Risk &
Injury
Management
Services

KPV
Kindergarten Parents Victoria Inc

Workshop

What can we do to reduce musculoskeletal disorders (injuries) in Children's Services ?

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Zora Marko

1. Background
   - KPV OHS Champion
   - Experience in the Health Industry and Early Childhood Sector
   - 20 years industrial relations and advocacy experience

2. Experience in Children's Services industry
   - KPV Early Childhood Management Advisor
   - OHS Project Co-ordinator

Chris Fitzgerald

1. Background
   - Ergonomist, applying basic principles
   - Broad range of industries
   - Injury management / injury prevention / usability
   - Whole of industry change

2. Experience in Children's Services industry
   - WorkSafe Victoria project
   - WorkSafe Children's Services OHS Compliance Kit

About this workshop

- What the MSD risk factors are for this work.
- What types of strategies are needed to control these risk factors.
- What simple but effective changes are possible in this environment
  - Your ideas, experience & suggestions

    &
  - Our ideas, experience & suggestions

Tasks to be covered

1. Working at low levels:
   - Floor level
   - Sitting levels
   - Cots
2. Storage & handling of equipment
   - Outdoor
   - Indoor
3. Change tables
4. Other hazards

Understanding what causes musculoskeletal disorders (injuries)

MSD Risk Factors

1. Force exertion
2. Postures & movements
3. Task frequency & duration
4. Environment
5. Other factors

Force Exertion

1. How much force is exerted
2. Direction of force
3. Repeated / awkward / sustained forces
4. Highest MSD risks =

   moderate to high force exertion

   +

   awkward postures & movements

Postures & Movements

1. Awkward or sustained postures
2. Extensive, awkward, forceful or repetitive movements
3. Affecting the
   - Low back
   - Upper back
   - Shoulders
   - Wrists / hands / fingers
   - Lower limbs

Task frequency & duration

1. How often?
2. How long?

Environment

1. Indoor / outdoor
2. Thermal
3. Lighting
4. Layout, clutter & obstacles

Other factors

1. Vibration
2. Nature of the load
3. Ability to grasp the object
4. Hazards when grasping the object

Injury risk factors combine

1. Injuries can occur suddenly or progressively
2. Tissues become overloaded
3. Children's services examples:
   - Bending & reaching down to floor level
   - Sitting on the floor & reaching
   - Handling large & / or heavy objects
   - Handling babies & infants
   - Other examples...

Children's Services Priority Tasks

1. Working at low levels:
   - Floor level
   - Sitting levels
   - Cots
2. Storage & handling of equipment
   - Outdoor
   - Indoor
3. Change tables
4. Other hazards

1. Working at low levels(1)

Tasks

- Getting down / working at floor level / getting up
  - Children on mattresses
  - Babies
- Sitting on chairs
  - Children's versus adult chairs
- Reaching / bending down
  - To babies in cots
  - To children / babies / toys / equipment

Musculoskeletal Injury Risks

- Floor level
  - Getting down & getting up
    - Extensive range of body movement (when compared to other occupational tasks)
    - Can load (or overload) the back, shoulders / arms / hands & legs
    - Can occur frequently, particularly with the younger age groups
    - No strategies for hand support to assist these movements yet seen
  - Working at floor level
    - Sitting or kneeling on the floor inherently involves an awkward posture
    - May occur for extended periods per time (10 to 15 minutes?)
    - Often on firm floor (carpet or lino)
    - Reaching forward may occur while in this posture

Operating at low levels is inherent to this work. However, minimal strategies seem to be in place to assist & support workers

Solutions / Risk Controls

- Floor level
  - Getting down & getting up
    - Can layout be changed?
    - Can equipment be used for worker to brace as they move up & down?
    - Adopt specific methods for moving to & from floor level unaided
    - Can an effective low adult chair reduce the need to sit at floor level?
  - Working at floor level
    - Can an effective low adult chair reduce the need to sit at floor level?
    - Can a pad or cushion be provided to improve worker comfort?
    - Device positioning strategies to minimise reaching to the baby, child or equipment while in this position?
    - Devise time limiting strategies to reduce the duration spent in this posture?

Musculoskeletal Injury Risks

- Sitting *(doesn't replace sitting at floor level)*
  - Adult chairs
    - Stool types versus conventional adjustable types.
    - Conventional chairs provide a backrest for support.
    - Can also be used as a handle to move the chair without having to bend & reach down. Not available with stools.
    - Conventional chairs may not go low enough – alternatives exist.
    - Designed to accommodate an adult & provide padding & adjustment (although adjustment features may not always be used).
    - Can occur for extended periods of time – activity related.
    - General clutter & obstacles on the floor can limit ability to use a chair.
  - Child chairs
    - Designed for children.
    - Smaller dimensions & lower than adult chairs, requiring greater effort to sit on one & rise from it.
    - Non padded.
    - In far greater abundance than adult chair options.

Your Solutions & Risk Controls

- Working at floor level

- Working at sitting level

Our Solutions / Risk Controls

- Working at floor level
  - Methods of moving to & from floor level
    - Bracing / transferring weight / using leverage & support
  - Use of low sitting height stools , ottomans or cushions
    - Provision of sitting devices specifically for low height situations
  - Preferred postures
    - Kneeling on one knee (knight's position) or golfers' kick for brief periods
    - Sitting or squatting on the floor
    - Avoid over reaching – prepare equipment & choose a position with best access to children & equipment
    - Limit duration of continuous periods when at lowest levels
  - Reduce clutter & improve layout
  - Engage child assistance where possible
  - Avoid
    - Bending & reaching downwards
    - Twisting & reaching to the side
    - Exertion of moderate or greater forces

Our Solutions / Risk Controls

- Working at sitting level
  - Adult chairs
    - Use adjustable chairs with backrests only?
    - Use chairs with a lower height range and narrower diameter 5 star base (ie. select chairs that are fit for the purpose).
    - Establish / identify the top of the backrest as a handgrip option when moving the chair.
    - Provide information, instruction & training on chair adjustment & use so these features are exploited by workers.
    - Re organise floor clutter to enhance the capacity of workers to use these chairs in different areas.
    - Organise their storage for best access
  - Children's chairs
    - Staff / workers shouldn't use them.

Musculoskeletal Injury Risks

- Working with cots (reaching & bending down)
  - Cots
    - If cot is too low & not height adjustable, worker may need to bend & reach down to handle or comfort the baby.
    - May be performed relatively often during a day.
    - Comforting a baby may result in this stooped posture being adopted for extended periods.
    - Moderate force may be exerted to lift babies & toddlers to & from the cot

Your Solutions & Risk Controls

- Working with cots

Our Solutions & Risk Controls

- Working with cots
  - Need height adjustable cots so the top of the mattress is not lower than 650 mm.
  - Need height adjustable side rails.
  - Adjustment features & side rail should be safe and easy to use for carers, babies & toddlers
  - A broader approach to improve relevant Australian Standards for cots used in Children's Services is needed (& KPV is working on this)

Musculoskeletal Injury Risks

<u>Outdoor</u>

- Handling large &/or heavy items
  - Such as A frames, long planks, tyres & large toys
    - Where & how they are stored (getting & returning them)
    - How often & how far they have to be handled
    - Setting them up & packing them down
    - Number of people performing these tasks
  - Removing & laying sandpit covers
  - Setting pads in place around some climbing structures

Musculoskeletal Injury Risks

Outdoor

- Excessive amount of equipment needs to be stored.
- Poor layout and storage options within store rooms or sheds, resulting in very inefficient storage & limited use of storage capacity.
- That is, shelving volume is too small.
- Poor & hazardous access to items on shelves (if available) as floor space is usually filled with items that don't fit into the shelves.
- Many larger items of play equipment such as A frames can be left in position or moved only infrequently.
- Some items awkward to handle such as large tyres, walking planks & climbing or A frames, particularly for 1 person.
- Some sand pit covers too big, heavy & awkward to handle.

Our Solutions & Risk Controls (1)

Outdoor

- Cull, cull, cull items that are redundant or hazardous!!!!!!
- Sort & store items relative to their shape, size & weight & their expected frequency of use – daily, weekly, seasonal.
- Organise the storage location & method of specific items to match the item & their frequency of use. For example, containers on shelves, large toys on floor underneath.
- Use larger shelves, 600 + deep , to increase the storage capacity of the shelves. For example, Bunnings shelves are 840 mm deep & fit 1 large plastic tub (600 to 740 mm long).
- Limit the height of the upper shelf so it is not higher than 1700 mm (provided large and / or heavy items (greater than 10 kgs) are not placed on the shelf
- With outdoor storage, avoid need to use steps to access higher storage levels

Our Solutions & Risk Controls (2)

Outdoor

- Purchase or protect outdoor structural / climbing equipment that can tolerate remaining outside.
- If necessary develop a security system such as chaining it together rather then carrying it into a shed or storeroom.
- Store items close to their point of use, such as those used in the sandpit. Make them safe.
- Use smaller, lighter sand pit covers with loop straps for grasping & sand bags with loop handles to hold the cover in place. If necessary use overlapping covers rather than a single larger, heavier cover.

Musculoskeletal Injury Risks

Indoor

- Handling large &/or heavy items
  - Such as block trolleys, kitchen sets, larger toys, tubs & boxes of equipment, sand pits & sleeping mats
    - Where & how they are stored (getting & returning them)
    - How often & how far they have to be handled
    - Setting them up & packing them down
    - Number of people performing these tasks
    - Hazardous clutter / trip hazards within storage areas
  - Accessing higher storage areas (steps/ladders/nothing)

Musculoskeletal Injury Risks

Indoor *(same issues as outdoor)*

- Large, heavy items that can be awkward to handle.
- Excessive equipment that needs to be stored.
- Poor layout and storage options within store rooms, resulting in very inefficient storage & limited use of storage capacity. Often floor areas within store rooms are cluttered & hazardous with overflow.
- Larger plastic tubs becoming bigger than shelf depth. They can be stored along their length & reduces overall storage capacity.
- Storage of commonly used items, such as mattresses are not always stored vertically & can be awkward & hazardous to access if stored horizontally & in a low position.
- Shelves are often very high (> 2 metres) to accommodate the large volume of items stored, & supplementary steps are used. These are inherently less stable & less safe.
- Block & other trolleys have small diameter wheels, no handles to grasp when moving the trolley & can be unstable & topple on children or workers. Often they are long & narrow. Other trolleys can't/ don't restrain the load & have low handles.

Solutions / Risk Controls (1)

Indoor

- Cull, cull, cull items that are redundant or hazardous!!!!!!
- Sort & store items relative to their shape, size & weight & their expected frequency of use – daily, weekly, seasonal.
- Organise the storage location & method of specific items to match the item & their frequency of use. For example, containers on shelves, large toys on floor underneath.
- Use larger shelves (where relevant & possible), 600 + deep , to increase the storage capacity of the shelves.
- Limit the height of the upper shelf so it is not higher than 1700 mm (provided large and / or heavy items (greater than 10 kgs) are not placed on the shelf

Solutions / Risk Controls (2)

Indoor

- Avoid need to use steps to access higher storage levels – if possible.
- If not, use most stable options available & organise shelf height relative to step height.
- Develop smaller, more stable block trolleys. Use 2 or 3 smaller ones to replace larger trolleys.
- Use better designed trolleys. Bigger wheels, high handles & capacity to restrain or hold the load.
- Expand use of transparent containers. Select size relative to items they will contain to limit weight.
- Store large tubs on individual shelve or no more than 2 high

3. Change tables

Tasks

1. Assisting / lifting an infant to & from the change table.
2. Accommodating the child safely on the table while changing them.

Musculoskeletal Injury Risks

Design (Bench) Guidelines

1. Steps
– No dimensions or design criteria defined.
– 4 steps up to 84 cm high bench. Approx. 17 cms high.
– Step not locked in drawn out position.
– No grasping options for the child.
2. Bench height (fixed)
– 84 cm plus mattress, will bring it to 90 cm (approx).
3. Bench depth
– 850 cm.
4. Overhead shelf
– 150 cm high / 30 cm from front of bench.
5. Toe well – indicated but dimensions not defined
6. Need to remain with baby / child while reaching to toiletries, nappies, clothes, tissues & soiled nappy bin.

Child Data – 2 year old

	Gender	5th %ile	95th %ile
Body weight (kgs)	Mixed	7.8	13.2
Heights (cms)			
Body to top of head	Female	**82.5**	95.5
	Male	85.0	**101.0**
Head to Rear Knee	Female	**65.5**	71.5
	Male	69.5	**75.5**
Change table depth	**85.0 cm**		

Musculoskeletal Injury Risks

1. Assisting / lifting an infant to & from the change table.
   - No grasping option to pull step out
   - Step not locked in place when pulled out, worker uses foot at end & reaches forward while guiding toddler up
   - Nothing for toddlers to grasp while on steps
   - Workers still lift to transfer but more likely from a higher position to reduce bending

Musculoskeletal Injury Risks

2. Accommodating the infant safely while changing them
   - Fixed bench height is difficult to suit range of workers
   - Forward reach to infant to change them can be awkward for shorter workers
   - Side to side orientation would reduce forward reach, but need a wider bench & greater vigilance to maintain infant safety
   - Capacity to store all required items requires overhead shelf storage which can compromise visual clearance.

Solutions / Risk Controls (1)

Change tables

- Handles for steps to pull them out.
- Rails for children to grasp when moving up & down steps.
- Steps should lock into place when pulled out.
- Minimise lifting children to & from steps & the bench.
- Manipulate bench height with different thickness padding.
- Consider side positioning of toddlers (provide it is safe).
- Good access to items needed to sink & items on the bench & in shelves or lockers.

4. Other hazards

General accommodation & storage

- Trip hazards
- Floor coverings
- Gates - door openings
- Office
- Chemical storage & handling

Solutions / Risk Controls

<u>General accommodation & storage</u>

- Trip hazards
  - Remove, reduce or change layout or position
- Gates -door openings
  - Disability access requirements prevail
  - Use permanent “gates” where they apply
- Office
  - Use the abundant reference material to improve furniture & equipment selection & layout (Officewise: A Guide to Health & Safety in the Office).
  - Use height adjustable workstations
- Chemical storage & handling
  - Choose smaller containers
  - Prevent decanting into smaller containers
  - Consider dispensing systems

Summary

- Children's Services MS injury risks & controls
- This environment can be controlled
- Employees should be involved
- Does not necessarily involve high cost
- Impact on reducing risks may be significant
- Changes need to be focused & well implemented

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Thank you

Any questions