



# NURSE'S NEWSLETTER

Joint Implant Surgery and Research Foundation

1300 North Vermont Avenue, Suite 601 • Los Angeles, California 90027 • (213) 666-6574

DECEMBER 1975

## BONE CEMENT HAZARD

Over the past two years JISRF has been the occasional recipient of inquiries from concerned O.R. nurses regarding the potential hazard of inhaling fumes given off during the preparation of acrylic bone cement. Our response to the queries has been that we had no direct knowledge of any injury or illness caused by cement vapors. Our own surgeries are carried out in the vertical laminar flow room with a high volume of air circulating continuously through the room and the surgical team isolated by individual body exhausts. Our experience, therefore, may be quite different from that of teams working in conventional or other types of laminar flow rooms. Our suggestion, at any rate, has been for the nurse to avoid any direct inhalation of fumes by placing the cement downwind of any airflow in the room and by performing the mixing operation at arm's length.

We understand that the FDA has recently determined the cement vapors to be toxic and will shortly issue a bulletin to that effect. In conjunction with this warning it is rumored that the installation of some type of device to remove cement vapors from the O.R. atmosphere may be required in the near future.

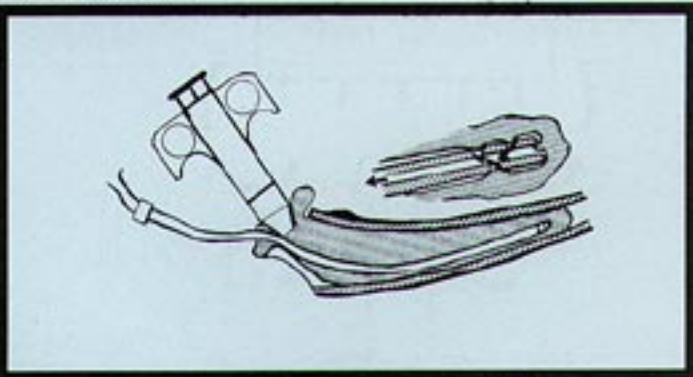
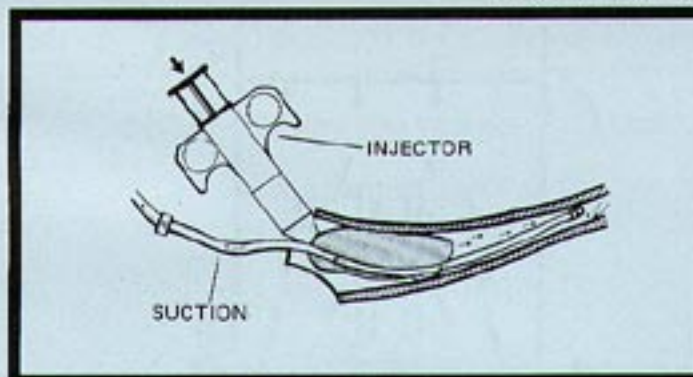
## LOOSENING AND FAILURE OF METAL TOTAL HIP STEMS

A great deal of JISRF's recent research activity has involved clinical and laboratory investigations into the causes of stem loosening and failures. The research findings include a number of points that are of particular interest to nurses:

1. Cement intermixed with blood or separated during mixing is weaker than cement inserted in a clean, single mass.

THE USE OF A VACUUM-INJECTION TECHNIQUE TO INSERT CEMENT INTO THE FEMUR HELPS INSURE DELIVERY OF A CLEAN, UNINTERRUPTED MASS OF CEMENT.

### VACUUM-INJECTION TECHNIQUE



Suction is applied within the prepared femoral cavity through a tube placed about one inch beyond the intended position of the distal femoral stem. Cement is delivered into the femur from the syringe-type injector.

Negative pressure created by the suction draws cement into the femur. When the cavity has been filled to the desired depth, cement occludes the end of the tube. Suction is turned off, the tube withdrawn and the stem inserted at this time.



2. Insufficient filling of the femur with cement can result in postoperative implant loosening.  
THE VACUUM-INJECTION TECHNIQUE HELPS INSURE COMPLETE FILLING OF THE FEMORAL CAVITY.
3. The chemical action of curing cement kills a layer of surrounding bone in the prepared implant site. Normally, the bone should revascularize and heal in about six weeks after surgery. Excessive early weight bearing during this period, however, may prevent healing and can lead to bony absorption, cement loosening and implant failure.  
POSTOPERATIVE TOTAL HIP PATIENTS SHOULD NOT BE ALLOWED TO RESUME FULL WEIGHT BEARING FOR A MINIMUM OF SIX WEEKS AFTER SURGERY. DURING THE SIX WEEK HEALING PERIOD WEIGHT BEARING SHOULD BE RESTRICTED TO CRUTCHES WITH TOUCH DOWN ONLY ON THE OPERATED SIDE.

#### INCREASED EFFECTIVENESS FOR HORIZONTAL LAMINAR FLOW UNITS

Recent JISRF investigations have shown that the efficiency of horizontal laminar flow units can be upgraded considerably by controlling the airflow over the surgical area.

By adding side walls as in Figures 1 and 2, the flow of sterile air through the surgical area is made more uniform. Turbulence and areas of minimal or questionable airflow near the edges of the working space are reduced. This is a rather inexpensive addition to existing units.

A more sophisticated, though still inexpensive, modification of horizontal units to which side walls have been added is the addition of a special vinyl curtain to the normally open end of the enclosure. Without the curtain, air currents travelling through the horizontal enclosure can encounter upward turbulence as they strike members of the surgical team. (Fig. 3) The addition of a vinyl curtain extending from six inches below ceiling height to eighteen inches above floor level and cut out to allow entry of the operating table redirects the airflow down and under the table. (Fig. 4) This brings the airflow pattern into much the same configuration seen in vertical flow units, which have been shown to be the most effective types.

Figure 1

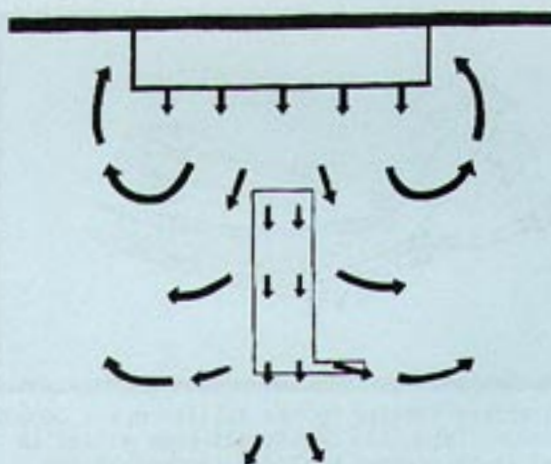
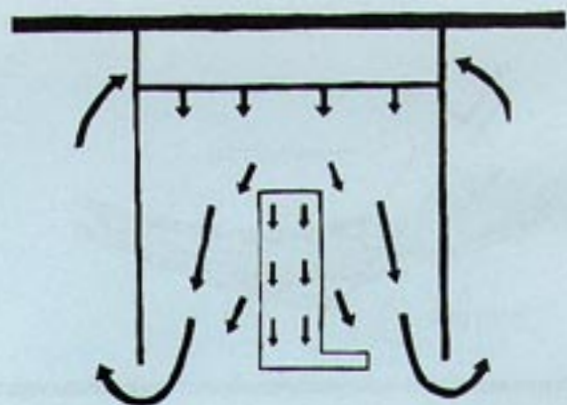


Figure 2







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Editor ..... Louise Bechtol, R.N.

Managing Director ..... F. Michael O'Rourke

Medical Director ..... Charles O. Bechtol, M.D.

Figure 3



Figure 4



### WEEKEND COURSES SET FOR LOS ANGELES, ATLANTA

JISRF's 1976 course, O.R. Nursing Techniques in Total Joint Replacement, emphasizes the practical aspects of working with the major types of joint replacements.

Based on the extensive clinical experiences of Dr. Charles O. Bechtol's surgical team, the course details the step-by-step routines of total hip, knee, patella and shoulder replacement from room and instrument setup to postoperative care.

Illustrated throughout by slide, film and syllabus materials, the two-day presentation strives to place the nurse in the O.R. situation. Problem and potential problem areas selected from among more than 1500 cases operated are demonstrated and avoidance or corrective measures detailed.

Included in the course fee of \$125.00 are a permanent syllabus record designed for review and hospital in-service use. Also included are continental breakfasts and luncheons both days. Saturday reception and dinner are provided. You may register by sending the following coupon along with a check payable to JISRF to Jean Henry, Joint Implant Surgery and Research Foundation, 1300 North Vermont Avenue, Suite 601, Los Angeles, California 90027.

Please register me for the course indicated.

☐ Saturday and Sunday  
January 17-18, 1976  
Airport Marina Hotel  
Los Angeles, California

☐ Saturday and Sunday  
April 30-1, 1976  
Fairmont Colony Square Hotel  
Atlanta, Georgia

NAME \_\_\_\_\_ STREET \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_

Note: Registrations of qualified applicants are accepted on a first come-first served basis. Complete hotel and registration information are provided by return mail.





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