North Carolina Department of Labor
Division of Occupational Safety and Health

Raleigh, North Carolina

Field Information System Operational Procedure Notice 132

Subject: State Emphasis Program for Long Term Care Facilities (SICs 8051, 8052, 8059)

A. **Purpose and Scope.**

This notice implements a SEP for all inspections of LTC Facilities (SIC Codes 8051-Skilled Nursing Care Facilities, 8052-Intermediate Care Facilities, and 8059-Nursing and Personal Care Facilities, Not Elsewhere Classified). This Notice applies State-wide for all inspections at LTC Facilities.

B. **Effective Dates.**

This Notice is in effect from the date of signature. It will remain in effect until canceled or revised by the Director.

C. **Special Emphasis Program History.**

In August 1996, USDL OSHA implemented a seven state nursing home initiative to address hazards and "protect workers in one of the nation's fastest growing industries" (OSHA National News Release, August 8, 1996). This initiative was terminated by John B. Miles, Director, Compliance Programs, in a letter dated February 10, 1998, to the Regional Administrators. All enforcement policies for the initiative were subsequently superseded and replaced by the Site Specific Targeting (SST) Inspection Plan (April, 1999) as a National Emphasis Program (NEP) on Nursing and Personal Care Facilities was begun. In April 2002, Nursing and Personal Care Facilities were removed from the SST Plan and were addressed by CPL 2 (02-03). The NEP on SIC 805 was ended on September 30, 2003.

NCDOL had similar 1999 - 2003 Strategic Plan goals and a SEP focusing on LTC Facilities. The inspection procedures contained in the Federal directive were implemented with state specific changes. While the Federal OSHA discontinued their NEP, the NCDOL included LTC in the 2004 - 2008 Strategic Plan. This document specifies the state specific inspection procedures to be used during LTC facility inspections.

D. **Background.**

Long Term Care (LTC) Facilities had one of the highest rates of injury and illness among industries for which nationwide lost workday injury and illness (LWDII) rates were calculated for Calendar Year 2000 (CY2000). According to data from the Bureau of Labor Statistics (BLS), the national average LWDII rate for private industry for CY2000 was 3.0. LTC Facilities (employers within SIC codes 8051, 8052, and 8059) experienced an average LWDII rate of 7.9, despite the availability of feasible controls which have been identified to address hazards within this industry.

This SEP will focus primarily on the hazards which are prevalent in LTC Facilities, specifically, ergonomic stressors relating to resident handling; exposure to blood and other potentially infectious materials; exposure to tuberculosis; and slips, trips, and falls. As detailed in the FOM, when additional hazards come to the attention of the CSHO, the scope of the inspection will be expanded to include those hazards. This SEP addresses only enforcement-related procedures. Voluntary guidelines published by OSHA will not be used as a basis for citations issued under this SEP.

CY 2000 data from BLS indicate that overexertion and injuries from slips, trips, and falls account for a high percentage of total nonfatal occupational injury and illness cases with days away from work in LTC Facilities. Taken together, these account for 72% of all cases involving days away from work (53.4% from overexertion and 18.6% from slips, trips, and falls).

OSHA enforcement data (from the IMIS) indicate that the most frequently cited standard in LTC Facilities is 29 CFR 1910.1030, the Bloodborne Pathogens (BBP) Standard. Employees working in LTC Facilities have been identified by the Centers for Disease Control and Prevention (CDC) as having a high incidence of exposure to Tuberculosis (TB).

Workplace violence is a recognized hazard in LTC Facilities. Section I of this SEP addresses outreach, training, and information for the purpose of advancing awareness of this hazard. In the year 2000, BLS data recorded 3,702 occupational injuries and illnesses involving days away from work in LTC Facilities that were attributable to violence inflicted on staff. During the period from 1992-2000, there were 29 homicides in this industry from violence toward staff.

The efforts set forth herein are designed to meet the NCDOL Division of Occupational Safety and Health Strategic Management Plan, October 1, 2003 - September 30, 2008 goals and Strategic Plan (2004-2008) goals in addressing the requirements of Government Performance and Results Act (GPRA), as this industry group was identified in NCDOL 2003 - 2008 Strategic Plan Goal 1.4. Under this Strategic Plan, NCDOL committed to reducing the number of worker injuries, illnesses, and fatalities by 15% in industries characterized by high-hazard workplaces. This goal is to be achieved by focusing state-wide attention and resources on the most prevalent types of workplace injuries and illnesses and the most hazardous workplaces.

E. **Definitions.**

1. Days Away, Restricted, or Transferred (DART) Rate: (The DART rate is the same calculation as the Lost Workday Injury and Illness (LWDII) rate and has replaced the LWDII rate for the OSHA 300 logs, see CPL 0-2.131 - Recordkeeping Policies and Procedures Manual.) This includes cases involving days away from work, restricted work activity, and transfers to another job. It is calculated using the formula (N ÷ EH) x (200,000) where N is the number of cases involving days away and/or restricted work activity, and/or job transfer; EH is the total number of hours worked by all employees during the calendar year; and 200,000 is the base number of hours for 100 full-time equivalent employees.

For example: Workers of an establishment including management, temporary, and leased workers worked 645,089 hours at this worksite. There were 22 injury and illness cases involving days away and/or restricted work activity and/or job transfer from the OSHA-300 Log (total of column H plus column I). The DART rate would be (22 ÷ 645,089) x (200,000) = 6.8.

2. Lost Workday Injury and Illness (LWDII) Rate: This includes cases involving days away from work and restricted work activity and is calculated based on (N ÷ EH) x (200,000) where N is the number of lost work day injuries and illnesses combined, EH is the total number of hours worked by all workers during the calendar year and 200,000 is the base number of hours for 100 full-time equivalent workers.

For example: Workers of an establishment including management, temporary, and leased workers worked 645,089 hours at this worksite. There were 22 lost workday injuries and illnesses from the OSHA- 200 (totals in columns 2 and 9). The LWDII rate would be (22 ÷ 645,089) x (200,000) = 6.8.

F. **Program Procedures.**

LTC assignments will be generated through accidents, complaints, referrals, SST and General Schedule criteria. The assignments will have priority based upon the generation method per instructions in the FOM.

G. **Inspection Procedures.**

Inspections initiated under this SEP will be scheduled and conducted in accordance with provisions of the FOM, except as noted below. Unprogrammed inspections will be expanded to cover the elements of a LTC inspection (BBP, TB, Ergo and slips, trips and falls).

1 Privacy.

a. Residents:

i. Respect for residents' privacy must be a priority during any inspection.

ii. In evaluating resident handling or other hazards (e.g., BBP, tuberculosis) DO NOT review any resident records that include personally identifiable health information, including diagnoses, laboratory test results, etc., provided by the employer.

iii. Evaluations of workplace health and safety issues in this SEP may involve assessment of resident handling. Resident handling activities may take place in resident rooms, restrooms, shower and bathing areas or other areas where the privacy of residents could be compromised. Documenting resident handling activities by videotaping or photography requires the resident's informed, written consent. Family members or

guardians may give consent for those residents who are incapable of giving informed consent (see Appendix A).

b. Employees' Records:

i. If employee medical records are needed that are not specifically required by an OSHA standard (e.g., the results of medical examinations, laboratory tests, medical opinions, diagnoses, first aid records, reports from physicians or other health care providers), they must be obtained and kept in accordance with 29 CFR 1910.1020 - Access to Employee Exposure and Medical Records.

ii. Health and Human Services' Standards for Privacy of Individually Identifiable Health Information 45 CFR 164.512 (b)(1)(v), state that an employer (or its health care provider) can disclose and use confidential employee health information when conducting or evaluating workplace medical surveillance; or to evaluate whether an employee has a work-related illness or injury; or to comply with OSHA requirements under 29 CFR parts 1904 through 1928, 30 CFR parts 50 through 90, or under state law having a similar purpose.

2. Recordkeeping.

Recordkeeping issues must be handled in accordance with OSHA Instruction CPL 2-0.131, Recordkeeping Policies and Procedures Manual, CPL 2-2.69 - *Enforcement Procedures for the Occupational Exposure to Bloodborne Pathogens*, or other relevant field guidance. A partial walkthrough may be conducted to interview workers in order to confirm and verify the injury and illness experience. Any serious violations that are observed in the vicinity or brought to the attention of the CSHO must be investigated and may be cited.

3. Ergonomic Risk Factors Relating to Resident Handling.

This section provides guidance to OSHA personnel for conducting inspections in accordance with this SEP as it relates to ergonomic risk factors associated with resident handling. These inspections shall be conducted in accordance with the FOM instructions intended to identify case outcomes as early as possible in the inspection process, allowing resources to be allocated efficiently.

Establishment Evaluation: Inspections of resident handling risk factors will begin with an initial process designed to determine the extent of resident handling hazards and the manner in which they are addressed. This will be accomplished by an assessment of establishment incidence and severity rates, whether such rates are increasing or decreasing over a three year period, and whether the establishment has implemented a process to address these conditions in a manner which can be expected to have a useful effect. When assessing an employer's efforts to address these conditions, the CSHO should evaluate program elements, such as the following:

a. Program Management.

i. Whether there is a system for hazard identification and analysis.
ii. Who has the responsibility and authority for compliance with this system.
iii. Whether employees have provided input in the development of the establishment's lifting procedures.
iv. Whether there is a system for monitoring compliance with the establishment's policies and procedures and following up on deficiencies.
v. If there have been recent changes in policies/procedures and what effect they have had (positive or negative) on injuries and illnesses.

b. Program Implementation.

i. How resident mobility is determined.
ii. The decision logic for using lift assist devices, and how often and under what circumstances manual lifts occur.
iii. Who decides how to lift patients.
iv. Whether there is an adequate quantity and variety of appropriate lift assist devices available and operational. Note that no single lift assist device is appropriate in all circumstances. Manual pump devices may create additional hazards.
v. Whether there are an adequate number of slings for lift assist devices, double handled gait belts, or other transfer assist devices (such as but not limited to slip sheets, pivot transfer devices) available and maintained in a sanitary condition.
vi. Whether the policies and procedures are appropriate to reduce exposure to the lifting hazards at the establishment.

c. Employee Training.

Whether employees have been trained in the recognition of hazards associated with resident handling, the early reporting of injuries and in the establishment's process for abating those hazards.

d. Occupational Health Management.

Whether there is a process to ensure that disorders are identified and treated early to prevent the occurrence of more serious problems and whether this process includes restricted or accommodated work assignments.

After evaluating the facility's incidence and severity rates and the extent of the employer's program, a decision will be made as to the need to continue the ergonomic portion of the inspection. Where there is a need to address these issues, the CSHO will

follow NCDOL instructions in determining whether to send an Ergonomic Hazard Alert Letter, other communication, or issue citations.

Citation Guidance: Refer to the FOM and other OSHA reference documents prior to proceeding with citation issuance.

4. Slip, Trips, and Falls.

This section provides general guidance related to these types of hazards when conducting inspections in a LTC Facility.

a. Evaluate the general work environments (i.e., dietary, hallways, laundry, shower/bathing areas, points of access, and egress) and document hazards likely to cause slips, trips, and falls such as but not limited to:

   i. Slippery or wet floors; uneven floor surfaces; cluttered or obstructed work areas/ passageways; poorly maintained walkways; broken equipment; or inadequate lighting (especially for night shift).
   ii. Unguarded floor openings and holes.
   iii. Damaged or inadequate stairs and/or stairways.
   iv. Elevated work surfaces which do not have standard guardrails.
   v. Inadequate aisles for moving residents.

b. Note any policies, procedures and/or engineering controls used to deal with wet surfaces. These would include but are not limited to ensuring spills are reported and immediately cleaned up, posting signs/barriers alerting employees to wet floors, passageways/aisles kept clear of clutter, and using appropriate footgear. Where appropriate, evaluate the use of no-skid waxes or other types of coated surfaces designed to enhance surface friction.

Citation Guidance: Where hazards are noted, the CSHO should cite the applicable standard (standards can be found in subparts D and J of 29 CFR 1910 and other applicable standards). If employees are exposed to falling hazards while performing various tasks including maintenance from elevated surfaces, then determine the applicability of 29 CFR 1910.23(c)(1), (c)(3) and 1910.132(a).

5. Bloodborne Pathogens.

This section describes procedures for conducting inspections and preparing citations for occupational exposure to blood and other potentially infectious materials (OPIM) in LTC Facilities. This is not an exhaustive list. For further detailed guidance, CSHOs should refer to OSHA Instruction CPL 2-2.69, *Enforcement Procedures for the Occupational Exposure to Bloodborne Pathogens*. In addition, outreach and educational materials are available on the Internet and other references are provided in the appendices to this document.

a. Evaluate the employer's written Exposure Control Plan (ECP).

b. Assess the implementation of appropriate engineering and work practice controls.

i. Determine which procedures require the use of a sharp medical device (e.g., use of a syringe for the administration of insulin) and determine whether the employer has evaluated, selected, and is using sharps with engineered sharps injury protection (SESIPs) and needle-less systems.

ii. Confirm that all tasks involving sharps have been evaluated for the implementation of safer devices. For example, determine whether the employer has implemented a policy requiring use of safety engineered needles for pre-filled syringes and single-use safety engineered blood tube holders.

iii. Determine whether the selection of safer devices was based on feedback from non-managerial employees responsible for resident medical care and documented in the plan.

iv. If a safer device is not being used, determine if the use of a safer device would compromise patient safety or the outcome of a medical procedure.

v. Ensure that this is documented in the employer's ECP.

c. Ensure that proper work practices and personal protective equipment are in place.

d. Assess whether regulated waste disposal is properly handled within the facility.

e. Evaluate and document the availability of hand washing facilities. If immediate access to hand washing facilities is not feasible, ascertain whether skin cleansers are used (e.g., alcohol gels).

f. Assess the use of appropriate personal protective equipment (e.g., masks, eye protection, face shields, gowns and disposable gloves, including latex free gloves, as appropriate).

g. Ensure that a program is in place for immediate and proper clean-up of spills, and disposal of contaminated materials, specifically for spills of blood or other body fluids.

h. Ensure that the employer has chosen an EPA-approved appropriate disinfectant to clean contaminated work surfaces.

i. Determine that the employer has made available to all employees with occupational exposure to blood and OPIM the hepatitis B virus (HBV) vaccination series within 10 working days of initial assignment.

j. Ensure that healthcare workers who have contact with residents or blood and are at ongoing risk for percutaneous injuries are offered an antibody test, in accordance with the U.S. Public Health Service Guidelines.

k. Investigate procedures implemented for post-exposure evaluation and follow-up following an exposure incident:

i. Determine if establishment-specific post-exposure protocols are in place (i.e., where and when to report immediately after an exposure incident).

ii. Determine if medical attention is immediately available, including administration of a rapid HIV test, as currently recommended by the U.S. Public Health Service Guidelines.

iii. Ensure that information provided to the employer following an exposure incident is limited to those elements defined in paragraph (f)(5) of the standard.

l. Observe whether appropriate warning labels and signs are present.

m. Determine whether employees receive training in accordance with the standard.

n. Evaluate the employer's Sharps Injury Log (Note: An employer may use the OSHA 300, as long as the additional fields are included on a separable page and any identifiers are removed. However, CSHOs may suggest that employers simply use a separate sharps-injury log. A sample log is available in CPL 2-2.69)

o. Determine whether the log includes the required fields.

p. Ensure that employee's names are not on the log, but that a case or report number indicates an exposure incident.

q. Determine whether the employer uses the information on the Sharps Injury Log when reviewing and updating its ECP.

Citation Guidance: If an employer is in violation with the Bloodborne Pathogens Standard, the employer will be cited in accordance with CPL 2-2.69.

6. Tuberculosis (TB).

This section provides guidance for conducting inspections and preparing citations for the occupational exposure to Tuberculosis specific to LTC Facilities. This is not an exhaustive list. For further detailed guidance, CSHOs should refer to OSHA Instruction CPL 2.106, *Enforcement Procedures and Scheduling for Occupational Exposure to Tuberculosis*.

a. Determine whether the establishment has had a suspected or confirmed TB case within the previous 6 months prior to the date of the opening conference. If not, do not proceed with this section of the inspection. If a case has been documented or suspected, proceed with inspection according to the guidance document, CPL 2.106, referenced above.

b. Determine whether the establishment has procedures in place to promptly isolate and manage the care of a resident with suspected or confirmed TB, including an isolation room and other abatement procedures.

c. Determine whether the establishment offers tuberculin skin tests for employees responsible for resident care, specifically those described in CPL 2.106, referenced above.

Citation Guidance: The CSHO should refer to CPL 2.106, *Enforcement Procedures and Scheduling for Occupational Exposure to Tuberculosis (TB)* for enforcement procedures including citation guidance for:

a. Respiratory Protection 29 CFR 1910.134
b. Accident prevention signs, 29 CFR 1910.145.
c. Access to employee medical records, 29 CFR 1910.1020.
d. Recordkeeping, 29 CFR 1904.

H. **Outreach.**

The outreach efforts of Education, Training and Technical Assistance (ETTA) and the Consultative Services Bureau (CSB) will be in accordance with the goals set forth in the Division of Occupational Safety and Health Strategic Management Plan, October 1, 2003 - September 30, 2008

I. **Recording and Tracking.**

1. LTC Facilities Inspections from Unprogrammed Inspections.

For all unprogrammed inspections conducted in conjunction with a LTC Facilities SEP inspection, the OSHA-1 forms must be marked as "unprogrammed" in "Inspection Type" with the appropriate unprogrammed activity identified (accident, complaint, referral, etc).

2. LTC Facilities Inspections from Programmed Inspections.

The OSHA-1 forms must be marked as "programmed planned" in Inspection Type with the appropriate Programmed Activity identified (SST, Health GS list, Safety GS list, etc).

3. Other Codes for the OSHA 1.

a. Mark the "National Emphasis" box with the value "NURSING".

b. Select 'Strategic Plan Activity' and enter the value "LONG TERM CARE FACILITIES".

c. OSHA 1 Optional Information, Item 42 codes, as follows:

S-16	General Duty Ergonomic Citation Issued
S-17	Ergonomic Hazard Alert Letter Issued
N-02-BLOOD	Blood Borne Pathogen Related Inspection
N-02-TB	TB Related Enforcement Inspection
N-03-UED	Upper Extremity Disorders
N-03-BACK	Back Disorders
N-03-ERGO-CIT	Nursing NEP Insp - 5(a)(1) Ergo. Citation Issued
N-03-ERGO-LTR	Nursing NEP Insp - Ergo. Hazard Alert Letter Issued
N-03-OTHER	Other Ergonomic Disorders

J. **Program Evaluation.**

BLS data on SICs 8051, 8052 and 8059 will be reviewed annually to determine the effectiveness of the program.

Signed on Original
Ed Geddie
Health Standards Officer

Signed on Original
Kevin Beauregard
Assistant Director

8/02/04
Date of Signature

Appendix A: Release and Consent

I hereby consent and release to the N.C. Department of Labor, Division of Occupational Safety and Health (OSHA), the right to use my picture and sound being videotaped or photographed during an OSHA inspection of _____ (name of facility) commenced on _____(date). I understand that this videotape or photograph will be used solely to document employee safety and health conditions at the facility, and may be used as evidence in legal proceedings related to those conditions.

_____
Signature of Resident /Date

In the event that there has been a medical or legal determination that a resident can not give informed consent to be videotaped or photographed, the following shall be used:

On behalf of _____ (name of resident), I hereby grant to the N.C. Department of Labor, Division of Occupational Safety and Health (OSHA), the right stated above.

_____
Printed name of person authorized to give informed consent on resident's behalf

_____
Signature of Authorized Person/ Date

_____
Signature of Witness/ Date

Appendix B: Supporting Documents

References:

1. Title 29 Code of Federal Regulations Part 1904.

2. Title 29 Code of Federal Regulations Part 1910.

3. North Carolina Field Operations Manual

4. Memorandum dated February 10, 1998 from Director, Compliance Programs, John B. Miles, Jr. to Regional Administrators regarding Nursing Home Initiative Inspections Policy and Procedures

5. OSHA Notice 04-02 (CPL 2), Site-Specific Targeting 2002 (SST-02), April 19, 2004 (or most current revision).

6. OPN 124 – most current revision.

7. Occupational Injuries and Illnesses; Recording and Reporting Requirements, published in the *Federal Register* on January 19, 2001 (66 FR 5915) and following years.

8. OSHA Instruction CPL 0-2.131, Recordkeeping Policies and Procedures Manual (RKM), January 1, 2002.

9. OSHA Instruction CPL 2.111, Citation Policy for Paperwork and Written Program Requirement Violations, November 27, 1995.

10. OSHA Instruction CPL 2-0.51J, Enforcement and Limitations under the Appropriations Act, May 28, 1998.

11. OSHA Instruction CPL 2.25I, Scheduling System for Programmed Inspections, January 4, 1995.

12. OSHA Instruction CPL 2.103, Field Inspection Reference Manual (FIRM), September 26, 1994.

13. OSHA Instruction STP 2-0.22B, State Plan Policies and Procedures Manual, March 21, 2001.

14. OSHA Instruction TED 8-0.2, OSHA Strategic Partnerships for Worker Safety and Health, November 13, 1998.

15. OSHA Instruction TED 3.5, Interim Guidance for Voluntary Protection Programs, May 10, 2002.

16. OSHA Instruction TED 8.1a, Revised Voluntary Protection Programs (VPP) Policies and Procedures Manual (May 24, 1996).

17. Log Data Collection System Procedures Manual, Version 6.0: 2000 Log Data Collection Initiative.

18. Bureau of Labor Statistics (BLS), Table 1. Incidence Rates of Nonfatal Occupational Injuries and Illnesses by Industry and Selected Case Types, 2000.

19. OSHA Instruction CPL 2.106, Enforcement Procedures and Scheduling for Occupational Exposure to Tuberculosis, February 9, 1996.

20. OSHA Instruction CPL 2-2.69, Enforcement Procedures for the Occupational Exposure to Bloodborne Pathogens Standard, 29 CFR 1910.1030, includes revisions mandated by the Needlestick Safety and Prevention Act (November 27, 2001)

21. OSHA Instruction STD 1-1.13, Fall Protection in General Industry 29 CFR 1910.23(c)(1) (c)(3), and 29 CFR 1910.132(a)

22. OSHA Instruction CPL 2.90, Guidelines for Administrating of Corporate-Wide Settlement Agreements, June 3, 1991.

23. 45 CFR Subtitle A, Subchapter C, Part 164 - Security and Privacy, Subpart E - Privacy of Individually Identifiable Health Information, Section 164.512.

24. Reported Tuberculosis in the United States, 2000. Centers for Disease Control and Prevention. Division of TB Elimination. August 2001.

25. Tuberculosis in the Workplace. Institute of Medicine. Marilyn J. Field, Editor. Committee on Regulating Occupational Exposure to Tuberculosis. Division of Health Promotion and Disease Prevention. National Academy Press 2001.

26. Section 5(a)(1) of the Occupational Safety and Health Act of 1970.

27. Section 95-129(1) of the Occupational Safety and Health Act of North Carolina..

Publications:

1. NIOSH, Musculoskeletal Disorders and Workplace Factors, 2nd printing, US DHHS, CDC, NIOSH Pub No. 97-141

2. Musculoskeletal Disorders and the Workplace: Low Back and Upper Extremities National Academy of Science, Institute of Medicine (2001).

3. Back Injury Prevention Guide in the Health Care Industry for Health Care Providers, CalOSHA (11/97)

4. NIOSH, Elements of Ergonomic Programs: A Primer based on Workplace Evaluations of Musculoskeletal Disorders, DHHS/NIOSH Pub. No. 97-117 [Note: There are links on the Ergonomics Tech Links page to the NIOSH documents]

5. Guidelines for Preventing Workplace Violence for Health Care and Social Service Workers, OSHA publication # 3148

OPN 132 cont'd.

Web links:

1. http://www.cdc.gov/niosh/homepage.html
2. http://www.cdc.gov/niosh/healthpg.html
3. http://www.cdc.gov/niosh/ergopage.html
4. http://www.dir.ca.gov/dosh/dosh_publications/backinj.pdf
5. http://www.osha.gov/SLTC/ergonomics/ergonomicreports_pub/index.html#80
6. http://www.osha.gov/SLTC/workplaceviolence/guideline.html
7. http://www.osha.gov/SLTC/workplaceviolence/index.html
8. http://www.osha.gov/SLTC/nursinghome/index.html
9. http://www.osha.gov/SLTC/nursinghome_ecat/index.html
10. http://www.osha.gov/SLTC/tuberculosis/index.html

Selected Literature:

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2. Brophy. M.O., Achimore, L., Moore-Dawson, J. Reducing Incidence of low-back injuries reduces cost. AIHA Journal, 62(4), 508-511, 2001.

3. Charney, W., Zimmerman, K., and Walara, E. The lifting team: a design method to reduce lost timeback injury in nursing. AAOHN Journal, 39(5), 231-234, 1991.

4. Cohen-Mansfield, J., Culpepper, W.J. II & Carter, P. Nursing staff back injuries: prevalence and costs in long term care facilities. AAOHN Journal 44(1):9-17, 1996.

5. Engels, J.A., van der Gulden, J. W. J., Senden, T. F., Hertog, C. A. W. M., Kolk, J. J., & Binkhorst,R. A. Physical work load and its assessment among the nursing staff in nursing homes. JOM 36(3),338-345, 1994.

6. Gagnon, M., Sicard, C. and Sirois, J.P. Evaluation of forces on the lumbo-sacral joint and assessmentof work and energy transfers in nursing aides lifting patients. Ergonomics, 29(3), 407-421, 1986.

7. Garg, A. Long-term effectiveness of "zero-lift program," in seven nursing homes and one hospital.U. S. Dept. of Health & Human Services, CDC, NIOSH. August 16, 1999. [OSHA Docket S777, Ex. 32-311-1-4]

8. Garg, A., & Owen, B. Reducing back stress to nursing personnel: an ergonomic intervention in anursing home. Ergonomics, 35(11), 1353-1375, 1992.

9. Garg, A., & Owen, B. An ergonomic evaluation of nursing assistants' jobs in a nursing home.Ergonomics, 35(9), 979-995, 1992.

OPN 132 cont'd.

10. Garg, A., Owen, B., Beller, D., & Banaag, J. A biomechanical and ergonomic evaluation of patienttransferring tasks: wheelchair to shower chair and shower chair to wheelchair. Ergonomics, 34(4), 407- 419, 1991.

11. Garg, A., Owen, B., Beller, D., & Banaag, J. A biomechanical and ergonomic evaluationof patient transferring tasks: Bed to wheelchair and wheelchair to bed. Ergonomics, 34(3), 289-312, 1991.

12. Jansen, R.C. Back injuries among nursing personnel related to exposure. Applied Occupational and Environmental Hygiene 5(1), 38-45, 1990.

13. Kroll, B. B., and Lowewenhardt, P. M. Staff involvement critical in enhancing a safe environment for care. The Florida Nurse, 43(10), 13-14, 1995.

14. Lusk, S.L. Violence experienced by nurses' aides in nursing homes: an exploratory study. AAOHN Journal, 40(5), 237-241, 1992.

15. McCormack, J. Uplifting news for patients, worker safety, and financial returns. Association of Occupational Health Professionals, Jan-Feb. 1-8, 1996.

16. Ronald, L.A., Yassi, A. Spiegel, J., Tate, R.B., Tait, D., and Mozel, M.R. Effectiveness of installing overhead ceiling lifts. AAOHN Journal, 50 (3), 120-127, 2002.

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18. Stobbe, T.J., Plummer, R.W., Jensen, R.C. and Attfield, M.D. Incidence of Low Back Injuries Among Nursing Personnel As A Function of Patient Lifting Frequency. Journal of Safety Research, 19, 21-28, 1988.

19. U.S. Department of Health and Human Services. National Institute for Occupational Safety and Health. Guidelines for Protecting the Safety and Health of Health Care Workers. Washington, D.C.: U.S. Government Printing Office, September 1988. [http://www.cdc.gov/niosh/88-119.html]