

Ergonomic Interventions for Child Development Centers



PROBLEM

- Many CDC's throughout the Marine Corps face many tough challenges. One such challenge is the high level of workplace musculoskeletal disorders (WMSD's) sustained from working with the children in this difficult environment.
- The high injury / illness rate is not the only challenge. Due to the physically difficult and mentally stressful nature of this work, retention of staff has also been a common problem. Attempts to remedy the problem with lifting belts and other quick fixes have not met with success.



SOLUTIONS

- Recent implementation of simple interventions have been effective in preventing injuries and improving staff retention. Each individual intervention may not be effective by itself, but the combination of interventions has been successful.
- Proper management, appropriate pay, good communication etc. are also important components of this success



PHYSICAL WORK PLACE FACTORS

- Force
 - Frequent Lifting
 - Awkward Lifting
 - Heavy Lifting (> 25 lbs)
 - High Hand
- Postures
 - Awkward
 - Static
- Compression
- Vibration
- Repetition
- Duration



CONTRIBUTING FACTORS

- Personal
 - Age
 - Gender
 - Physical Fitness
 - Pre-existing Conditions
- Work Place
 - Stress



TASKS: CAREGIVERS LIFT & CARRY CHILDREN

- **Hazards:** Frequent, awkward lifting



TASK: CAREGIVERS LIFT CHILDREN ONTO CHANGING TABLE

- **Intervention:** Changing table with stairs



BENEFITS

- Toddlers receive excellent exercise and balance training by walking up the stairs with only necessary assistance
- This ergonomically designed changing table would eliminate a significant number of injuries each year.
- The stairs fold in easily and do not create further hazards for the children or staff.
- The caregivers readily accepted this piece of equipment.



TASK: CAREGIVERS LIFT CHILDREN

Intervention: Changing table with stairs, and ergonomics awareness training

Education is a key step in injury prevention

- Ergonomic principles
- Handling techniques
- Recognize
 - Risk factors
 - WMSD signs and symptoms



TASK: CAREGIVERS INTERACT WITH CHILDREN ON THEIR LEVEL

- **Hazards:** Caregivers bend, stoop and sit on hard surfaces causing contact stress, hyper-flexion of knees, & poor posture



BENEFITS

- Soft kneepads reduce contact stress which reduces knee pain
- If caregivers are going to be kneeling on a carpeted or padded floor, then a soft kneepad may be all they need.
- Harder work surfaces and larger workers may require thicker kneepads.
- Involve caregivers in the procurement process to enhance usage.



TASK: CAREGIVERS INTERACT WITH CHILDREN ON THEIR LEVEL

- **Hazards:** Poor posture, hyper-flexion of knees



Caregivers must interact with the children at their level; therefore, they sit in child chairs (9"), eat at their tables (18"), or sit on the floor.



TASK: CAREGIVERS SIT IN CHILD-SIZED CHAIR

- **Interventions:** Adult-size seat with child-sized legs, stackable chairs, padded floor furniture



TASK: CAREGIVERS BEND, STOOP AND CRAWL ON HARD SURFACE

- **Interventions:** alternative flooring surface, knee pads



TASK: CAREGIVERS BEND AND REACH TO LIFT CHILDREN & SUPPLIES

- **Hazards:** Awkward and frequent lifting



Task: Caregivers Bend and Reach to Lift Children & Supplies

- **Interventions:** Training in proper lifting techniques, stretch n' flex programs, adult size work / rest area



TASK: CAREGIVERS INTERACT WITH CHILDREN ON THEIR LEVEL

- **Hazards:** Awkward postures



TASK: CAREGIVERS BEND FORWARD TO INTERACT WITH CHILDREN

- **Interventions:** U-shaped or banana tables,



Adult-size
seat with
child-sized
legs,
stackable
chairs




OTHER ISSUES

- Challenge: Slippery surfaces near sinks and drinking fountains
 - Solutions: High COF flooring, anti-fatigue mat

 - Challenge: Adults bending to use child sinks
 - Solutions: Two sinks, foot control with two spouts

 - Challenge: Laundry services
 - Solutions: Spring-bottom carts, training

 - Challenge: Food services; Playground
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CONCLUSION

- DoD CDCs face many tough challenges such as a high level of workplace musculoskeletal disorder risks and employee turnover
- Each individual intervention may not be effective by itself but the combination of interventions should be successful at reducing injuries and improving staff retention
- Management commitment, training, and employee involvement are also important components of a successful Ergonomics program