minor deviations (up to about 3 pixels).

Follow-Up Analysis Procedures

Display this baseline evaluation using the <COMPARE> feature along with the current scan to be analyzed. It is important to realize that proper comparison of a follow-up hip scan to its baseline depends upon maintaining the identical size and relative position of the region markers. Vertical or horizontal shifts of these regions by one or more pixels can greatly alter the final values of the analysis.

Global Region of Interest

The width and height of the global ROI must be the same as that used on the baseline.

The dotted lines from the baseline defining the bone region should overlay the follow-up as closely as possible. Occasionally there are small changes in adduction and rotation of the leg which were not eliminated by rescanning. The region surrounding the neck should have the best fit.

If the global ROI cannot be moved to the appropriate position because it is too large, the baseline scan will have to be reanalyzed with a properly reduced global ROI. Then the follow-up should be analyzed comparing it to the reanalyzed version of the baseline. Flag cases in which the baseline had to be reanalyzed.

Use <Control> <End> to accept the global ROI and bone mask.

Bone Edges If the bone edges do not fill in properly on the follow-up analysis, first the baseline will have to be reanalyzed with a larger ROI, and then the comparison analysis may proceed.

Femoral Midline Unevenness (notches) in the upper or lower edge of the femoral neck can throw off the femoral midline so that it does not run down the center of the neck. This will in turn cause the femoral neck box to twist. If the midline looks like it might be off or the box is twisted on either the baseline or follow-up scan, it may be necessary to adjust the bone mask (e.g. filling in neck notches, deleting the ischium) in order to obtain appropriate

positioning of the midline. Should the ischium need to be deleted on the Visit 7 scan, the baseline must first be re-analyzed with the ischium deletion before it can be used in the compare analysis of Visit 7. All other scans from intervening visits must be re-analyzed using the compare analysis with the new baseline (except for Visit 3). Alteration of the bone mask, i.e.. ischium deletion, neck notch fills, should be sent to the coordinating center for review by new operators only. If the midline does not respond to the techniques of bone-edge adjustments, it should also be sent to the coordinating center for review. **Do not make direct, manual adjustments to the midline placement.**

Femoral Neck Box If the current location is optimally matched to the location of the neck box of the baseline analysis, use it unchanged.

If the current location is not optimally matched to the location of the neck box on the baseline, adjust the current region to achieve maximum correspondence. The size of the neck box must be the same on both baseline and follow-up.

If the current location cannot be satisfactorily adjusted while maintaining the same sized neck box, reanalyze the baseline within the constraints outlined above.

It is most important to have the neck box location and size correspond as closely as possible. If you cannot get the neck boxes to match, flag the scan for review by the coordinating center.

Ward's Triangle If the Ward's triangle box appears on the follow-up scan in a significantly different position than on the baseline, or if after reanalysis of the baseline its location is different than that of the original baseline placement, flag the scan for review by the coordinating center.

Trochanteric Lines The trochanteric line should intercept the bone edge at the same point on all scans. Matching is easily done during the compare analysis, especially since you will have the baseline to consult during the compare. Large changes in the trochanteric line from baseline to follow-up should be flagged for review.

C. ARCHIVING DATA

Both the baseline hip scan and Visit 7 compare hip scan should be archived to the Magneto Optical on a regular schedule. There are two archiving functions to be carried out: Archive scans to the first optical (MODC1) to serve as the clinic data base, then archive to the second optical (MODC2) to serve as the traveling optical for transfer of scan data to the coordinating center data base. The

traveling optical should be sent with the monthly batches. The scans on the traveling optical will be downloaded to the coordinating center database and the optical will be returned to the clinic well before the next monthly batch is due. Each clinic should plan to archive analyzed hip scans to the clinic's optical (MODC1) on a daily basis for the safety of the data. Optimal use of the CC traveling optical (MODC2) can be achieved by archiving larger batches of scans. The baseline hip and Visit 7 hip should be archived together to the CC optical (MODC2). The baseline does not need to be archived to the clinic optical (MODC1) unless it has been reanalyzed in order to do the Visit 7 compare. All intervening visits should be reanalyzed to the new baseline also and archived to both to opticals.

V. SOF VISIT 7 DXA SCAN LOGS

The Scan Log is a paper record of SOF participants, their baseline and Visit 7 scans (Appendix B). It has evolved into a useful crosscheck and reference for the bone density data. It is important that the scan logs be filled out carefully and accurately. The baseline scan should be identified by its visit number and scan ID. Note that there are two columns to check the archiving status of each scan, to the clinic optical (MODC1) and to the coordinating center (CC) optical (MODC2). The scan logs should always accompany the monthly batches.

VI. QUALITY CONTROL MEASURES

Quality control measures are the responsibility of the individual clinical centers and must be performed to monitor scanner performance throughout the period of the study.

A. PHANTOM SCANS

QDR 1000

Perform the daily quality control measures outlined by the Hologic manual. Points of procedure to note:

Scan and analyze the Hologic spine phantom daily.

Create only one patient biography per phantom. *** IMPORTANT: enter the phantom serial number, e.g. Q-135, as PATIENT ID.** Avoid duplication of patient biographies by using the patient menu to select the appropriate biography prior to scanning the phantom.

Scan the phantom on top of the pad. Ensure alignment with the scanner axis by running the laser light up and down the edge of the phantom or by using the phantom case as a spacer between the ledge on the back of the scanner table and the phantom block.

Evaluate the QC scans using the <COMPARE> feature. Update the QC database daily; back up to floppy (diskette) once a week. **Keep the original that you use as "baseline" for the compare permanently stored on the hard disk.** Additional backup copies of this baseline phantom scan should be stored on floppy disk. Phantom scans themselves are not archived: only the phantom database need be archived for subsequent analysis of machine performance.

Add the scan to the QC database immediately after scanning and analysis, following the procedure outlined in the Hologic manual.

Use the plot feature daily to verify that the BMD of your scanner is within normal limits. To do this, select the PLOT option from the QC menu and then press F10 to generate a graph with the default settings. If the most recent scan falls outside the limits, repeat the scan. If the second scan also falls outside the limits, contact both Hologic and the coordinating center. If the phantom scan results fall within the normal limits, the scan file (not the database) may be deleted from the hard disk; it should not be archived to floppies.

Be sure to eliminate any unanalyzed scans from the QC database (these will appear as white dots at the bottom of the QC plot). Unanalyzed scans in the QC database will adversely affect the coefficient of variation (CV). The CV should be less than 0.5%; if it is greater than 0.5%, contact both Hologic and the coordinating center.

Periodically check the system drift by pressing <R> while viewing the QC plot. The slope of the calculated regression line should be within the range of the standard deviation shown. If this is not the case, check for unanalyzed QC data (white dots at the bottom of the plot). If the drift is greater than the standard deviation, contact both Hologic and the coordinating center.

Generate a printout of the QC spine phantom BMD plot once a week on your designated "QC day." This will facilitate detection of long term drifts as well as short-term inconsistencies.

The quality control database is archived using the archive option from the QC menu. Follow the instructions in the Hologic manual.

B. CROSS-CALIBRATION OF SCANNERS

In order to access accurately the absolute variations in scanner performance between clinical centers, periodically throughout the study phantoms will

be either mailed or brought to each of the clinical centers and scanned. Hologic spine, femur, and linearity (block) phantoms will be used. A detailed protocol will accompany the phantoms.

C. FLAGGED SCANS

Original printouts of any scans flagged for review should be sent to the coordinating center every month with the updated patient database. Note any reasons for flagging on the original printout. The printouts will be reviewed and returned to the centers with the appropriate reanalysis instructions. It will be up to the site operator to reanalyze the scan according to the coordinating center comments. Reanalyzed scans must be re-archived to the MODC1 and MODC2 on the QDR 1000. Return a printout of the reanalyzed scan to the coordinating center for verification with the monthly batch.

D. OTHER QUALITY CONTROL MEASURES

If the QDR needs to be repaired or if any adjustment has to be made that possibly might affect the data: Perform 5 scans of the Hologic spine phantom before and after the change. In addition, contact the coordinating center before the repairs or adjustments are made to find out whether additional measures have to be taken. A SOF HOLOGIC REPAIR/SERVICE LOG SHEET (Appendix B) should be filled out and returned to the coordinating center along with a copy of the Hologic Customer Service Report.

Unauthorized software changes must be avoided. If for any reason you think you have to change the software, contact the coordinating center before any changes are made.

VII. DATA MANAGEMENT

An archive of the patient database will be done monthly on the QDR 1000 and sent to the coordinating center on floppy disk with the monthly batches.

Two archiving functions will be carried out on the QDR 1000. Each study site will archive all patient scans from the QDR 1000 to the Magneto Optical (MODC1) using the <1st Optical> function under the <ARCHIVE> selection at the Hologic main menu. In order to transfer hip scan data to the CC, all hip scans should be archived to another Magneto Optical (MODC2) using the <2nd Optical> function under the <ARCHIVE> selection at the Hologic main menu. The MODC2 should be sent to the coordinating center with each monthly batch. It will be returned to the clinic before it is needed for the next monthly batch.

Data transfer to the CC occurs monthly. Each monthly batch should include: the written patient scan log sheets, patient database, Magneto Optical and disks with all scans acquired or reanalyzed since the previous data transfer. In addition, scans that the study site wishes to have reviewed (flagged scans) are printed before archival and sent directly to UCSF. The printouts of these scans are visually checked to verify correct analysis. Improper analysis procedures are noted directly on the scan for reanalysis.

For all flagged scans received at UCSF which require reanalysis, the annotated printouts are returned to the study site with specific instructions for reanalysis when indicated. The study site then reanalyzes the problem scans according to the UCSF recommendations. The reanalyzed scan is then re-archived and the database at the study site is automatically updated. A printout of the reanalyzed scan is sent to UCSF to verify compliance with the next data transfer.

VIII. EXCESSIVE BONE LOSS

Participants who lose a significant amount of bone mass during the study must be identified and appropriately counseled. To determine the annual loss (or gain) of bone mass, it is necessary to compare the results of the previous and the recent bone scans. The Hologic software provides a very convenient option to calculate the annual bone loss from two or more scans. The **hip scan** will be used to calculate excessive bone loss. The following thresholds will be in effect for visit 7:

Time period between visit 7/comparison scans		**Annualized loss >**
Visit 6	1.5 – 2 years	8.0%
Visit 5	3 – 5 years	5.0%
Visit 4	5 – 6 years	4.5%
Visit 3	7 – 8 years	4.0%
Visit 2	9 – 11 years	3.5%

Determine the rate of change at the hip directly after the "Compare" analysis of the patient's scans:

Select the participant's Visit 7 hip scan under the *Select* menu.

Go to the *Normals* menu (use arrow keys or type 'N' or type key 'F7'). The program will the show a list of patient scans available for analysis.

Mark the appropriate comparison visit scans (preferably the visit 5 scan) by using the '+' key. After you have chosen the scan press the 'Enter' key.

Select the menu option *Rate-of-change* using the arrow keys and press 'Enter'. The **TOTAL** under the **% change/yr.** column is the value to use.

If the *Rate-of-Change* shows excessive bone loss, reanalyze the Visit 7 scan and repeat the above procedure. If excessive bone loss is still evident, print out the baseline scan, Visit 7 scan and *Rate-of-Change* plot and send to the coordinating center.

Send printouts of suspected excessive bone loss cases with the regular monthly batch to the coordinating center. The CC will review and confirm the technical accuracy or request reanalysis of the scan.

SUMMARY

Every month the following items are sent to UCSF from each site:

a) Batch Record Form (Appendix B)
b) Copy of written patient scan log sheets (Appendix B).
c) Patient database (on floppy disk).
d) All patient scans acquired or reanalyzed since the last data shipment on the traveling Magneto Optical (MODC2).
e) Original printouts of flagged scans.
f) Original printouts of all scans that have been reanalyzed according to UCSF instructions since last data transfer.
g) Printout of the graph of the daily spine phantom BMD results.
h) Repair/Service Logs and Hologic Customer Service Report (Appendix B)
i) Suspected excessive bone loss printouts

Ship the preceding via **Fed Ex or UPS** monthly to the following address:

Elizabeth Edwards
SOF DXA Quality Control
Prevention Sciences Group - UCSF
New Montgomery Street, Suite 600
San Francisco, CA 94105

UCSF will return the following items to the study site after review:

a) Annotated printouts of flagged scans that require reanalysis with explicit instructions for reanalysis, as necessary.
b) Any recommendations for service, additional phantom scans, etc., as necessary based on the quality control database.
c) The traveling Magneto Optical

d) Confirmation of excessive bone loss.

ACKNOWLEDGMENT

Several of the procedures that are specific to the Hologic QDR-1000 Series Bone Densitometer have been designed with the technical assistance of Hologic, Inc.

APPENDIX A - Flagging Instructions

WHEN TO FLAG SCANS FOR REVIEW BY THE COORDINATING CENTER FOR VISIT 7

General

Scan has unusual appearance or is difficult to analyze.

ROI on follow up is different size than that of baseline

Patient has moved and scan cannot be repeated without movement.

Unusual anatomical variations; surgical hardware; superimposed buttons, pins, zippers, vitamin pills, pacemakers; or anything else that might affect scan results.

Hip Scans

Ischium deletions and neck notch fills need not be flagged but any other bone edge alteration should be flagged. (New operators should flag all bone edge adjustments.

Midline looks off on either baseline or follow-up.

Femoral neck box on follow-up cannot be matched to baseline size or placement.

Neck box width reduced from default.

Ward's triangle located outside of normal region.

Trochanteric lines cannot be matched between baseline and follow up.

Positioning changes are so great that compare does not work.

APPENDIX B - Forms

Batch Record Form

Hip Scan Log

SOF REPAIR/SERVICE LOG SHEET

BMD BATCH RECORD

STUDY OF OSTEOPOROTIC FRACTURES

Batch Number _____ **Date Batch Mailed:** ____ /____ /____

Clinic Name: _____ **Staff ID#:** _____

Contents: (check Yes or No below)

DB Archive Disk ☐ Yes ☐ No Date Archived: ____ /____ /____

QC DB Printout ☐ Yes ☐ No Date Printed: ____ /____ /____

Scan Log Sheet ☐ Yes ☐ No

Flagged Scans ☐ Yes ☐ No Number: _____

Reanalyzed Scans ☐ Yes ☐ No Number: _____

Random Sample Scans ☐ Yes ☐ No Number: _____

Other (specify) _____

Certification Scans:

Staff ID	Number of Scans	Scan Type

SOF Visit 7 DXA Hip Scan Log

Baltimore

Date	Tech ID	Pat ID	ACRO	Scan Type	Scan Number	Flagging Comments	Archive Clinic Opt	Archive CC Opt
				V7 Hip				
				Hip Baseline v( )				
				V7 Hip				
				Hip Baseline v( )				
				V7 Hip				
				Hip Baseline v( )				
				V7 Hip				
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				V7 Hip				
				Hip Baseline v( )				

SOF Visit 7 DXA Hip Scan Log

Minneapolis

Date	Tech ID	Pat ID	ACRO	Scan Type	Scan Number	Flagging Comments	Archive Clinic Opt	Archive CC Opt
				V7 Hip				
				Hip Baseline v( )				
				V7 Hip				
				Hip Baseline v( )				
				V7 Hip				
				Hip Baseline v( )				
				V7 Hip				
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				Hip Baseline v( )				
				V7 Hip				
				Hip Baseline v( )				

SOF Visit 7 DXA Hip Scan Log

Pittsburgh

Date	Tech ID	Pat ID	ACRO	Scan Type	Scan Number	Flagging Comments	Archive Clinic Opt	Archive CC Opt
				V7 Hip				
				Hip Baseline v( )				
				V7 Hip				
				Hip Baseline v( )				
				V7 Hip				
				Hip Baseline v( )				
				V7 Hip				
				Hip Baseline v( )				
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				Hip Baseline v( )				
				V7 Hip				
				Hip Baseline v( )				

SOF Visit 7 DXA Hip Scan Log

Portland

Date	Tech ID	Pat ID	ACRO	Scan Type	Scan Number	Flagging Comments	Archive Clinic Opt	Archive CC Opt
				V7 Hip				
				Hip Baseline v( )				
				V7 Hip				
				Hip Baseline v( )				
				V7 Hip				
				Hip Baseline v( )				
				V7 Hip				
				Hip Baseline v( )				
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				Hip Baseline v( )				

SOF HOLOGIC REPAIR / SERVICE LOG SHEET

Clinic : ..... Date:.....

1. Describe problem (incl. dates): .....
.....
.....
.....

2. Did problem affect scans or BMD data?

o Yes o No

If yes, describe:.....
.....

Machine downtime .....
.....

3. Describe the action taken by you (including repair by Hologic)?.....
.....
.....
.....

4. Was the problem resolved?

o Yes o No

If not, please specify:.....
.....

5. Was a recalibration of the device necessary?

o Yes o No

6. Were phantom scans performed after the repair or the recalibration?

o Yes o No

If yes, did you notice a change in the phantom BMD values?

o Yes o No

Please fill in the form thoroughly and attach a copy of the Hologic service report. Send one copy to the SOF coordinating center. Keep one copy with your scanner in your own repair log.