



Office of the City Manager

ACTION CALENDAR

July 9, 2019

To: Honorable Mayor and Members of the City Council

From: Dee Williams-Ridley, City Manager

Submitted by: Kelly Wallace, Director, Health, Housing and Community Services
Department

Andrew Greenwood, Police Chief, Berkeley Police Department

Subject: Companion Report: Law Enforcement Use of Restraint Devices in the City of
Berkeley

RECOMMENDATION

Continue current policy to provide City of Berkeley Police and Fire personnel protection from individuals whose unlawful and assaultive spitting or biting actions may spread infectious diseases during a lawful detention or arrest.

FISCAL IMPACTS OF RECOMMENDATION

There is no fiscal impact to continue the existing policy.

A change in policy that prohibits the use of spit masks could result in increases in staff costs due to: (a) injuries and employee exposure to infectious disease and pathogens; (b) lost staff time; (c) overtime coverage costs; (d) Workers' Compensation claims; and (d) loss of police and city attorney staff time due to preparing and managing documentation supporting court orders to compel blood tests and report results to the affected officer.

CURRENT SITUATION AND ITS EFFECTS

At its February 28, 2019 meeting, the Mental Health Commission unanimously passed a motion "to pass the spithood resolution and submit the resolution to the City Council for approval." At its April 25, 2019 meeting, the commission passed a motion to withdraw the previous resolution and replace it with one that prohibits law enforcement from using restraint devices such as spit hoods in the line of duty, and resolving that law enforcement shall only use their own N95 masks or an equivalent substitute in the line of duty.

The Commission did not request or receive any information or input from the Police or Fire Department during their consideration of this matter.

BACKGROUND

Individuals who spit at or bite first responders pose a threat to public health. Risks from Aerosol Transmissible Diseases and from blood borne pathogens endanger all personnel involved in an incident in which responders are spat at or upon. Personnel use a soft mask “spit mask” to provide protection from infection. Spit masks are temporary protective devices designed to prevent the wearer from transferring or transmitting fluids (saliva and mucous) to others. The mask is made of a translucent fabric mesh which allows air and light to pass through, but blocks spittle.

Aerosol Transmissible Diseases (ATD) include but are not limited to Chickenpox, Shingles, Measles, Meningitis, Pneumonia and Tuberculosis. See Attachment 1 for the Stanford Environmental Health and Safety program’s more comprehensive list of ATDs. Transmission of ATDs can occur when the pathogen leaves its reservoir (or host) through a portal of exit (mouth/nose), is conveyed by some mode of transmission (spit/droplet), and enters through an appropriate portal of entry to infect a susceptible host. This sequence is sometimes called the chain of infection (Center for Disease Control). If there is blood in the mouth, the saliva can also contain blood-borne pathogens. These include, but are not limited to, hepatitis B (HBV), hepatitis C (HCV) and human immunodeficiency virus (HIV). Attachment 2 provides further information from the Occupational Health and Safety Administration (OSHA).

It is an unfortunate fact that Police and Fire personnel at times encounter individuals who—for whatever reason—spit at, spit on, bite, or otherwise assault City personnel. These behaviors may occur for a variety of reasons: deliberate assaultive behavior, a loss of temper, drug and/or alcohol intoxication, an altered mental status due to a medical emergency, or a result of mental illness. Regardless of the underlying reason for the behavior, the behavior creates a risk for responding personnel, and the need to mitigate this risk and keep staff safe through the spit mask.

Masks provide the most effective method of managing the risk of exposure and safeguarding employee health. Donning N95 masks and eye protection as proposed by the Mental Health Commission does not provide adequate protection to staff from individuals spitting at or upon them. N-95 masks and eye protection cover only a portion of the face. Droplets from an individual actively spitting can easily make their way to an entry point like the eyes through gaps that exist between goggles and the face. N-95 masks and goggles are impractical to carry and unwieldy to put on, and are easily dislodged or knocked off when a person is combative. If there are any cuts, abrasions or punctures to the exposed skin of a first responder, pathogens can make entry. Spit and mucous on the skin, clothing and uniforms or other surfaces can spread disease at a later time. Droplets that contain pathogens remain on surfaces after the individual has been removed from the scene; these can spread disease for up to four days.

The use of masks allow first responders to humanely and safely break the chain of infection. The mask mitigates the spread of pathogens by containing them within the mask, and thereby disallowing them from infecting a susceptible host, e.g. first responder. The mask also prevents the collateral impact of spit and mucous on surfaces and clothing, where disease can spread to anyone who comes in contact with it for up to several days depending on the disease.

Masks have been in use by Berkeley Police and Fire Department personnel to protect themselves and the community for over a decade. Use of the mask is governed by Berkeley Police Policy #302, attached. Police use approved masks only “when the officer reasonably believes the person will spit, either on a person or in an inappropriate place.” When a mask is used, a first responder is present at all times to monitor airway and mental status. Policy requires the mask to be removed if the subject vomits, is bleeding profusely from the mouth, or has difficulty breathing.

Avoidance of Injury, Assault and Workers Compensation Claims

It is a violation of California Penal Code to spit at, spit on, or bite anyone, including police, fire and EMS personnel. Additional criminal charges may be sought if someone knowingly and intentionally inflicts an infectious or communicable disease onto another person (California Health & Safety Code Section 120290). Preventing individuals from committing criminal acts, especially if they are in a mental crisis, is a legitimate function of law enforcement. Use of a mask prevents these acts.

An incident wherein an officer is exposed to disease or pathogens can trigger a considerable post-event administrative process. Every officer who is spat upon may complete an injury report, and their supervisor completes a supervisor’s report. These reports include a comments on injury prevention, and the application of a mask will likely be the first listed action that could have been taken to prevent injury. A separate City of Berkeley “Exposure” Report is completed. Employees may file a Worker’s Compensation Claim if a pathogen is transmitted. Officers may seek medical treatment and lose time from work due to treatment. Depending on the nature and seriousness of the exposure, the officer may also seek a court order compelling the subject to provide a blood sample for testing at a medical facility, to disclose the presence of infectious disease, so that the impacted employee and their physician can make informed decisions regarding treatment and care. These are significant and time-consuming processes, and can be impactful upon employees whose health the City is charged with protecting.

Staff agrees with the Mental Health Commission, in that Berkeley police officers are well-trained to deal with situations where people are in crisis. However, regardless of the reason for the behavior, when an individual spits at or upon officers, they are committing a crime and potentially spreading pathogens. The City has an obligation to enforce the law, provide working conditions for first responders that minimize the risk of

illness and injury, and reduce the chances of disease transmission to its staff and community members.

ENVIRONMENTAL SUSTAINABILITY

Not applicable

RATIONALE FOR RECOMMENDATION

The City's current use of masks is well-governed by existing policy. Masks are considered best practice by law enforcement, fire personnel and EMS for use when individuals spit at or bite them in the field. Masks are used in these situations by Berkeley Police Officers, Berkeley Firefighters, Berkeley Paramedics and EMS mutual aid providers from neighboring Cities and the county's private transport provider.

ALTERNATIVE ACTIONS CONSIDERED

N-95 masks and eye protection were considered but for reasons outlined in report, not recommended.

CONTACT PERSON

Kelly Wallace, Director, HHCS, 510.981.5400

Andrew Greenwood, Police Chief, Berkeley Police Department, 510.981.5900

Attachments:

- 1: Stanford Environmental Health and Safety – List of ATDs
- 2: OSHA – Blood-borne Pathogens
- 3: BPD's Policy 302 Handcuffing and Restraints
- 4: Human Resources Memorandum: Occupational Safety Perspectives; Consequences of Bites, Exposure

11.1

Aerosol Transmissible Diseases/Pathogens

Below you'll find a list of diseases and pathogens which are to be considered aerosol transmissible pathogens or diseases for the purpose of 8 CCR 5199. Employers are required to provide the protections required by 8CCR 5199 according to whether the disease or pathogen requires airborne infection isolation or droplet precautions as indicated by the two lists below.

Diseases/Pathogens Requiring Airborne Infection Isolation

- Aerosolizable spore-containing powder or other substance that is capable of causing serious human disease, e.g. Anthrax/Bacillus anthracis
- Avian influenza/Avian influenza A viruses (strains capable of causing serious disease in humans)
- Varicella disease (chickenpox, shingles)/Varicella zoster and Herpes zoster viruses, disseminated disease in any patient. Localized disease in immunocompromised patient until disseminated infection ruled out
- Measles (rubeola)/Measles virus
- Monkeypox/Monkeypox virus
- Novel or unknown pathogens
- Severe acute respiratory syndrome (SARS)
- Smallpox (variola)/Variola virus
- Tuberculosis (TB)/ Mycobacterium tuberculosis–Extrapulmonary, draining lesion; Pulmonary or laryngeal disease, confirmed; Pulmonary or laryngeal disease, suspected
- Any other disease for which public health guidelines recommend airborne infection isolation

Diseases/Pathogens Requiring Droplet Precautions

- Diphtheria pharyngeal
- Epiglottitis, due to Haemophilus influenzae type b
- Haemophilus influenzae Serotype b (Hib) disease/Haemophilus influenzae serotype b–Infants and children
- Influenza, human (typical seasonal variations)/influenza viruses
- Meningitis
 - Haemophilus influenzae, type b known or suspected
 - Neisseria meningitidis (meningococcal) known or suspected
- Meningococcal disease sepsis, pneumonia (see also meningitis)
- Mumps (infectious parotitis)/Mumps virus
- Mycoplasmal pneumonia
- Parvovirus B19 infection (erythema infectiosum)
- Pertussis (whooping cough)
- Pharyngitis in infants and young children/Adenovirus, Orthomyxoviridae, Epstein-Barr virus, Herpes simplex virus
- Pneumonia
 - Adenovirus
 - Haemophilus influenzae Serotype b, infants and children

- Meningococcal
 - Mycoplasma, primary atypical
 - Streptococcus Group A

 - Pneumonic plague/Yersinia pestis
 - Rubella virus infection (German measles)/Rubella virus
 - Severe acute respiratory syndrome (SARS)
 - Streptococcal disease (group A streptococcus)
 - Skin, wound or burn, Major
 - Pharyngitis in infants and young children
 - Pneumonia
 - Scarlet fever in infants and young children
 - Serious invasive disease

 - Viral hemorrhagic fevers due to Lassa, Ebola, Marburg, Crimean-Congo fever viruses (airborne infection isolation and respirator use may be required for aerosol-generating procedures)
 - Any other disease for which public health guidelines recommend droplet precautions
-

CHAPTER LISTING

Additional Resources

- 11.1 Aerosol Transmissible Diseases/Pathogens** >

- 11.2 Aerosol Transmissible Pathogens – Laboratory** >

- 11.3 Aerosol Transmissible Disease Vaccination Recommendations for Susceptible Health Care Workers** >

- 11.4 Resources** >

Find it in OSHA



A TO Z INDEX

OSHA ▾ **WORKER** ▾ **EMPLOYER** ▾ **STANDARDS** ▾ **ENFORCEMENT** ▾ **CONSTRUCTION TOPIC** ▾ **NEWS/RESOURCES** ▾ **DATA** ▾ **TRAINING** ▾

Safety and Health Topics / Bloodborne Pathogens and Needlestick Prevention

Bloodborne Pathogens and Needlestick Prevention

Bloodborne Pathogens Menu

Overview

What are bloodborne pathogens?

Bloodborne pathogens are infectious microorganisms in human blood that can cause disease in humans. These pathogens include, but are not limited to, hepatitis B (HBV), hepatitis C (HCV) and human immunodeficiency virus (HIV). Needlesticks and other sharps-related injuries may expose workers to bloodborne pathogens. Workers in many occupations, including first responders, housekeeping personnel in some industries, nurses and other healthcare personnel, all may be at risk for exposure to bloodborne pathogens.

What can be done to control exposure to bloodborne pathogens?

In order to reduce or eliminate the hazards of occupational exposure to bloodborne pathogens, an employer must implement an exposure control plan for the worksite with details on employee protection measures. The plan must also describe how an employer will use engineering and work practice controls, personal protective clothing and equipment, employee training, medical surveillance, hepatitis B vaccinations, and other provisions as required by OSHA's Bloodborne Pathogens Standard (29 CFR 1910.1030). Engineering controls are the primary means of eliminating or minimizing employee exposure and include the use of safer medical devices, such as needleless devices, shielded needle devices, and plastic capillary tubes.

General Guidance

Provides information on the revised standard.

[More »](#)

Enforcement

Highlights directives and letters of interpretation related to bloodborne pathogens and needlestick prevention.

[More »](#)

Hazard Recognition

Provides references that aid in recognizing workplace hazards associated with bloodborne pathogens.

[More »](#)

Evaluating and Controlling Exposure

Provides information for evaluating and controlling bloodborne pathogens and needlestick hazards.

[More »](#)

Standards

Bloodborne pathogens and needlesticks are addressed in specific OSHA standards for general industry.

[More »](#)

Additional Resources

Provides links and references to additional resources related to bloodborne pathogens and needlestick prevention.

[More »](#)

Workers' Rights

- Working conditions that do not pose a risk of serious harm.
- Receive information and training (in a language and vocabulary the worker understands) about workplace hazards, methods to prevent them, and the OSHA standards that apply to their workplace.
- Review records of work-related injuries and illnesses.
- File a complaint asking OSHA to inspect their workplace if they believe there is a serious hazard or that their employer is not following OSHA's rules. OSHA will keep all identities confidential.
- Exercise their rights under the law without retaliation, including reporting an injury or raising health and safety concerns with their employer or OSHA. If a worker has been retaliated against for using their rights, they must file a complaint with OSHA as soon as possible, but no later than 30 days.

For additional information, see OSHA's Workers page.

How to Contact OSHA

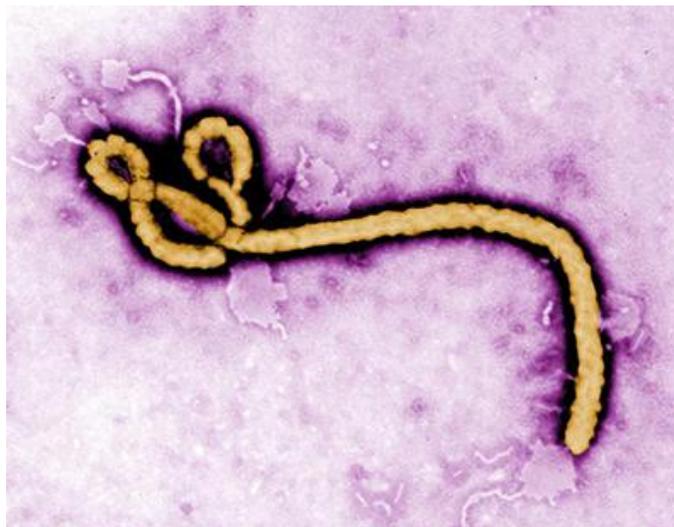
Under the Occupational Safety and Health Act of 1970, employers are responsible for providing safe and healthful workplaces for their employees. OSHA's role is to ensure these conditions for America's working men and women by setting and enforcing standards, and providing training, education and assistance. For more information, visit www.osha.gov or call OSHA at 1-800-321-OSHA (6742), TTY 1-877-889-5627.

CAUTION!

If you are stuck by a needle or other sharp or get blood or other potentially infectious materials in your eyes, nose, mouth, or on broken skin, immediately flood the exposed area with water and clean any wound with soap and water or a skin disinfectant if available. Report this immediately to your employer and seek immediate medical attention.

CDC: Emergency Needlestick Information also provides immediate access to treatment protocols following blood exposures involving HIV, HBV and HCV, including the Clinicians' Post Exposure Prophylaxis Hotline (PEPline) at 1-888-448-4911.

In Focus: Ebola



Frederick A. Murphy/CDC

Highlights

- Most Frequently Asked Questions Concerning the Bloodborne Pathogens Standard
- Quick Reference Guide to the Bloodborne Pathogens Standard
- Comparison of Universal Precautions, Standard Precautions, and Transmission-based Precautions
- FDA, NIOSH and OSHA Joint Safety Communication on Blunt-Tip Surgical Suture Needles. (May 30, 2012).

Related Topics

- Dentistry
- Healthcare
- Medical and First Aid
- Nursing Homes and Personal Care Facilities

UNITED STATES DEPARTMENT OF LABOR

Occupational Safety and Health Administration
200 Constitution Ave NW
Washington, DC 20210
☎ 800-321-6742 (OSHA)
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Handcuffing and Restraints

302.1 PURPOSE AND SCOPE

This policy provides guidelines for the use of handcuffs and other restraints during detentions and arrests.

302.2 POLICY

The Berkeley Police Department authorizes the use of restraint devices in accordance with this policy, the Use of Force Policy and department training. Restraint devices shall not be used to punish, to display authority or as a show of force.

302.3 RESTRAINTS

302.3.1 USE OF RESTRAINTS

Only members who have successfully completed Berkeley Police Department approved training on the use of restraint devices described in this policy are authorized to use these devices.

When deciding whether to use any restraint, officers should carefully balance officer safety concerns with factors that include, but are not limited to:

- (a) The circumstances or crime leading to the arrest.
- (b) The demeanor and behavior of the arrested person.
- (c) The age and health of the person.
- (d) Whether the person may be pregnant.
- (e) Whether the person has a hearing or speaking disability. In such cases, consideration should be given, safety permitting, to handcuffing to the front in order to allow the person to sign or write notes.
- (f) Whether the person has any other apparent disability.

302.3.2 RESTRAINT OF DETAINEES

Situations may arise where it may be reasonable to restrain an individual who may, after brief investigation, be released without arrest. Unless arrested, the use of restraints on detainees should continue only for as long as is reasonably necessary to assure the safety of officers and others. When deciding whether to remove restraints from a detainee, officers should continuously weigh the safety interests at hand against the continuing intrusion upon the detainee.

302.3.3 ALTERNATIVE MEANS OF RESTRAINT

Alternative Means of Restraint include but are not limited to:

- (a) Handcuffing the person with their hands in front of their body
- (b) Handcuffing the person with multiple sets of linked handcuffs
- (c) Use of the entire WRAP system

Handcuffing and Restraints

- (d) Use of the WRAP's ankle strap
- (e) Use of plastic handcuffs, aka "flex cuffs"
- (f) Use of an ambulance gurney with five point straps

302.3.4 RESTRAINT OF PREGNANT PERSONS

If a person's hands cannot be restrained behind their back because of pregnancy, officers will attempt to accommodate the person's condition by using alternative means of restraint.

No person who is in labor, delivery or recovery after delivery shall be handcuffed or restrained except in extraordinary circumstances and only when a supervisor makes an individualized determination that such restraints are necessary for the safety of the arrestee, officers or others (Penal Code § 3407; Penal Code § 6030).

302.3.5 RESTRAINT OF JUVENILES

A juvenile under 14 years of age should not be restrained unless he/she is suspected of a dangerous felony or when the officer has a reasonable suspicion that the juvenile may resist, attempt escape, injure him/herself, injure the officer or damage property.

302.3.6 NOTIFICATIONS

Whenever an officer transports a person with the use of restraints other than handcuffs, the officer shall inform the jail staff upon arrival at the jail that restraints were used. This notification should include information regarding any other circumstances the officer reasonably believes would be potential safety concerns or medical risks to the subject (e.g., prolonged struggle, extreme agitation, impaired respiration) that may have occurred prior to, or during transportation to the jail.

302.4 APPLICATION OF HANDCUFFS OR PLASTIC CUFFS

Handcuffs, including temporary plastic flex cuffs, may be used only to restrain a person's hands to ensure officer safety.

Although recommended for most arrest situations, handcuffing is not an absolute requirement of the Department. Officers should consider handcuffing any person they reasonably believe warrants that degree of restraint. However, officers should not conclude that regardless of the circumstances, every person should be handcuffed.

In most situations handcuffs should be applied with the hands behind the person's back. When feasible, handcuffs should be applied between the base of the palm and the ulna bone of the wrist. When feasible, handcuffs should be double-locked to prevent tightening, which may cause undue discomfort or injury to the hands or wrists.

In situations where one pair of handcuffs does not appear sufficient to restrain the individual or may cause unreasonable discomfort due to the person's size, officers should consider alternative means of restraint.

Handcuffing and Restraints

If the person being handcuffed is on the ground or in a prone position, then as soon as possible after being handcuffed, the person should be placed in an upright sitting position or on their side for respiratory recovery and to mitigate the potential for positional asphyxia.

Handcuffs should be removed as soon as it is reasonable to do so or after the person has been searched and is safely confined within a detention facility.

302.5 APPLICATION OF SPIT MASKS

Spit masks are temporary protective devices designed to prevent the wearer from transferring or transmitting fluids (saliva and mucous) to others.

Spit masks may be placed upon persons in custody when the officer reasonably believes the person will spit, either on a person or in an inappropriate place. They are generally used during application of a physical restraint, while the person is restrained, or during or after transport.

Officers utilizing spit masks should ensure that the spit mask is applied properly to allow for adequate ventilation and that the restrained person can breathe normally. Officers should provide assistance during the movement of restrained individuals due to the potential for impaired or distorted vision on the part of the individual. Officers should avoid co-mingling individuals wearing spit masks with other detainees.

Spit masks should not be used in situations where the restrained person is bleeding profusely from the area around the mouth or nose, or if there are indications that the person has a medical condition, such as difficulty breathing or vomiting. In such cases, prompt medical care should be obtained. If the person vomits while wearing a spit mask, the spit mask should be promptly removed and discarded. Persons who have been sprayed with oleoresin capsicum (OC) spray should be thoroughly decontaminated, including hair, head and clothing prior to application of a spit mask.

Those who have been placed in a spit mask should be continually monitored and shall not be left unattended until the spit mask is removed. Spit masks shall be discarded after each use.

302.6 APPLICATION OF THE WRAP

The WRAP is a temporary restraining device comprised of a velcro strapped leg panel, torso harness, ankle strap and backside handcuff carabiner. The device immobilizes the body into a straight-legged seated position. Used properly, it restricts a subject's ability to do harm to oneself or others. Officer safety is enhanced and the risk of injury to the subject is reduced.

In determining whether to use the WRAP, officers should consider:

- (a) Whether the officer or others could be exposed to injury due to the assaultive or resistant behavior of a suspect.
- (b) Whether it is reasonably necessary to protect the suspect from his/her own actions (e.g., running away from the arresting officer while handcuffed, kicking at objects or officers).

Handcuffing and Restraints

- (c) Whether it is reasonably necessary to avoid damage to property (e.g., kicking at windows of the patrol unit).
- (d) Whether conventional methods of restraint have failed.

302.6.1 GUIDELINES FOR USE OF THE WRAP

When applying the WRAP, the following guidelines should be followed:

- (a) If practicable, officers should notify a supervisor of the intent to apply the WRAP. In all cases, a supervisor shall be notified as soon as practicable after the application of the WRAP.
- (b) Once applied, absent a medical or other emergency, restraints should remain in place until the officer arrives at the jail or other facility or the person no longer reasonably appears to pose a threat. Restraint straps should be checked frequently for tightness, and adjusted as necessary, until the WRAP is removed. The harness straps should never be tightened to the point they interfere with the person's ability to breath.
- (c) The restrained person should be continually monitored by an officer while the WRAP is in use. The officer should ensure that the person does not roll onto and remain on his/her stomach.
- (d) The officer should look for signs of distress such as sudden quiet or inactivity, complaints of chest pain, change in facial color, complaint of extreme heat, vomiting, and/or labored breathing, and take appropriate steps to relieve and minimize any obvious factors contributing to this condition.
- (e) Movement of the person can be accomplished in three ways, depending on the level of their cooperation. The person can be carried, allowed to stand and shuffle walk or be transported in a vehicle.
- (f) Once secured, the person should be placed in a seated or upright position, secured with a seat belt, and shall not be placed on his/her stomach for an extended period, as this could reduce the person's ability to breathe.
- (g) If in custody and transported by ambulance/paramedic unit, the restrained person should be accompanied by an officer when requested by medical personnel. The transporting officer should describe to medical personnel any unusual behaviors or other circumstances the officer reasonably believes would be potential safety or medical risks to the subject (e.g., prolonged struggle, extreme agitation, impaired respiration).

302.6.2 DEVICE REMOVAL

Based on the prisoner's combativeness or level of aggression, officers should employ appropriate control techniques and tactics when removing restraint devices.

302.6.3 THE ANKLE STRAP

The ankle strap is one part of the WRAP restraint system. The ankle strap may be used alone, without the rest of the WRAP system to restrain the legs of a violent or potentially violent person when it is reasonable to do so during the course of detention, arrest or transportation. Use of the ankle strap should follow the same considerations listed in 302.6 and guidelines listed in 302.6.1.

Handcuffing and Restraints

302.7 APPLICATION OF AUXILIARY RESTRAINT DEVICES

Auxiliary restraint devices include transport belts, waist or belly chains, transportation chains, leg irons and other similar devices. Auxiliary restraint devices are intended for use during long-term restraint or transportation. They provide additional security and safety without impeding breathing, while permitting adequate movement, comfort and mobility.

Only department-authorized devices may be used. Any person in auxiliary restraints should be monitored as reasonably appears necessary.

302.8 REQUIRED DOCUMENTATION

If an individual is restrained and released without an arrest, the officer shall document the details of the detention and the need for handcuffs or other restraints in an MDT, incident or case report.

If an individual is arrested, the use of restraints other than handcuffs shall be documented in the related report. The officer should include, as appropriate:

- (a) How the suspect was transported and the position of the suspect.
- (b) Observations of the suspect's behavior and any signs of physiological problems.
- (c) Any known or suspected drug use or other medical problems.



Human Resources Department

June 4, 2019

To: A. Greenwood, Chief of Police

From: Kevin Walker, Occupational Health and Safety Officer
City of Berkeley Human Resources Department

Re: Occupational Safety Perspectives; Consequences of Bites, Exposure

The information presented below is from an occupational safety perspective for protection against human bites. It examines consequences of exposures to human bites and fluids and considers the potential outcomes and the use of protective measures.

Human saliva is known to contain as many as 50 species of bacteria with almost 10^8 microbes/ml. The reason these injuries are so prone to infection is that, for example, the extensor tendon and the Metacarpophalangeal (MCP) joints of the hands are relatively avascular structures and thus have a very limited ability to fight infection. This is one of the reasons why human bites are believed to have higher rates of infection than other injuries.¹ Medical attention for bite injury ranges in cost from the relatively low cost first aid, to the extremely high cost of surgical repair and recovery.

A search of medical literature revealed studies that document the seriousness of human bites and infection. In a multicenter study of infected human bites 50 patients were studied and four cultures, including one anaerobic culture, were obtained from each patient, it was discovered that aerobic species alone were isolated in 44% of the wounds, anaerobes alone were isolated in 2% and both aerobes and anaerobes were isolated in 54% of the wounds.² The most common aerobic isolates were Streptococcus, Staphylococcus and Eikenella species. Streptococcus anginosus was the most common pathogen isolated and was found to contaminate 52% of human bites. Exposure to saliva alone is not considered a risk factor for viral transmission, although HIV may be present in the saliva (infrequently and at low levels). Salivary inhibitors render the virus non-infective in a majority of the cases.³ Therefore, transmission of HIV is a risk when there is blood in the mouth of the person who bites and there is a breach in the skin of the victim.⁴ Also, it is not uncommon for individuals to bite the inside of their cheek, lips or tongue to create a mouth full of blood as a weapon against officers. While the infectious nature of saliva/spittle can be debated, the infectious potential of blood cannot be challenged.

Human bites generate sufficient force to damage subcutaneous tissues and structures including muscle, nerves and ligaments. Bite wounds are serious because of the

potential of infection and mechanical damage. The human bite has been measured to generate at a maximum of 265 psi which is enough to severely damage soft tissues. A bite that removes flesh creates a serious injury requiring surgery. One bite to the eye can easily result in blindness or other disabling injury.

We have to consider the cost of a bite. A human bite injury can be life-changing for an employee and can result in significant cost to the City. A City of Berkeley patrol officer sustained a severe bite injury that caused damaged nerves and severed tendons, required considerable surgery and infection control and even after medical intervention ultimately resulted in disability, including loss of dexterity and sensation to fingers and permanent loss of functional grip strength. As a result of that incident alone, the City paid over \$245,000.00 in workers compensation cost.

It is important that the City continue to provide officers with access to tools to safely carry out their job as well as protect lives.

Optimization and utilization of law enforcement tools is foundational in BPD's training program to protect the public and officers as well as control cost. Although the likelihood is small that a single exposure to bodily fluids or from spit will result in contracting a disease, we have to keep in mind that our officers are likely to experience multiple exposure to bodily fluids from spitting, saliva and blood throughout their career, so use of tools to minimize exposure during the multitude of interactions with the public is vital.

Unlike chemicals and hazardous materials, there are no time-weighted averages set by regulatory agencies (Cal OSHA, NIOSH, and ACGIH) on exposures to disease causing microorganisms. Thus, universal precautions are exercised, vaccinations are administered, sanitization methods are carried out and protective equipment are employed to prevent and reduce the potential of exposures. The Spit Hood is a pragmatic protective device that prevents exposures to pathogens and averts costly injuries. To discontinue its use will elevate the risk of catastrophic injuries among the City's emergency services personnel.



Human Resources Department

References:

1. A.Perron AD, Miller MD, Brady WJ. Orthopedic pitfalls in the ED: Fight bite. Am J Emerg Med 2002;20:114-7
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4. Smoot EC, Choucino CM, Smoot MZ. Assessing risks of human immunodeficiency virus transmission by human bite injuries. Plast Reconstr Surg. 2006;117:2538-9

