

Understanding the Risks of Physical Restraints

Overview

The use of physical intervention and restrictive restraint procedures is a contentious issue. It is important that organizations discuss expectations of staff relating to use of any restraint procedures in a manner that considers internal policies/procedures and relevant legal, regulatory, or professional frameworks. The most common reference in these frameworks specifies that physical interventions only be used as a last resort, and when an individual poses a significant risk to self or others. CPI believes these reference points must be carefully considered and further defined at an organizational level to assure a comprehensive and consistent understanding by staff who may encounter physical aggression. Because CPI believes there is risk in any physical intervention, a question that is useful in considering organizational policy may be: Is the risk being presented greater than the risks inherent in a physical restraint?

Because physical interventions are not free from risk, the following information is provided to underscore the *Nonviolent Crisis Intervention*[®] training program philosophy related to providing the best possible *Care, Welfare, Safety, and Security*SM for all people involved in emergency situations where physical interventions are used.

Potential Risks Associated With the Use of Physical Interventions

In circumstances where it has been identified that physical interventions are an appropriate response to manage a prevailing risk associated with an individual's behavior, it is important that staff fully understand the adverse impact physical interventions may have. (See Figure 1.) While there is a need to reduce the psychosocial impact and soft-tissue and articular/bony injuries, there is a clear priority that every effort should be made to ensure restraint-related deaths are avoided.

Figure 1: Examples of Potential Injury or Harm

Psychosocial Injury

- Including posttraumatic stress disorder and damage to therapeutic relationships.

Soft-Tissue Injury

- Including injury to skin, muscles, ligaments, and tendons.

Articular or Bony Injury

- Including injury to joints and bones.

Respiratory Restriction

- Including compromise to airway, bellows mechanism, and gaseous exchange, which results in respiratory crisis or failure.

Cardiovascular Compromise

- Including compromise to the heart and the peripheral vascular system.

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Theories of Restraint-Related Deaths

There has been a growing body of opinion that highlights that specific interventions are associated with higher risks to the person being restrained. However, while this view remains dominant among practitioners, organizations, and legislators, evidence shows that while physical restraint has the ability to impede or restrict life-maintaining physiological functions, the imposed impediment is not uniform between different restraint positions and/or restraint techniques. In particular, the term positional asphyxia¹, which is misunderstood and inconsistently used and interpreted, is often viewed as the mechanism for sudden restraint-related death and has become synonymous with prone restraint—a conclusion primarily based on opinion.

In 2011, the Independent Advisory Panel on Deaths in Custody² commissioned a review of medical theories, case studies, and research that concluded that certain groups are more vulnerable to the risks of restraint as a result of specific biophysiological, interpersonal, situational, or attitudinal factors. From this review, it is clear that certain individuals have personal characteristics that may make them more vulnerable to restraint-related adverse outcomes and, in particular, restraint-related death. More recently, Barnett, Stirling, & Pandyan (2012)³ published a 30-year review of all the scientific studies related to the physiological impact of restraint and raised attention to the fact that few scientific studies on the physiological impact of restraint have been undertaken, with the findings from these not completely valid or generalizable to the real-life event. As a result of the recent published reviews, Figure 2 below illustrates an overview of the evidence from the literature, case studies, and experimental research and demonstrates that there are a number of complex issues related to adverse outcomes of restraint suggesting that restraint-related death, in particular, is a multi-factorial phenomenon.

Figure 2: Restraint-Related Deaths - A Multi-Factorial Event

Most Vulnerable Individuals	Contributing/Situational Factors
<ul style="list-style-type: none"> • People with serious mental illness. • People with intellectual disabilities or cognitive impairment. • People from minority ethnic groups. • People with a high body mass index. • Men aged 30–40 years. • Children and young people below the age of 20 years. • People who are held for prolonged periods of time.* <p><small>* While some researchers⁴ provide case-study evidence to suggest collapse can occur between two and 12 minutes, others argue⁵ that restraints involving prolonged, severe struggle are of greatest concern.</small></p>	<ol style="list-style-type: none"> 1. People who have a pre-existing health condition that is compromised by physical restraint: Respiratory disease, cardiovascular disease, epilepsy, obesity. 2. Stress-related cardiomyopathy: A weakening of the heart muscle triggered by high levels of emotional stress or anxiety resulting in high circulating levels of catecholamines (adrenaline and epinephrine). 3. External respiratory restriction as a result of the restraint position or technique: Positional asphyxia associated with prone, hog-tie, and flexed-seated restraint. 4. Intoxication: An adverse physiological state produced by a poison or other toxic substance (especially cocaine), which results in erratic or violent behavior. 5. Excited delirium: A combination of acute behavioral disturbance, agitation, severe anxiety, disorientation, and elevated body temperature; associated with severe mental illness and/or drug intoxication. 6. Respiratory acidosis: A decrease in respiratory ventilation resulting in a buildup of carbon dioxide leading to increased acidity in the blood and tissues. 7. Thromboembolic disease: A cardiovascular condition involving the obstruction of blood flow to one or more arteries in the lungs. 8. Use of prescribed psychotropic medication: Prescribed medication which may have an adverse effect on the person's physiology resulting in hypotension, respiratory compromise, and, in extreme cases, neuroleptic malignant syndrome.

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Minimizing Risks Associated With Restraint Use

Although there are a relatively small number of restraint-related deaths reported in health, educational, and social care environments occurring during and/or in close proximity to physical restraint⁶, these are often perceived to have occurred as a result of positional asphyxia.

As part of an overall approach to reduce risk, professional staff who are expected to manage behavior using physical restraint need to ensure that the training they receive provides sufficient information on restraint-related adverse outcomes so that they know how such factors can be minimized in order to maintain everyone's *Care, Welfare, Safety, and Security*SM. Figure 3 below highlights a range of best-practice indicators that should shape practice and enable organizations to reduce avoidable restraint, as well as minimize the risks of restraint when such measures are unavoidable.

Figure 3: Best-Practice Indicators

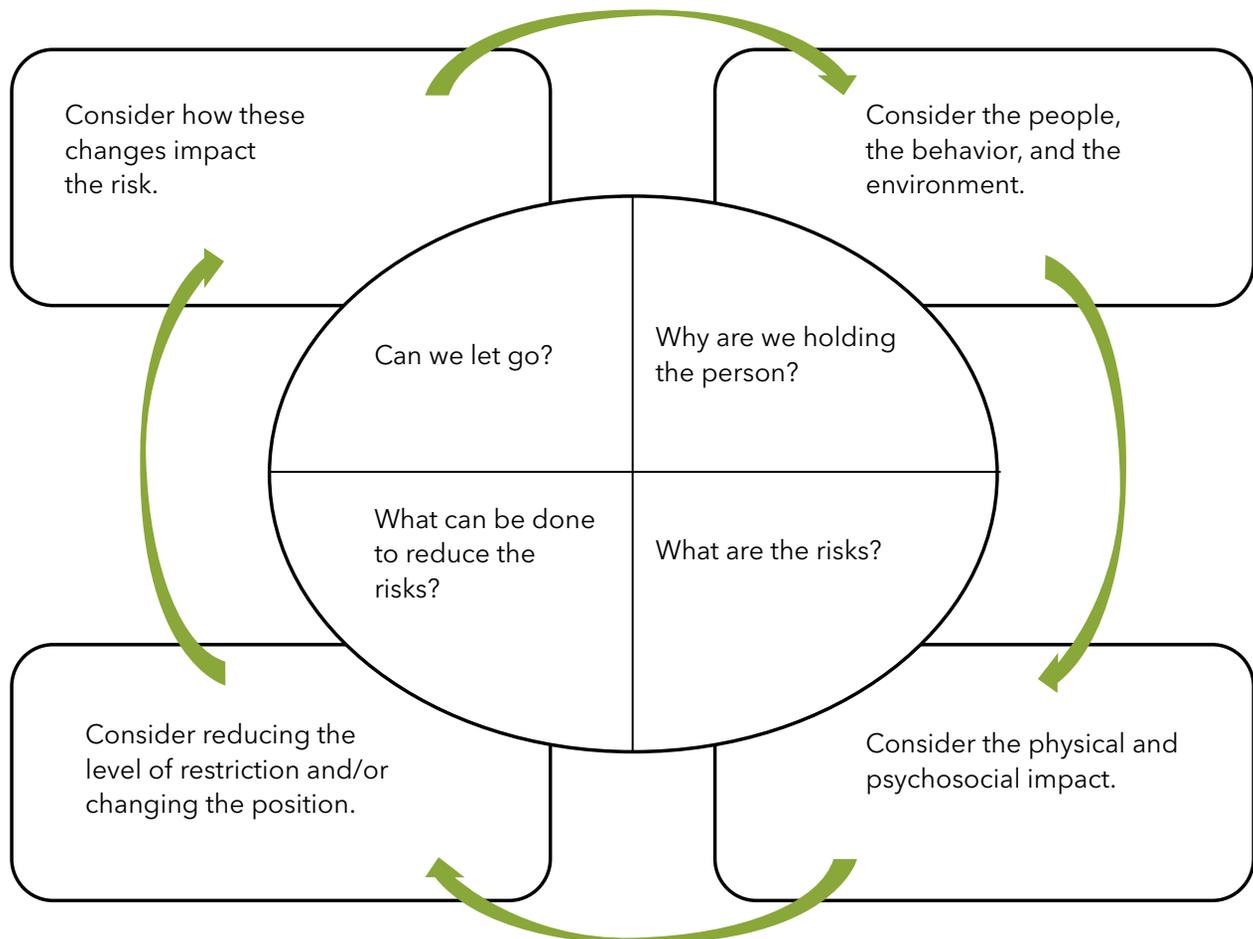
Common Considerations for the Use of Physical Interventions
<ul style="list-style-type: none"> • No element of pain is involved. • The intent is to calm the individual. • The intent is to keep the individual off the floor, thus reducing risks of restraint-related positional asphyxia and other injuries. • Team interventions are used when necessary. • Physical interventions should be used within an organization as part of a wider restraint-reduction strategy to minimize avoidable restraint. • As part of a restraint-reduction strategy, physical interventions should be used only when all other nonphysical interventions have failed to manage the prevailing risk. • Physical interventions should never be used as a punishment, to force control, gain compliance, or enforce rules. • People who are likely to be subject to the use of physical interventions should have an individual risk assessment completed in order to identify any specific contraindications associated with the person, including any known vulnerabilities that may increase the likelihood of an adverse consequence. Where possible, specific medical advice should be sought in order to fully assess the impact physical interventions may have on those individuals who are known to be in vulnerable groups. • All physical interventions should be authorized and approved by the organization where they are being used. • Only staff who have received training should use physical intervention techniques. • Staff using physical interventions must be fully aware of the risk associated with each intervention. They must monitor the individual's safety and well-being at all times, be able to identify signs of distress, and know how to respond to medical emergencies. (See Figure 5.) • In order to maximize the <i>Care, Welfare, Safety, and Security</i>SM of everyone, physical interventions should be used within the context of the <i>Opt-Out Sequence</i>SM (Figure 4) in order to promote early physical de-escalation. • Staff who use physical interventions should also be trained in emergency first aid so that they can respond to medical emergencies should they occur as a result of restraint. • Physical interventions should be used only for the minimum amount of time, using the minimum amount of restriction on the basis of prevailing risk staff are attempting to manage.

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Decision Making in Relation to the Ongoing Management of Behavior During Physical Restraint

During physical restraint, staff must plan to physically disengage as quickly and safely as possible so as not to prolong the event. The *Opt-Out Sequence*SM has been developed as an active decision-making framework to enable staff to limit the risks and achieve physical disengagement as soon as possible.

Figure 4: The Opt-Out SequenceSM



In order to ensure everyone's *Care, Welfare, Safety, and Security*SM during restraint, a number of key observations must be maintained, as such events can quickly become medical emergencies. Figure 5 illustrates some of the observations, sounds, signs, and symptoms along a continuum of low concern (section A) to high concern (section C), and identifies the corrective actions staff must take to ensure the individual's welfare is maintained and the risk of serious harm is reduced.

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Figure 5: Risks of Restraints: Warning Signs and Corrective Actions

	Warning Signs	Corrective Actions
A	<ul style="list-style-type: none"> • Shouts and swears at staff to “let go.” • Attempts to struggle free and/or injure self or others. • Is hostile and aggressive to self or others. 	<p>Treat as IMPORTANT.</p> <p>Manage the prevailing risk and follow the <i>Opt-Out Sequence</i>SM. Consider letting go as soon as possible, or reduce the level of restriction and/or change the position of the person.</p>
B	<ul style="list-style-type: none"> • Complains of difficulty breathing. • Complains of feeling sick and/or vomits. • Voids bladder and/or bowels. • Complains of pain or discomfort. • Limbs positioned awkwardly; not moving within normal range of motion; and/or sounds of crepitus. • Becomes distressed and/or cries. • Continually struggles; becomes increasingly hot/flushed/sweaty. 	<p>Treat as URGENT.</p> <p>Immediately assess level of restriction and check to ensure that you are not impeding or restricting breathing.</p> <p>Check movement of limbs and signs of fracture/dislocation.</p> <p>Follow the <i>Opt-Out Sequence</i>SM and consider letting go as soon as possible; reduce the level of restriction; and/or change the position of the person so he is seated upright, reclined (recumbent), or in a position that is not impeding or restricting breathing.</p> <p>Encourage person to relax and to take sips of a cold drink—assess hydration needs.</p> <p>Call for help—an independent person not involved in the physical restraint is often best to assess what is happening and what action needs to be taken.</p> <p>Refer person to medical practitioner as soon as possible for further assessment.</p>
C	<ul style="list-style-type: none"> • Unresponsive to requests or instructions. • Loss of or reduced consciousness. • Abruptly/unexpectedly stops struggling or suddenly calms down. • Sudden change in breathing pattern. • Has a seizure of epileptic or non-epileptic origin. • Blueness of lips/fingernails/ear lobes (cyanosis). • Tiny pinpoint red dots/bruises (called petechia) on the skin, particularly on the upper chest, neck, face, and around the eyes. 	<p>Treat as a MEDICAL EMERGENCY.</p> <p>Stop the restraint immediately—completely let go of the person.</p> <p>Call for emergency medical assistance. Follow emergency procedure protocol.</p>

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Examples of High-Risk Positions for Restraint-Related Positional Asphyxia



Illustrations are based on information from various individuals and resources. See Additional Resources and References.

Footnotes

1. Reay, D., Howard, J., Fligner, C., Ward, R. (1988). Effects of positional restraint on oxygen saturation and heart rate following exercise. *American Journal of Forensic Medicine and Pathology*, 9(1), 16-18.
2. Aiken, F., Duxbury, J., Dale, C., and Harbison, I. (2011). Review of the medical theories and research relating to restraint related deaths. Retrieved from Independent Advisory Panel on Deaths in Custody website: iapdeathsincustody.independent.gov.uk/news/review-of-medical-theories-on-restraint-deaths-published/
3. Barnett, R., Stirling, C., & Pandyan, A. D. (2012). A review of the scientific literature related to the adverse impact of physical restraint: Gaining a clearer understanding of the physiological factors involved in cases of restraint-related death. *Medicine, Science and the Law*, 52(3), 137-142. doi: 10.1258/msl.2011.011101
4. O'Halloran, R. & Frank, J. (2000). Asphyxial death during prone restraint revisited: A report of 21 cases. *American Journal of Forensic Medicine and Pathology*, 21, 39-52.
5. Parkes, J. (2000). Sudden death during restraint: A study to measure the effect of restraint positions on the rate of recovery from exercise. *Medicine, Science and the Law*, 40(1), 39-44.
6. Independent Advisory Panel on Deaths in Custody (2011). *IAP E-Bulletin*. April, Issue 4.
7. Barnett, R., Hanson, P., Stirling, C., & Pandyan, A. D. (2013). The physiological impact of upper limb position in prone restraint. *Medicine, Science and the Law*, 53(1). doi: 10.1258/msl.2012.012044

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Physical Intervention Review for Specific Cases– A Consultation Worksheet for Certified Instructors

Use this worksheet to assist in gathering information for your consultation with Instructor Services.

1. What preventive measures are in place that are specific to this situational challenge?
2. How do staff respond at earlier levels of crisis?
3. Is there an understanding of how, where, and when physical aggression is taking place? Have patterns of aggressive behavior been identified?
4. Do staff rehearse possible responses to an individual who is beginning to lose control? How often?
5. Is the frequency of rehearsals balanced with the frequency of aggressive episodes?
6. What verbal intervention strategies are being used during physical interventions?
7. Are the above strategies developed for specific individuals and situations?
8. What procedures are in place for Postvention?
 - Do staff involved with an intervention have an opportunity to review elements of the intervention and plan for future interventions as a team?
 - Do staff involved meet with the individual who acted out to review the situation, provide closure, and offer guidance for better decision making the future?
 - Are individual plans developed and rehearsed based on patterns of behavior and specifics of situations?