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Most Common Infectious Diseases in Daycare

- A Guide for daycare

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2018 Laurea



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Degree Programme in Nursing
Bachelor's Thesis
February, 2018

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Year 2018

Pages

54

The purpose of this thesis was to provide a guide about most common infectious diseases for the daycare staff. The aim was to help the staff to augment their expertise and knowledge of the infections, which in turn could help reduce outbreaks and spreading of infectious diseases at the daycare.

According to the literature review done for the thesis when the general knowledge of the infectious diseases and prevention of the diseases were given special importance, the absences from daycare due to infections were reduced. Many studies conducted in Finland and abroad have similar outcomes: when good hygiene routines have been emphasized children as well as staff have had fewer infections in daycare centers. Reduced absences from daycare due to infections benefit not only the children in daycare and their families, but also the society in whole.

Research method for the thesis was action research thesis. As an outcome of the thesis a set of most common infectious diseases laminated cards were produced to be used as a quick reference tool, and the selected daycare center was provided these cards. The evidence-based theory about the infectious diseases was compressed in the guide. The thesis was done in cooperation with Tammisto daycare in Vantaa.

Further development of the thesis could be to explore the benefits of the guide and to evaluate the achievement of the goals after the introduction of the guide at the daycare.

Keywords: child, daycare, infections, infectious diseases, prevention

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1 INTRODUCTION

Many common children diseases in daycare centers are infectious which spread directly from person to person by droplets, air or touch or passed by indirectly through for example toy or door handle. The groups at daycare are often large and the children are in close proximity of each other, which gives a favorable breeding ground for spreading infections. Younger children in daycare centers are most likely to get infections because they have not developed the necessary protective immunities. Most common infections include respiratory infections, vomiting and diarrhea, parasites and pox-diseases (Rajantie, Mertsola & Heikinheimo 2010, 20; von Schantz & Matilainen 2009, 62-63.)

Children attending daycares are at higher risk of infectious diseases. They are about two times more likely to suffer from infectious diseases than the children cared for at home (Sosiaali- ja terveystieteiden ministeriö 2005). Majority of the infections are respiratory and gastrointestinal infections, which have been linked to daycare environment in various studies (Tapanainen & Rajantie 2016; Jalanko 2016; Renko, Möttönen & Uhari 2011).

Outbreaks of the infectious diseases, which may spread rapidly within daycares, poses medical and other health related problems. Also parents must stay at home or make arrangements to care for their children at home when children fall sick. This in turn brings agony and financial burden to the family as well as to the society in whole (Ranji & Salganicoff 2014.) In a study conducted during a one year period in Helsinki the total cost due to illnesses among all children in daycare centers was more than \$22,000,000. 90 percent of the illnesses and costs were due to infectious diseases. These substantial economic losses included the guardian's absence from work, deficient utilization of daycare centers, visits to a physician, hospitalization, paid care of children at home and antibiotic treatments (Nurmi, Salminen & Pönkä 1991.) Similar study in the Netherlands pointed out that the cost to society was around 200 euros per child's sickness episode (Enserink, Lugnér, Suijkerbuijk, Bruijning-Verhagen, Smit & van Pelt 2014).

Many studies bring out the importance of good hand hygiene habits to reduce the absences from daycare due to infections (Ladegaard & Stage 1998; Pönkä, Poussa, & Laosmaa 2001; von Schantz & Matilainen, 2009, 62). Children need guidance, and monitoring from adults to ensure proper hygiene routines. The staff plays an important role of helping children develop good hygiene habits that they will use throughout their lives. Learning these routines require ample time to develop, and such times should be arranged accordingly at daycare centers (von Schantz & Matilainen, 2009, 62.)

The purpose of the thesis was to provide a guide about most common infectious diseases for the daycare staff. The infectious diseases chosen for this thesis were selected based on the conversations and correspondence with the director of the daycare. The aim was to help the

staff to augment their expertise and knowledge of the infections, which in turn could help reduce outbreaks and spreading of infectious diseases at the daycare. As an outcome of the thesis a set of most common infectious diseases laminated cards were produced to be used as a quick reference tool, and the selected daycare center was provided these cards. The thesis was done in co-operation with Tammisto daycare in Vantaa.

2 PURPOSE & AIM

The purpose of the thesis is to provide guide about most common infectious diseases for the day-care staff. The aim is to help the staff to augment their expertise and knowledge of the infections, which in turn can help reduce outbreaks and spreading of infectious diseases at the daycare. As an outcome of the thesis a set of most common infectious diseases laminated cards were produced to be used as a quick reference tool, and the selected daycare center was provided these cards.

3 RESEARCH METHOD

The research method for the thesis was action research thesis. According to Koshy, Koshy & Waterman (2011, 4) action research generates knowledge. In addition, depending on profession, action research could be a leaflet, instruction, guide or manual (Vilkkka & Airaksinen 2003, 9). The outcome of the action research thesis, such as guide, is always made for a particular target group in mind. Based on the target group, the most appropriate content option is chosen (Vilkkka & Airaksinen 2004, 38.)

The infectious diseases chosen for this thesis were selected by the authors based on the conversations and correspondence with the director of the daycare. The authors searched for information and articles from many different sources such as Pubmed, Duodecim, THL and WHO. Printed materials as well as online sources were referenced, and references were used extensively. Both English and Finnish language materials were used. Search words used included child, daycare, infections, infectious diseases and prevention.

Authors' aim was to provide information for the daycare staff about most common infectious diseases at daycare. Authors of the thesis produced laminated cards that the staff would be able to refer back whenever the need arises. Also, because there are substitutes quite often at daycare due to illnesses and other different kind of leaves, these cards would be a quick and handy way to search for information about various infections.

4 THEORETICAL BACKGROUND FOR MOST COMMON INFECTIOUS DISEASES IN DAYCARE

4.1 What is infection?

Infectious diseases are caused by organisms which are caused by pathogenic microorganisms, such as bacteria, viruses, parasites or fungi. These infections can be spread directly from person to person by droplets, air or touch or indirectly through for example toy or door handle (World Health Organization 2017)

According to Nordqvist (2017), an infection occurs when a foreign organism enters into body of the human and causes harm. The bacteria are one type of infectious agent. These pathogens are different in shapes, genetic contents, sizes, functions and how they act on the body. The bacteria can survive without a host. Viruses are smaller than bacteria and they can enter a host and take over cells. Their treatments depend on the type of pathogen. Four most common types of infection are such as, bacterial, viral, fungal, and prion (Nordqvist 2017.)

Bacterial infection are single-celled microorganisms known as prokaryotes. There are estimated to be at least one nonillion bacteria. Bacteria can live in any kind of environment, from high heat to very cold and some may even survive in radioactive waste. Some of the bacteria live in the gut or airways of the human body without causing any harm. Some good bacteria even fight against bad bacteria and prevent them from causing sickness. The bacteria can be seen in 3 main shapes such as, spherical, spiral and rod-shaped. They can be treated with antibiotics, but some strains become resistant and can survive the treatment (Nordqvist 2017.)

The common cold is called viral infection and it is caused by a virus. There are millions of viruses but only 5000 types have been identified. They contain a small piece of genetic code and are protected by a coat of protein and fat. All of viruses do not destroy their host cell but change function of the cell. This way, such viruses can lead to cancer by forcing cells to repeat in an uncontrolled way. Most often viruses target infants and young children. Antibiotics are not effective against viruses but in some cases antiviral medications help. The antibiotics do not stop the virus, but in some cases, it may increase the risk of antibiotic resistance (Nordqvist 2017.)

Fungal infection is a multi-cellular parasite which break down and absorb organic matter using and enzyme. Fungi reproduce by spreading spores. There are about 51 million varieties of fungus. Most of the fungal infections are spotted on upper layers and some to the deeper layers of the skin. Normally, human body has good bacteria which helps to maintain the balance of microorganisms. In case, if good bacteria destroyed by use of antibiotics than fungi can grow and cause health problems for host. A rash may indicate to a fungal infection of the skin. Some examples of fungal infections are such as, ringworm, athlete's foot, eye infections and valley fever (Nordqvist 2017.)

A prion is a type of protein that can trigger normal proteins in the brain to fold abnormally. The protein contains no genetic material and is normally harmless. Prion diseases can affect both humans and animals and are sometimes spread to humans by infected meat products. Prion diseases progress rapidly and are currently fatal but rare diseases. (Nordqvist 2017.)

4.2 The contributing role of daycare in spreading infections

There is a chance of spreading infections, whenever children are playing together, especially among infants and toddlers. This is because they do not clean their hands after wiping their noses or rubbing their eyes and then handle toys or touch each other with dirty hands. It is normal for kids to fall sick because of their weak immune system which is developing at this time (HealthyChildren.org 2017.)

According to BabyCenter (2018) the children in daycare are more likely to become ill most often because they are surrounded by other groups of children. The groups are often large and the children play in close contact with each other (von Schantz & Matilainen 2009, 62). Most parents agree that sick children should stay at home until they are no longer contagious and risk to other children. When it becomes apparent to the staff that a child is sick s/he might have already spread the disease to his/her playmates, as well as it is not as simple to tell whether a condition is contagious or not (BabyCenter 2018.)

4.3 Most common infections in daycare

Daycare aged children have an average of 6-8 infections in a year. Many of the infections are highly contagious and spread fast in daycare environments (Kurki & Pammo 2010, 107, 109.) Most common infections include respiratory infections, vomiting and diarrhea, parasites and pox-diseases (Rajantie, Mertsola & Heikinheimo 2010, 20; von Schantz & Matilainen 2009, 62-63.) The infectious diseases chosen for this thesis were selected by the authors based on the conversations and correspondence with the director of the daycare.

4.4 Respiratory infections

According to Sliper Midling (2016), the respiratory infections are the most frequent type of acute illness what makes children to go to hospital most often. Some of the children become badly sick with as asthma, pneumonia or bronchiolitis (Sliper Midling 2016.)

Common respiratory tract infections start with common cold and influenza. The common symptoms may include nasal congestion, runny nose, scratchy throat, cough and irritability. The physicians make diagnosis based on the symptoms. The aim of the treatment is to relieve symptoms. The best way to prevent these infections in children is a good hygiene and routine vaccination can prevent influenza (Caserta 2018.)

There are two types of viral respiratory tract infections such as, upper respiratory tract infections (URTIs) and lower respiratory tract infections (LRTIs). The symptoms of upper respiratory tract infections occur mainly in the throat and nose. The viral upper respiratory tract infections may occur at any age which includes common cold and influenza. The symptoms of lower respiratory tract infections occur in the windpipe, airways and lungs. The viral LRTIs are more common in children and include croup, bronchiolitis and pneumonia (Caserta 2018.)

4.4.1 Fever

According to Oma Terveys Oy (2010), fever seems to be harmless, but assume any fever is a symptom of a contagious condition. Viruses that causes fever are contagious when the fever is above 38 °C reading. It occurs when the temperature of the body is higher than the normal temperature of the body (Oma Terveys Oy 2010.)

Ward (2017) has mentioned that the fever in daycare children is very common and a normal response to a variety of conditions, the most common of which is an infection. It occurs when the temperature of the body is higher than the normal temperature of the body (Ward 2017).

Symptoms of fever are when temperature measurement is above 38°C. The thermometer might show slightly different numbers depending on how the temperature is taken for example, oral/mouth, axillary/armpit, ear, forehead and/or rectal. The rectal and oral temperature measurements are not as easy as axillary, ear and forehead temperature measurements but these are less accurate and in certain children may need to be confirmed rectally or orally (Oma Terveys Oy 2010.)

Most common cause of fever in children is infection. Common viral and bacterial illnesses are the most likely illnesses to cause fever. Immunization system in some children can cause fever in some children, as by this time it is still developing (Oma Terveys Oy 2010.)

4.4.2 Flu, influenza

According to World Health Organization, seasonal influenza is an acute respiratory infection which is caused by influenza viruses which can be found all over the world. It can affect people in any age group and spreads easily from person to person (World Health Organization 2018.)

Seasonal influenza can occur as a serious health problem which causes severe illness and even death in high risk populations (Yle Uutiset 2018).

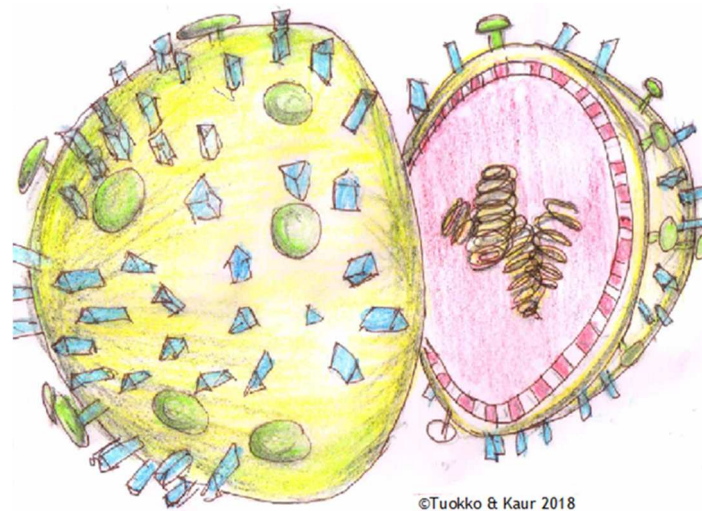


Figure 1. Influenza bacteria. (©Tuokko & Kaur 2018)

Influenza is contagious which is why it is important to stay at home and rest until the symptoms are gone, to stop it spreading and minimize the risk of infecting others. Influenza can spread via direct or indirect contacts. Direct contact for example, kissing, touching or holding hands with other influenza infected person. An influenza infected person has germs in their mouth, nose, eyes or their skin. It is easy to get influenza by touching another infected person. Via indirect contact means touching something which has already been touched by infected person for example, a toy, doorknob or a used tissue, which is too possible at daycares (Oma Terveys Oy 2013.)

Most common symptoms of influenza are for example, sudden onset of fever, dry cough, headache, pain in muscles and joints, unwell feeling, sore throat and a runny nose (Oma Terveys Oy 2013.)

Treating the patients who are not in high risk group or having compromised immune system or weak health should be managed with symptomatic treatment. Influenza treatment mostly focuses on relieving the symptoms such as fever. If fever is under 38 °C than it can be treated at home with paracetamol or/and ibuprofen medications. If fever is above 38 °C then seeking for medical attention is recommended and child should be taken to hospital. Instructions of the health care professionals should be followed, because some complicated illness such as pneumonia should be treated with antibiotics (World Health Organization 2018.)

Influenza can be prevented by taking influenza vaccination. Also, there are antiviral drugs available for influenza treatment. Children aged between 6 months to 5 years also should be influenza vaccinated. A regular hygiene is most important to prevent influenza, for example regular hand washing with proper drying of hands. Children should be encouraged to use hand paper or tissues when coughing or sneezing and also disposing them correctly. Avoiding close

contact with sick people and avoiding touching one's eyes, nose or mouth are recommended although this can be quite challenging at daycare (World Health Organization 2018.)

4.4.3 Bronchial inflammation

According to Stanford Children's Hospital, bronchitis is an inflammation of the airways that is called bronchi, which causes increased production of mucus and other changes. Although there are several types of bronchitis and most common are acute and chronic. The acute bronchitis is the inflammation of mucous membranes of the bronchial tubes (Stanford Children's Hospital 2018.)

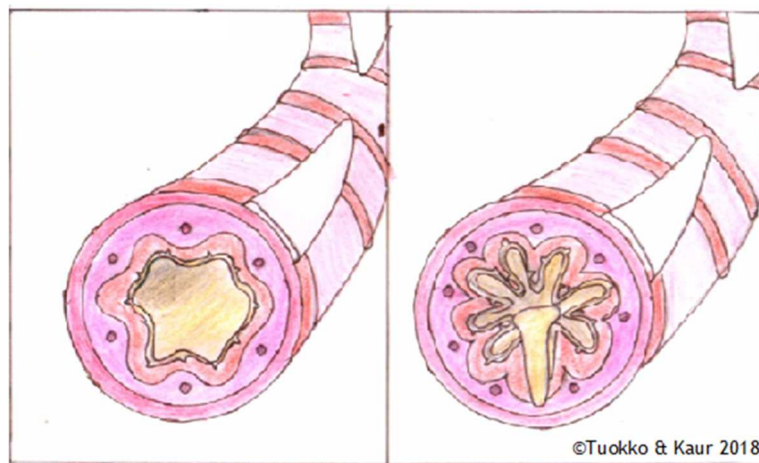


Figure 2. (Left) Normal airway colour and architecture, in a child with mild tracheomalacia. (Right) Chronic bronchitis shows erythema, loss of normal architecture, and swelling. (©Tuokko & Kaur 2018)

Each child may experience symptoms differently and most common symptoms for acute bronchitis can include, a runny nose before a cough starts, chills, muscle and back pain, sore throat, wheezing, slight fever and malaise or whole-body discomfort. It takes around 10-14 days to heal and return to full function following symptoms (Carolan 2017.)

A virus is the most common cause of bronchitis or it can also be caused by bacteria. In children it is usually a mild condition. It may follow the common cold or other viral infections in the upper respiratory tract. Pneumonia is a complication that can follow the bronchial inflammation (Hannu 2017.)

Since most infections are caused by viruses there for in many cases are not necessary to treat acute bronchitis with antibiotics. Generally, if the child has been coughing for 8 - 10 days then

s/he doesn't need antibiotics. As well, a good hand hygiene and avoidance of second hand tobacco smoke, should be included in treatment (Hannu 2017.)

4.4.4 Laryngitis, Croup

Laryngitis is an inflammation of the voice box or also called larynx that causes the voice of the child to become rough or thick. The laryngitis can cure in short time or can also last long but usually it comes quickly and lasts about 2 weeks (Hannu 2017.)

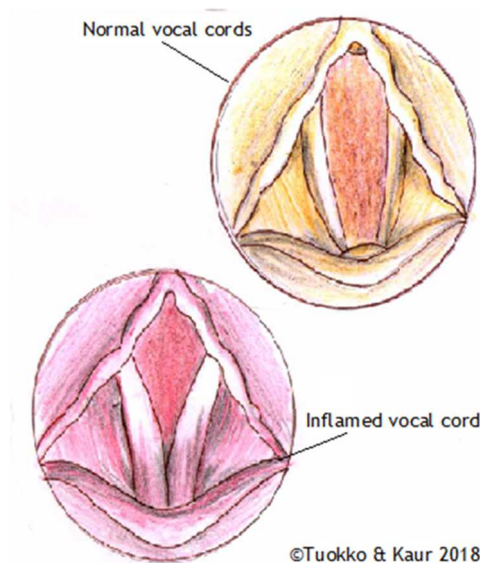


Figure 3. Laryngitis. Normal vocal cords & Inflamed vocal cords. (©Tuokko & Kaur 2018)

Croup is an infection of the throat and vocal cords, which is caused by different kind of viruses. When under 5 years of aged children have the infection of vocal cords or throat that is called croup and in older children, it is called laryngitis. Children most commonly get it in the winter and early spring (Hannu 2017.)

The most common causes are such as, flu, a cold and/or allergy. But sometimes talking loudly or shouting, cheering, or singing may also cause laryngitis. A child can lose his voice when the stomach acid backs up into the throat (Hannu 2017.)

The virus may spread in many ways such as, by touching the hands of someone who is already infected or touching something (for example, toys or clothes) that has been touched by someone who is already infected. It can spread also via breathing or being in the same area/room, after an infected person has coughed or sneezed in (Caring for kids 2014.)

Before developing into a fever and cough, it mostly begins like a cold. The sick child may have difficulty in breathing, and the breathing can be fast and loud. The sick child becomes more tired because of the extra work needed to breathe. The voice of the sick child gets rough and coarse and s/he develops a cough, which is often worse at night. The lining of the throat and larynx or voice box becomes red and swollen (Caring for kids 2014.)

4.4.5 Pharyngitis inflammation

Pharyngitis is the inflammation of the tissues in the throat/pharynx of the child. Because of the redness and swelling of the throat, the child feels his throat sore. Pharyngitis affects most often two areas of the throat for example, tonsils and pharynx. In children the inflammation of the pharynx (pharyngitis) and tonsils (tonsillitis) are very common (Oma Terveys Oy 2013.)

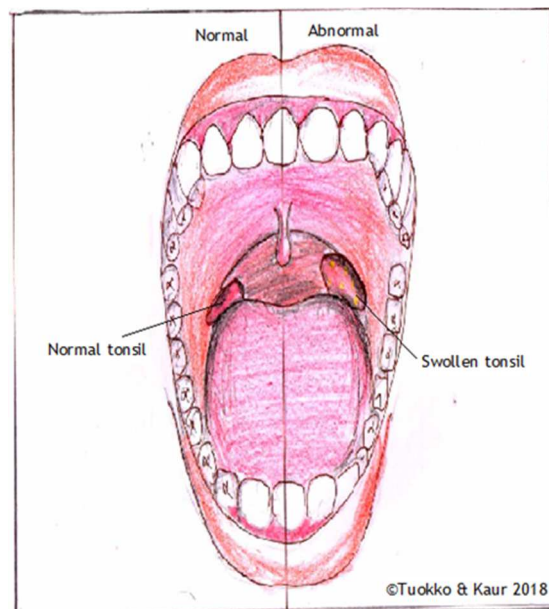


Figure 4. Normal and swollen tonsil. (©Tuokko & Kaur 2018)

Pharyngitis is caused by viral infections but also many other things can also cause pharyngitis in children. Viral or bacterial infections causes tonsillitis. Other conditions may also cause Pharyngitis, e.g. bacteria, which cause strep throat, infection causing fungi, allergies: such as hay fever and/or allergies affecting the nose, cancers, stomach acids in the throat, injuries, air pollution or cigarette smoke which may produce sinus irritation or infection (Oma Terveys Oy 2013.)

Viral and bacterial infections are spread by close contact with other people who are sick. For example, kids attending school or daycares are at risk. The kids easily get it during the winter months, when most viral and bacterial infections happen (Oma Terveys Oy 2013.)

Every child may have different symptoms such as, sore throat, painful neck glands, fever or chills, pain in the ear, pain in belly, reddish or swollen throat, whitish discharge in the throat or tonsils, difficulty in breathing, reddish or enlarged tonsils, tiredness, vomiting and nausea, headache, rough or broken voice, pain while swallowing. Other health conditions may also have the similar symptoms. Therefore, it is important to take the child to the healthcare professional for right diagnose (Oma Terveys Oy 2013.)

In paediatrics health care system children are treated according to their age, symptoms and general health, as well, how critical is the condition. A bacterial infection is always treated with antibiotics and the goal of the treatment must be to make the child feel comfortable. The treatment may include for example keeping the child hydrated by increasing the amount of drinks if child has not been drinking enough. Due to pain in the throat, child can eat smooth and cool foods for example, ice-cream or ice pops. The medications such as paracetamol and/or ibuprofen should be given in liquid form due to pain in the throat (Brown & Kacker 2018.)

Good hand hygiene should be followed on a daily basis. Child must be away from day as long s/he is still contagious. The child who is sick should not share food, drinks, toys or pacifiers (Oma Terveys Oy 2013.)

4.5 Vomiting and diarrhea

Most common cause for diarrhea and vomiting are viruses. They spread from person to person directly by touch or indirectly by surfaces such as door handle or toys. The symptoms typically start with abdominal pain, vomiting and/or diarrhea. Stools are watery, and may have slime or blood in them and there may be several bowel movements per day. These viruses are very contagious and could cause rapid outbreaks in daycares (Kurki & Pammo 2010, 79).

Rotavirus is most common with children under 5 years of age. Initial symptoms can include abdominal pain, fever and vomiting, which are then followed by three to seven days of watery diarrhea (Kurki & Pammo 2010, 79.) Severe vomiting and diarrhea may lead to dehydration especially with small children and thus preventing dehydration by drinking fluids is the most important treatment of the virus (von Schantz & Matilainen 2009, 95.) Rotavirus vaccination is offered for infants in the national vaccination program, which can prevent rotavirus in children (THL 2017).

Also, norovirus is common with children. Initial symptoms can include abdominal pain, severe diarrhea and vomiting. The virus lasts from one to three days, but the child may continue transmit the virus in the faeces for up to two weeks after recovery. Dehydration is less likely with norovirus than rotavirus, but it is recommended to drink plenty of fluids to avoid dehydration (Kurki & Pammo, 2010.)

It is important to emphasize good hand hygiene habits in daycare in order to prevent the onset of these infections. A child can return to daycare after the symptoms have subsided and s/he is feeling well (THL 2017.)

4.6 Parasites

According to Feldman (2010) an organism or a small animal, that takes benefit from living in or on another organism to take its nourishment is called parasite. The parasites include worms, fleas and lice and parasites cannot live by their own. Parasitic diseases include infections by protozoa such as, helminthes/worms and arthropods/scabies. Parasites often reproduce themselves and live in the intestine and other parts of the body. Parasites do not necessarily cause any infections of symptoms. Parasites are quite common around the world and infections are easy to spread in crowded places like daycares (Feldman 2010.)

4.6.1 Head lice

According to Nichols (2016) pediculus humanus capitis or also called head lice, are tiny, grey and brown parasitic insects that do not have wings, live in human hair. Head lice are common among daycare and elementary school aged children. Also their family members at the risk of getting it. Louse eggs are oval shaped that are attached to hair close to the scalp. The head lice is white or yellow coloured and is about the size of a flake of dandruff. A sticky substance is produced by the female which adheres each egg to the hair shaft (Nichols 2016.)

Head to head contact causes a head lice infestation which happens from the direct transfer of lice from the hair of one child to another child. The head lice do not swim, jump or fly. The head lice cannot transmit through contact with personal items or fabric items used by child infested with head lice. It can be spread by sharing headbands, towels, hats, clothing, combs and brushes used by a person having an active infestation of head lice. Itching is caused by an allergic reaction to louse saliva (Mentor Instituttet 2016.)

Some children become extremely sensitive to lice bites and feel severe itching. On the other hand some do not pay attention in bites and feel very little or no itching at all. Some other symptoms may include a sensation of something moving in the hair or tickling. There may be sores on the head from scratching and irritability and difficulty in sleeping (Mentor Instituttet 2016.)

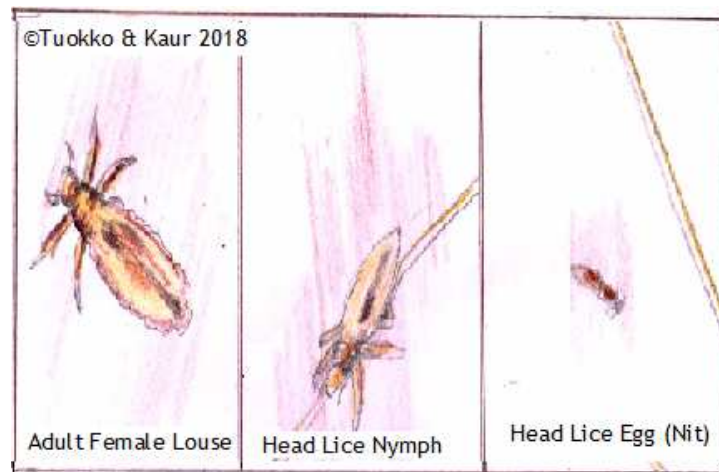


Figure 5. Head Lice (©Tuokko & Kaur 2018)

It is difficult to prevent the risk of getting head lice among children, because of close contact. A good practice for children is not to use or share their hats, scarves, brushes and combs. Unfortunately, low concern for possible head lice infestation facilitates outbreaks due to sharing of items during the play time and sports activities (Oma Terveys Oy 2009.)

Most often over the counter medications are prescribed by physicians and are used to treat head lice that kills lice, but these medications may not kill recently laid eggs. Therefore, second time treatment is usually necessary to kill nymphs after they hatch but before they become adults. Physician should be consulted for best treatment and timing to retreat the head lice (Oma Terveys Oy 2009.)

4.6.2 Pinworm

Pinworms are tiny, white, thread and narrow worms that live in the rectum. Pinworms are white coloured and in length less than half an inch long. The pinworm infection is one of the most common types of infection in daycare aged children. The worm crawls out of the anus and lays eggs in nearby skin which happens during the night time. The child may feel a terrible itch. Pinworm gives an unpleasant feeling but does not cause disease. The pinworm eggs can live up to 2 weeks outside the body, on clothing, bedding, or other objects (Pentti 2017.)

Pinworm can spread or pass so easily from one child to another by touch when an infected child scratches the infected area and gets the eggs on his/her fingernails and does not wash hands. The healthy child may unknowingly swallow the eggs. The eggs from infected child can stick to the toilet seat, bedding, clothes or even toys and this is how the indirect transmission of the infection happens. Small children touch the toys with their mouth without knowing that they are dirty or carry infections. The kids at daycare are more likely to get pinworm infections than kids who stay at home (Pentti 2017.)

Pinworm infection can be prevented by adopting healthy habits, for example, wash hands especially after using the toilet, changing diapers and coming indoors after being outdoors. Toys should be washed or disinfected properly. Bedding must be changed and washed regularly. Opening the blinds or curtains in the rooms during the day because pinworm eggs are sensitive to light (Pentti 2017.)

Some children do not experience any symptoms and is hard to predict if a child is carrying pinworm infection. Pinworm infection symptoms may include, frequent and bad itching of the anal area and presence of pinworms in anus. There can be rash, pain or other skin irritation around the anus. Also there can be pinworms in stools (Giorgi 2012.)

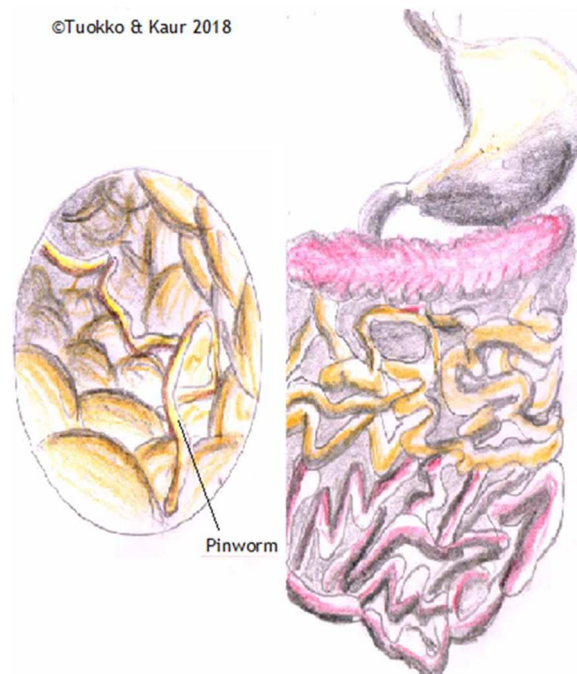


Figure 6. Pinworm (©Tuokko & Kaur 2018)

The physician can usually treat a pinworm infection with oral medications. Because of the fact that the other family members are also at risk, they may receive appropriate preventative treatment. Creams and ointments can be used to soothe itching skin in the area around the anus (Giorgi 2012.)

4.6.3 Scabies

According to WHO (2016) scabies is a skin infection which is contagious and rapidly spreads in the daycare settings. It is most commonly found on the hands, especially between the fingers, the penis, the breast or the shoulders, the skin folds of the wrist, elbow or knees. An intense

itching is often caused by infestation which happens especially at night. Itching and scratching may result in sores which may become infected by bacteria. Norwegian scabies is also a kind of severe form of scabies which is common among people with weak immune system. In infants and young children, most common areas of infestation in the areas of body include, face, soles of the feet, neck, scalp and palms of the hands (WHO 2016.)

Scabies infestation is basically caused by the microscopic mite also called *Sarcoptes scabiei*. The female mite makes a nest into the skin and deposits eggs in the tunnel behind her. An adult mite can live up to about a month. Once the eggs are being hatched, the larvae transfers to the skin surface and in the end changes into the adult form. Mites only survive 48 - 72 hours once away from the human body. Typically, for scabies, the symptoms are experienced after 4 to 6 weeks from the initial infestation. (WHO 2016.)

It spreads through direct skin-to-skin contact and also by sharing bedclothes and infested garments. Hospital environments, daycare centres and any crowded living areas are sensitive and may facilitate the spread of scabies (WHO 2016.)



Figure 7. (Left) *Sarcoptes scabiei* & (right) Skin infected with scabies. (©Tuokko & Kaur 2018)

It can take almost 2 - 6 weeks for symptoms to develop when a person is exposed to the scabies mite for the very first time. One of the most common scabies symptom is itching, which is often worse and can be intense, especially at night. Rashes are another symptom of scabies. When the mite makes a burrow into the skin, it forms burrow or a hole tracks and they are mostly found in

skin folds. They resemble pimples, bites, knots, hives or patches of scaly skin. Also, blisters might be present. Sores can be found on the infested areas where a person has scratched on the skin. Norwegian scabies or crusted scabies, cause severe skin symptoms. It is a form of severe scabies in which unlimited mites and their eggs are wrapped within skin crusts (Raimo 2013.)

Scabies is very contagious especially among young children. Therefore, people sharing the same house with a person diagnosed with the scabies condition, is most likely to receive treatment for scabies even they do not have any symptoms. Generally, scabies is treated with topical medications prescribed by physician. Most of the topicals are too strong, and therefore must be applied at night and washed off in the morning. Some ointments should not be used during pregnancy or while breastfeeding nor by children weighing less than 15kg. To treat severe scabies, the physician may prescribe medication for example, antibiotics, antihistamines, steroid ointments and anti-itching lotions. Skin healing can be seen 4 weeks after receiving treatment (Raimo 2013.)

Personal hygiene is an important preventive measure and access to adequate water supply is important. Clothes, towels and bedding must be washed using soapy water and dry on high heat. If there are some items that cannot be washed then put them in the sealed plastic bag for several weeks to starve the mites. Also, vacuum clean the entire home on the day treatment is started including, curtains, carpets, rugs, etc., and change the vacuum cleaner bag after cleaning (Raimo 2013.)

4.7 Pox-diseases

Pox-diseases such as chicken pox, roseola, hand, foot and mouth disease and fifth disease (Erythema infectiosum) are caused by viruses, except for scarlet fever, which is caused by bacteria. Pox-diseases typically involve fever and various skin symptoms. Chicken pox can be prevented by varicella vaccination and thus fewer children are getting sick with chicken pox nowadays. Pox-diseases, except scarlet fever, are self-healing diseases and do not need to be treated with antibiotics (Jalanko 2017.)

4.7.1 Chicken pox

According to Gonzalez (2016) chickenpox is a virus infection which is caused by chickenpox virus, also called varicella virus (VZV). People, especially children still get it, if not vaccinated. VZV is often classified with other common viral skin infections or viral rashes, such as, measles or German measles (also called rubella), fifth disease, roseola and mumps virus. All of these infections are not related to each other than that they cause rashes. All aged people can get chickenpox but most commonly under the age of 15 get it but majority between the ages 5 to 9 are at high risk. Most common season of year are winter and spring for chickenpox to occur (Gonzalez 2016.)

Main cause of the chickenpox is a virus called varicella zoster. Family members or friends who have not had the chickenpox before or have never been vaccinated are at highest risk of infection and easily become infected after being in contact with an infected person. As chickenpox is one of the most contagious infectious disease (Nordqvist 2017.)

Chickenpox is highly contagious and easily passed between family members, daycare children or school classmates through inhaled air and droplets in exhaled air or by touching blisters or sores. It can be transmitted indirectly by sharing the used clothes or other items by infected person. Generally, chickenpox is contagious up to 5 days, most often, 1 to 2 days before and 5 days after the rash appears. The patient is no more contagious after all of the sores have healed over and are dry (Gonzalez 2016.)

Symptoms before the rash appears include, malaise which is a general feeling of being unwell, fever is usually worse in adults than in children, a feeling of nausea in some people, loss of appetite and aching muscles. Symptoms after rash appears include, rash severity varies from a few spots to a rash that covers the whole body. Spots appears on the face, limbs, chest and stomach and they develop in clusters. They are usually red, small and itchy. Blisters can develop on the top of the spots, as well can become too itchy. Clouding starts within 2 days, which blisters cloud cover and start drying out. Healing process starts within 10 days and crusts fall off on their own. In some cases, symptoms may be very severe and need to contact the doctor if the skin around the blisters or spots becomes red and even painful. There could be difficulties in breathing (Nordqvist 2017.)

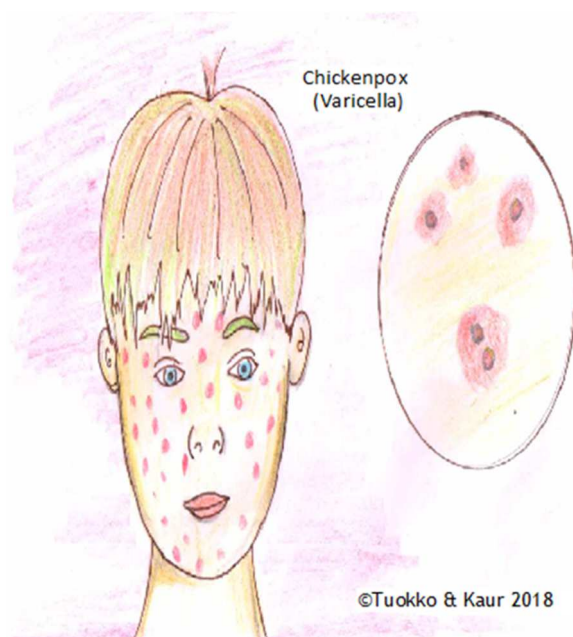


Figure 8. Chicken pox - Varicella (©Tuokko & Kaur 2018)

There is vaccine available for chickenpox. Varicella vaccines are 90% effective at preventing chickenpox (Nordqvist 2017). Two doses of the varicella vaccine are given, first at 18 months and another one at age 6 (THL Infektiotaudit 2017).

The chickenpox symptoms may last about 14 to 21 days after contact with the virus. Chickenpox generally resolves within a week or two without treatment. There is no cure, but a vaccine can prevent from chickenpox. In severe conditions the physician may prescribe medication to reduce some severe symptoms of discomfort and itching, and also advise on how to prevent spreading the infection. Pain medication may help treat pain and high temperature, but aspirin should not be used for chickenpox as it can lead to complications. Keep the child hydrated to avoid dehydration, and if the child drinks poorly than try to offer some sugar free popsicles. Also mouth soreness can be treated by eating sugar free popsicles if there are spots in the mouth. Spicy or salty foods should be avoided this time. Itching can be prevented by keeping the fingernails short and clean, apply some lotion or an oatmeal bath to reduce itching and try to lose clothing. At night time, place mittens or even socks over hands of the child to prevent any kind of scratching attempt (Nordqvist 2017.)

4.7.2 Roseola

According to Barron (2015), roseola which is also known as sixth disease, is a viral disease that mostly effects on young kids between age group of 6 to 24 months. Onset of the disease the child gets high fever in the beginning for several days and followed by a particular rash just as the fever breaks. Roseola is mildly contagious disease and it has a sudden onset and comparatively short duration (Barro 2015).



Figure 9. Roseola rash (©Tuokko & Kaur 2018)

Most commonly two viruses such as human herpesvirus type 6 (HHV-6) and type 7 (HHV-7), primarily cause roseola. These viruses belong to the same family as herpes simplex viruses (HSV), but do not cause genital herpes infections or cold sores that herpes simplex viruses can cause (Eskola, Huovinen & Valtonen 2010.)

For about up to a week the children with roseola develop a mild upper respiratory illness and followed by a high fever which is often higher than 39.5°C. The child may also develop irritability, swollen nodes in the front or back of the neck, puffy eyelids, mild diarrhea and a runny nose. A rash rapidly appears once the fever is over within 12 to 24 hours (Eskola, Huovinen & Valtonen 2010.)

Roseola is spread from person to person, typically by transfer of oral secretions. Roseola is contagious and the infection spreads when an infected child with roseola talks, sneezes, or coughs, and other children breathe in the air and get it. The other children become infected when the virus lands on surfaces and other children touch those surfaces and then swallow by mistake. The fever may last 3 to 5 days, followed by a rash lasting about 1 to 2 days which does not require treatment (Eskola, Huovinen & Valtonen 2010.)

There is no vaccine or any other way to prevent roseola. As we know that it spreads via human to human respiratory droplet secretions therefore basic hand hygiene, hand washing and avoiding being in contact with infected child is the best way to prevent roseola. Roseola can come back again after being cured, but it is uncommon. The daycare centres and preschools should follow routine principles of hygiene and decontamination of toys shared by children (Eskola, Huovinen & Valtonen 2010.)

Roseola does not mostly require professional treatment. But most common treatment is to lower the high fever. Antibiotics are not used in the treatment because bacteria do not cause roseola. Paracetamol and ibuprofen is used to treat roseola fever. Aspirin should not be given to a child because its use has been associated with Reye syndrome, which may lead to liver failure and even death. Keep the child hydrated to prevent dehydration if child does not drink enough fluids (Mersch 2017.)

4.7.3 Hand, foot and mouth disease

According to Montreal Children's Hospital (2016) there is no need to panic about hand-foot-and-mouth disease. Hand-foot-and-mouth disease is caused by a virus and is a childhood viral infection. Although everyone is at risk, the disease is most common among the children under the age of 10. It is a mild illness in children. The specific symptoms such as tiny blisters on the palms of the hands and the bottom of the feet can be a cause of concern. The child does not need to be excluded from daycare or school if s/he has hand, foot and-mouth disease (Montreal Children's Hospital 2016.)

The disease is contagious illness which is caused by several viruses. The virus spreads by direct contact and indirect touch when touching the surface that have been touched by infected person. The infected children or adults are most contagious during the acute phase of illness. Basically, the incubation period of illness varies, which usually takes from 3-6 days, but the virus may continue in stool from 8-12 weeks after recovering (Montreal Children's Hospital 2016.)

The virus which causes hand-foot-and-mouth disease is called coxsackievirus A16 and enterovirus 71, that belongs to the enterovirus family. The most common indication is fever alone from several illnesses from the same enterovirus family. The enterovirus can also cause sore throats with respiratory symptoms, hand-foot-and-mouth disease, gastroenteritis, viral meningitis, infection of the heart and conjunctivitis (Montreal Children's Hospital 2016.)

The early symptoms may include fever, a sore throat and painful blisters similar to cold sores that can show up on the inside the mouth of the child or on the tongue. A rash may occur on the hands, fingers, bottom of the feet and buttocks but they usually disappear in about a week. The rash may turn into blisters, which form in the mouth. The mouth sores can make it hurtful and difficult for a child to eat, swallow or drink (Montreal Children's Hospital 2016.)

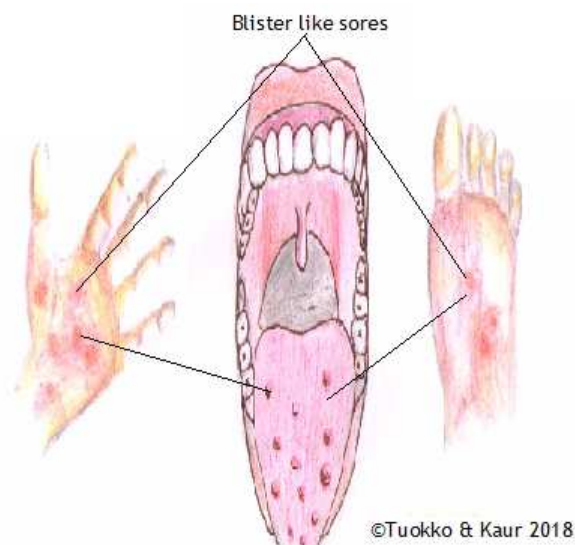


Figure 10. Hand, foot and mouth disease (©Tuokko & Kaur 2018)

Hand-foot-and-mouth disease may cure on its own after 7-10 days. There is no vaccine or accurate treatment for the disease. Some over the counter medications may be used to ease the pain like, paracetamol and ibuprofen or also mouth numbing sprays. Aspirin should be avoided because it can cause serious illness in children. To ease pain in the sore throat, cold treats like popsicles and yogurt can be used. Lotions can be used to treat itchiness (Montreal Children's Hospital 2016.)

4.7.4 Erythema infectiosum (Fifth disease)

According to Zellman (2017) erythema infectiosum also known as fifth disease and is a serious infection. Its most notable symptom is a bright red rash on cheeks of the infected child. This disease is caused by a virus which is called parvovirus B19 (Zellman 2017.)

Erythema infectiosum is caused by a virus called parvovirus B19 and can spread from person to person through saliva, sputum or droplets. The virus can cause serious illness in a fetus or in any child who has certain kind of low blood cell count or anemia such as sickle cell anemia. Outbreaks of these infections occur or appear upon seasons by time to time in elementary schools and daycares, in winter and early spring months (Oma Terveys Oy 2013.)

Most common symptoms include, sore throat, mild fever, headache, coryza, arthralgias, pruritus and abdominal pain. After 7-10 days of these first symptoms, the distinctive rash of the fifth disease appear. The rash appears 2-3 weeks after the child becomes infected and once the rash is present the child is no longer contagious. The rash starts on the face which seems like giving the child a “slapped cheek” appearance. As well, a slightly raised rash may develop on the torso and then spreads to the thighs, arms and buttocks. Basically, 5-10 days later the rash will tend to fade. In some cases, the disease may reappear briefly weeks or months later (Oma Terveys Oy 2013.)

It usually spreads via respiratory secretion but can also be passed on via bone marrow, blood transfusion and from mother to baby during pregnancy. The infectiousness is medium and is less contagious than many other viral infections. One attack confers lifelong immunity (Oma Terveys Oy 2013.)



Figure 11. Fifth disease - Erythema infectiosum (©Tuokko & Kaur 2018)

To prevent others getting the fifth disease, a good hygiene is important by practicing frequent hand washing. Since children with fifth disease are contagious only during the asymptomatic

viremic period, that occurring approximately 1 week before the rash appears. This may not restrict child from attending school or daycare. There is no vaccine to prevent parvovirus B19. The child infected with these viruses are considered non-infectious, the day after the rash appears (Oma Terveys Oy 2013.)

Most of the children with the fifth disease are treated only for symptoms to make them feel more comfortable. If the child is having fever, then the physician may recommend pain medication to lower the temperature and to reduce the intensity of pain and aches that belongs to the illness. In some severe cases hospitalization and blood transfusion is a must when patient is having serious anemia (American Academy of Pediatrics 2015.)

4.7.5 Scarlet fever

According to Davis (2017), scarlet fever was a scary illness before medical invented antibiotics in the 19th and early 20th century. It is a bacterial infection caused by group A streptococcus or group A strep, the same bacteria which is found behind strep throat. A child cannot get scarlet fever without suffering first from strep throat. An antibiotic can prevent strep to scarlet fever if taken before bacteria has the time to progress. The bumpy rash appears on the face, chest, neck and wrinkles or folds of the body for example, elbows, armpits, etc. Scarlet fever, if left untreated, can spread to other areas of the body and can cause other health problems such as, meningitis, sinusitis or even kidney failure (Davies 2017.)

Scarlet fever is highly contagious, but still very easy to treat with the help of antibiotic. Children most commonly get it during winter and spring time and due to its contagiousness, the illness spreads easily in the family. The bacteria spreads through contact with droplets when an infected person sneeze or cough because the bacteria lives in the nose of the infected person. Generally, it spreads by direct or indirectly for example, by touching own nose, eyes or mouth after touching that someone that has those droplets on it. To prevent spreading the bacteria, the good hygiene practice is most important (Davies 2017.)

An untreated case of strep throat causes scarlet fever. As bacteria lives in the nose therefore it can spread through sneezing, coughing and sharing infected person's toys or clothes. A throat swab is really important to be done for treatment. The child is as long contagious as the fever lasts. Most commonly children than adults get it because adults already have strong immune system and children are still developing their immune system at this time (Davies 2017.)

A sore throat is the initial symptom when scarlet fever is still on its strep phase. A rash with bright red lines, also called Pastia's lines, which looks like a sunburn but feels like sandpaper, and is occasionally itchy, it can be spotted once the bacteria has advanced. Some other symptoms may include, a very red and sore throat, swollen glands, nausea or vomiting, headaches, a bright red and bumpy rash can be spotted on the tongue, head or body aches, bright red skin

in the underarms, elbows and groin creases, mild to high fever and abdominal pain (Davies 2017.)

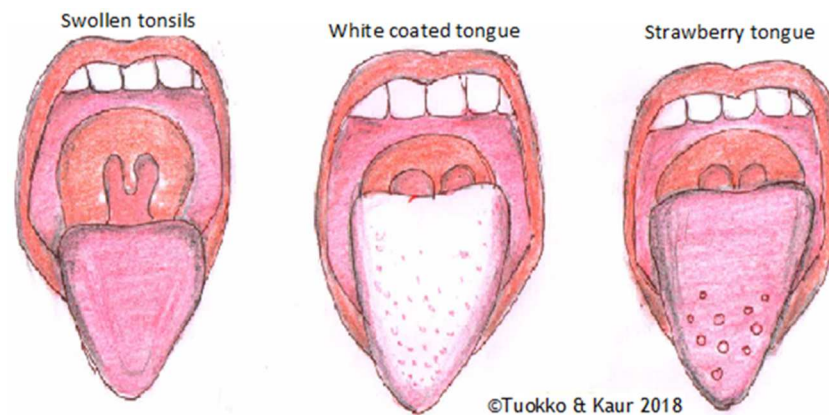


Figure 12. Scarlet fever (©Tuokko & Kaur 2018)

Scarlet fever is treated with antibiotics. Different types of bacteria and viruses may cause sore throats. There for physician's instructions must be needed to ease the symptoms. The physician wants to have the swab test done before any kind of procedure to see if group A strep is causing the illness. Once the result is positive, then physician will prescribe antibiotics. Antibiotics work faster and help the ill person to feel better faster and also protect others from getting it. The babies and young toddlers may feel itchy and may want to peel skin therefore mittens can be helpful to prevent. Child should be kept hydrated by offering plenty of fluids. To relief pain, the paediatrician may prescribe some pain reliefs to ease the pain (Davies 2017.)

There is no scarlet fever vaccine to prevent the disease. The best scarlet fever prevention is getting timely treatment for a strep throat. As scarlet fever is contagious therefore it can rapidly spread throughout daycare and school, so children with scarlet fever should stay at home from daycare or school for at least 24 hours after starting antibiotics. A good hygiene is very important to stop the spreading of the disease. The parents and child must wash their hands regularly after playing, eating or touching things that is touched by infected person (Davies 2017.)

4.8 OTHER INFECTIONS

4.8.1 Conjunctivitis

According to Gamulka & Flanagan (2010) the contagious form of conjunctivitis is caused by bacterial or virus infection, but most often it is caused by virus. It can be caused by allergic reaction as well (Gmulka & Flanagan 2010).

Pink eye, which is also called conjunctivitis, is a contagious form of conjunctivitis. It is an inflammation of the clear mucous membrane and this membrane becomes pink or red in colour.

The conjunctiva is the lining of the white part of the eye and inside of the eyelid. When it becomes inflamed, the child gets conjunctivitis (Matti 2016.)

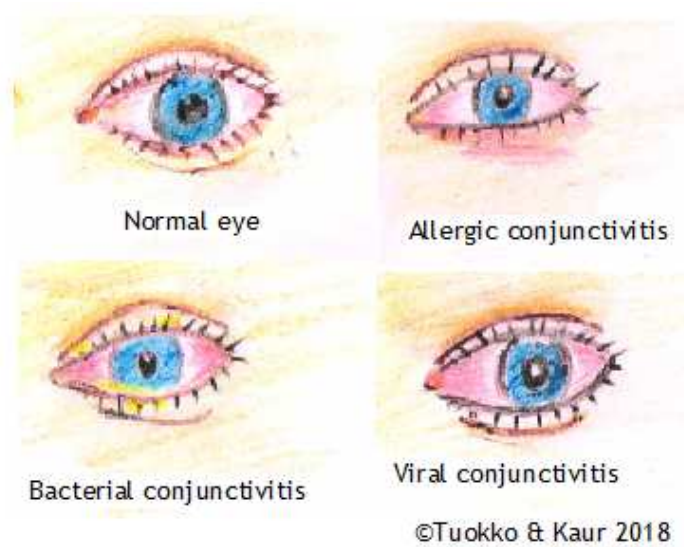


Figure 13. Normal eye, allergic, bacterial and viral conjunctivitis (©Tuokko & Kaur 2018)

There are many causes of conjunctivitis but bacterial, viral and allergies are most common causes of conjunctivitis. The pink eye can occur at any age, but is most common among daycare- and school- aged children because of most number of bacteria transferred among children while they play and touch each other. *Haemophilus* species, *Staphylococcus aureus* and *Streptococcus pneumoniae* bacteria are the most common causes of pink eye. Bacteria that causes pink eye may also sometimes causes an ear infection and both illnesses are mostly seen in younger children. The viral pink eye and common cold are caused by same viruses. Anything which causes allergic symptoms can cause allergic conjunctivitis for example, pets, mites, dust, pollen, trees, grass, etc. (Dr. Friedman 2017.)

The most common symptoms of conjunctivitis are redness in the eye, which is also called pink eye. Symptoms in children may include, itchy eyes, slightly swollen eyelids, clear, yellow or green eye discharge, or eye and inner eyelid redness. Other symptoms may depend on the type of conjunctivitis for example, yellow or green mucous discharge, itchy eyes, pain, watery and sensitivity to light in the infected eye. The viral conjunctivitis causes excessive eye watering and a light yellowish discharge. Allergic conjunctivitis causes redness and itching in both eyes. Bacterial conjunctivitis causes sticky and thick discharge, also sometimes it can be greenish (Matti 2016.)

The infection of conjunctivitis spread easily from person to person or from object to person. Because of highly contagious nature of the conjunctivitis it can rapidly spread through daycares and preschools. Either a direct or an indirect contact can effectively transfer the virus to a new

host. This is why it spreads rapidly through daycare and preschools. People infected with viral pink eye are contagious to other in the same way as children with cold virus. The virus spreads through coughing and sneezing. The conjunctivitis can last for up to two weeks. Good hand hygiene can stop spreading of infection (Matti 2016.)

To prevent the infection in children at daycare, adults must wash their hands frequently and encourage the children to do the same. While the infection is going on there should be soap available for hand washing at all times. While sneezing or coughing the children must be encouraged to use tissues and cover their mouths and noses. Use disinfectant solution to clean and wipe surfaces at daycare for example, tables, chairs, toys, drinking fountains, sinks, etc. Eye rubbing, and touching must be avoided. Avoid sharing hand towels. Children should be kept from the daycare 3 to 5 days after receiving the diagnosis for pink eye (Matti 2016.)

Both viral and bacterial conjunctivitis should resolve on its own within 7 to 10 days. There are no medications for common viral pink eye but there are antibiotic drops for bacterial pink eye. But allergic conjunctivitis can be treated with different types of allergy eye drops. Some oral medications may be recommended if there are other allergy symptoms present like, sneezing, stuffy and runny nose, coughing, etc. Pink eye may be irritating but usually not painful, therefore child does not need pain relief medicine (Gamulka & Flanagan 2010.)

4.8.2 Impetigo

Impetigo is an old disease. It is a contagious bacterial skin infection that is common around the world. The infection attacks on the topmost layer of the skin on the hands, mouth, nose and legs. Impetigo starts where there is a break in the skin, such as a cut. It is common in children and occurs when the bacteria get into scrapes and insect bites. The skin becomes painful and itchy, which causes discomfort to the child. Anybody can get impetigo, but children get it most often. Children infected with impetigo should stay at home and rest. Impetigo often occurs in the summer (Hecht 2017.)

Impetigo is caused by bacterial infection such as, *Streptococcus pyogenes* or *Staphylococcus aureus*, which attacks through cuts, sores, insect bites, etc. The bacteria transmit and could infect the healthy skin too. Common kind of impetigo among children is caused by *Staphylococcus aureus* bacteria. The bacteria may also colonize, and cause infection on the healthy skin (Anna 2015.)



Figure 14. Bullous and Non-bullous impetigo. (©Tuokko & Kaur 2018)

Impetigo can spread to the skin under the nails or between skin folds. The infection spreads through contact with open sores, liquid or pus that oozes from the blisters. If only certain known place is infected then try to prevent it from spreading. It can also spread from anything an infected person touches. Impetigo may also spread by sharing bedding, clothes or undergarments, washcloths and towels, toys or anything else that comes in contact with an open sore. Poor hand hygiene helps spreading the infection (Anna 2015.)

Common symptoms may include, blisters on the face around the nose, chin, mouth and also on the other parts of the body. There may be also itching around the sores. The infection stays longer than an ordinary pimple. Scabbing over the blister site with a yellowish crust. Quite rare conditions may include, high temperature and swollen glands. There may be uncomfortable, itchy and painful sores around the blisters. In case of non-bullous impetigo there are large red blisters filled with a fluid which are clustered around the lips and nose. Infants often have a less common type of impetigo, with larger blisters around the diaper area or in skin folds (Anna 2015.)

There is no vaccine to prevent the impetigo. By following some good habits it can be prevented for example, do not share clothes, towels, toys, plates or bottles, soaps and beds with person who is infected. Adapt good hand hygiene and encourage kids to wash their hands regularly. Keep the child away from others who have impetigo. Bathe the child regularly. Maintaining proper hygiene is very important to stop spreading it. Cover any skin wounds or insect bites to

protect the area. Keep the nails short and clean. Avoid scratching or touching the open sores. Wash or clean nicely anything which comes in contact with impetigo sores on high temperature and use some laundry bleach. Clean toys and equipment with disinfectant. Avoid sharing personal items with other children at daycare (Anna 2015.)

The impetigo can be treated with prescribed antibiotic cream or ointment by physician, which can be given by orally (by mouth) or applied on the skin in the form of an ointment. But the treatment of the impetigo depends on how severe the condition of the blisters are. Some other treatments also include, maintaining a good hygienic skin care routine and washing blisters with a skin-friendly soap, under running tap water (Hecht 2017.)

4.8.3 Molluscum Contagiosum

According to Hyde (2016) molluscum contagiosum is a common and self-limiting viral skin infection. It is a mild skin disease in children which is caused by a pox virus. Molluscum contagiosum can happen at any age. It is a viral infection which causes a mild skin rash. It produces benign raised lesions or bumps, on the upper layer of the skin. Generally, the small bumps are painless and disappear on their own and there are less chances that it leaves scars when they are left untreated. The bumps can last from months to years (Anna 2017.)

Molluscum contagiosum is caused by a pox virus and it thrives on the skin of an infected child and can be passed on to other children through direct or indirect contact. It happens when the virus enters a small break in the surface of the skin. Children get it easily by touching other objects that have virus on them which is touched by infected child through direct skin-to-skin contact. Molluscum contagiosum does not cause long-term problems, and the growths usually leave no marks (Anna 2017.)

Small pinpoint appear on the skin of the child 1-6 months after exposure to the virus. The pinpoints have a dip in the middle and a milky white cheesy material inside and the bumps look smooth and shiny. These bumps may appear anywhere on the body of the children. Some children get less bumps and some get a lot. Basically, the colour of the bumps is white, pink or skin-coloured. In small children the bumps can be seen on the stomach, chest, legs, genitals areas, arms, groin and face. These mollusca are usually painless but may be itchy, reddish, sore and swollen. They can be infected when child scratches them (Hyde 2016.)

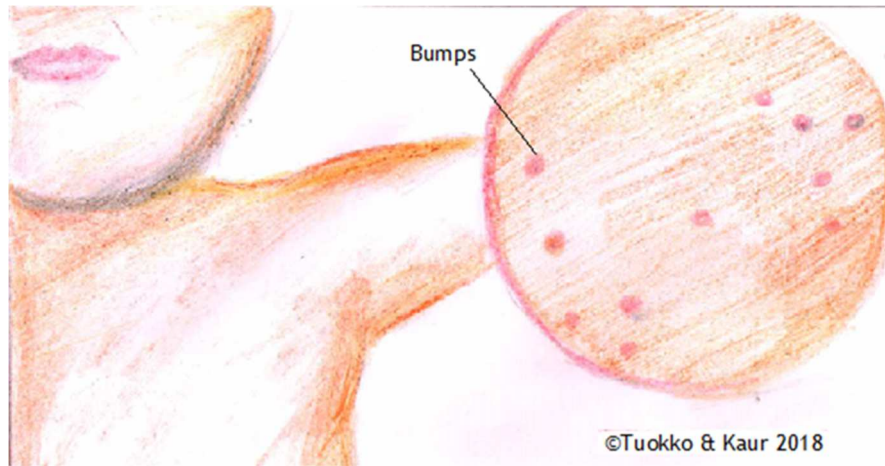


Figure 15. Molluscum contagiosum, Bumps (©Tuokko & Kaur 2018)

Molluscum contagiosum is contagious and spreads easily from person to person. Molluscum contagiosum may spread by direct skin-to-skin contact with bumps or indirect contact for example sharing same bedding which is contaminated with discharge from the bumps. Most often, children scratching the bumps can spread the infection from one side of the body to other parts of the body. Children get it easily by sharing toys, clothes, towels, linen and washcloths (Hyde 2016.)

Children infected with molluscum contagiosum should not share their personal belongings for example, toys, clothes, towels and bedding with other children. The infected area must be covered up whilst in contact with other children. The clothes of the infected child must be washed properly. Toilet seats must be cleaned carefully with disinfectant after using the toilet. Child must avoid scratching, touching or rubbing growths. Hands must be washed often with water and soap. For dressing the infected area, change the bandage daily or when it looks dirty. If the skin looks dry than moisturizing cream can be applied. The child can get infection through infected child, but it is rare therefore infected child should avoid sharing their personal items for example, cloths and towels (Hyde 2016.)

The bumps will usually go away by itself but it can take from months to a year. Molluscum contagiosum usually does not need to be treated but symptoms like itching can be treated with ointment or cream. The physician may treat the infection, for example, by removing growths by using a sharp instrument. Contagious center is removed by squeezing the bumps with tweezer or scalpel. (Hyde 2016.)

4.9 INFECTION PREVENTION AND CONTROL

4.9.1 Hygiene

Many infections are very contagious and often spread from person to person by touch. The groups at daycare are typically large and the children play in close contact with each other. Small children tend to put their hands and toys in their mouth, which further spread the infections rapidly. (von Schantz & Matilainen 2009, 62.)

Good hand hygiene routine is the most effective way to reduce infections and to prevent spreading of infections (Sosiaali- ja terveystieteiden ministeriö 2005, 11). In many studies enhanced hand hygiene has been linked to reduced absences from daycare due to infections. In a study, which was done in selected Helsinki daycares, enhanced hand hygiene reduced absences by 26% with small children (Pönkä, Poussa & Laosmaa 2001). Additionally a study conducted in daycare centers in Denmark notes that intervention concerning hand hygiene reduced sickness in children in the centers, and there was a significant drop on diarrhea and eye-infections (Ladegaard & Stage 1999). According to von Schantz and Matilainen (2009, 62) hands should be washed at least after using the toilet, after blowing one's nose, before lunch/snack and nap times. The staff plays an important role of helping children develop good hygiene habits that they will use throughout their lives (von Schantz & Matilainen, 2009, 62).

4.9.2 Vaccinations

A vaccine is a preparation intended to improve immunity to a particular disease. Vaccines can help protect from serious diseases, and a vaccinated person also help further reduce spreading of the diseases. Vaccinations have made it possible to eradicate a number of serious communicable diseases (Jalanko 2009.)

The child care clinics in Finland offer a voluntary and free of charge national vaccination program for children. The national vaccination program is funded through the central government budget and the vaccines in the program are decided by Ministry of Social Affairs and Health (THL Rokottaminen 2017.)

One of the most recent vaccines added to the national vaccinations program for children is rotavirus vaccine. Rotavirus vaccine, which helps protect against severe diarrhea, has been particularly effective among under the age of five years old. Since the vaccine was introduced to the national vaccination program in 2009, the rotavirus infections have dropped from 460 cases per 100 000 to 23 cases per 100 000 in 2016 (Jaakola et al 2016, 24.)

Influenza vaccines are recommended for daycare staff as small children suffer more from influenza than other age groups. Also, immunizations against varicella, measles, mumps and rubella are recommended for the staff (THL Rokottaminen 2017.)

4.9.3 Daycare groups

The size of the groups are often large at daycare centers. According to the study of Bell et al (1989) the main risk factor for infection in daycares is the group size, and the risk for infection increases as the group size grows. Furthermore, for the prevention of infections, it would be best if the care of children under the age of three was arranged so that the group would have no more than six children (Renko, Möttönen & Uhari 2011.) Other means of infection prevention are keeping the children from same family in same group and minimizing mixing among diapered and un-diapered children (Ferson 1997).

4.9.4 Staff training

Typically, practical nurses, kindergarten teachers, “sosionomi” (Bachelor of Social Sciences degree) and children’s instructors work at daycare centers. Their studies focus on the pedagogics and child care, and emphasize less on health care (Ammattinetti 2018.) Frequent training of staff about health problems such as infectious diseases in children as well as policies for controlling infectious diseases can motivate the staff to implement the instructions. Also, clear and written policies and procedures in place regarding how children are appropriately cared for while children fall in sick will help the staff to handle these situations (Ferson 1997; Renko & Uhari 2001.)

5 GUIDE

Making a guide requires thinking from many different angles. It is important to consider beforehand what the guide is intended to communicate to the target audience. A good guide is logical and it meets the needs of the target group (Vilkka & Airaksinen 2004, 52-53.) Kyngäs et al (2007, 125) notes that a well prepared guide is effective and intended for a particular target group. Also the guide should be easy to read and handy, and the customer could refer back to when it is necessary. The guide that was the outcome of this thesis, is based on evidence-based information, and only trusted online sources as well as printed materials were used. The authors believe that the evidence-based information in the guide is reliable and responds to the needs of the target group. The guide is easy to read and handy, and also authors have avoided using of foreign and scientific words, because they can be misunderstood. Additionally taking into consideration the daycare environment, the guide is comprised of laminated cards, which are more durable than a paper version would have been.

In addition to being a part of the thesis work this guide will be used in a team project which will introduce the information provided in the guide to the Tammisto daycare center. The introductory session at the daycare center will fulfill the team project requirement of Development of Services to Promote Health and Wellbeing-course. Above mentioned course is part of the Degree of Nursing program curriculum.

6 ETHICS AND VALIDITY

Hirsjärvi et al (2013, 24) states that the choice of the research topic itself is an ethical decision. Ethics has been taken into account throughout the thesis work. From the very start of planning the authors stressed the importance of choosing a work that is current, useful and meaningful for the working life, and not just of interest of the authors. Due to the nature of the thesis, as the authors were not interviewing or doing a survey, no research agreement was needed, however there was a signed agreement with Tammisto daycare centre for co-operation. Additionally, authorization of using the daycare center's name in the thesis was requested and granted.

The acquisition of information should be based on scientific literature, other relevant sources of information, adequate tests, observations and self-study (Vilkka 2005, 30). The background of the thesis is based on evidence-based information, and only trusted online sources as well as printed sources were used. The validity of the work is increased by the extensive use of several different sources. During the thesis work it was noticed that often same author names came across in different works, which strengthens the reliability of the authors. Furthermore, many studies done in the similar area of work seemed to have same type of results regardless where the study was conducted.

This thesis does not include all possible infectious diseases that the daycare aged children can suffer from, rather most common infectious diseases were selected by the authors based on the conversations and correspondence of the director of the daycare.

7 DISCUSSION AND EVALUATION

Writing a thesis is a long learning process. Once the thesis is ready, the authors evaluate the results of their own work.

The purpose of this thesis was to provide guide about most common infectious diseases for the daycare staff. The outcome of the thesis was a guide that was provided for the daycare's use. The aim was to help the staff to develop their expertise and knowledge of the infections, which in turn can help reduce outbreaks and spreading of infectious diseases at the daycare. How the goals realize in practice is to be seen once the guide has been taken into use at the daycare.

The authors found the topic of the thesis interesting and current. The authors had genuine interest and motivation in the topic, which made the thesis writing process easier. Both of the authors had some information about the infectious diseases, but none of them had a comprehensive knowledge of the subject. During the thesis writing, the authors have gained more knowledge on infectious diseases and how to prevent them. The outcome of the thesis, the guide, serves as a referral tool for the daycare staff. If so desired the staff can share the laminated cards with children and/or parents to clarify or explain about a particular infectious

disease. Although this guide was produced for Tammisto daycare center, it could have been taken into use at any other daycare center as well.

The authors feel that they have reached their own learning goals set for the thesis. During the thesis process the authors learned to work in a development project that concerned working life. Data collection skills, team work, organizational skills and resilience to stress were improved during the process. Additionally, both of the authors noticed that their writing skills have also improved since the planning phase of the thesis. The authors are pleased with how the guide turned out; the information is to the point, the laminated cards are handy to use and are more durable than a paper version would have been.

According to the literature review done for the thesis when the general knowledge of the infectious diseases and prevention of the diseases are given special importance, the absences from daycare due to infections are reduced. Many studies conducted in Finland and abroad have similar outcomes; when good hygiene routines have taken into use both children and staff have had fewer infections in daycare centers. Reduced absences from daycare due to infections benefits not only the children in daycare and their families, but also the society in whole. Also economic implications associated with the children's infectious diseases are indisputable.

Further development of the thesis could be to explore the benefits of the guide and to evaluate the achievement of the goals after the introduction of the guide at the daycare center.

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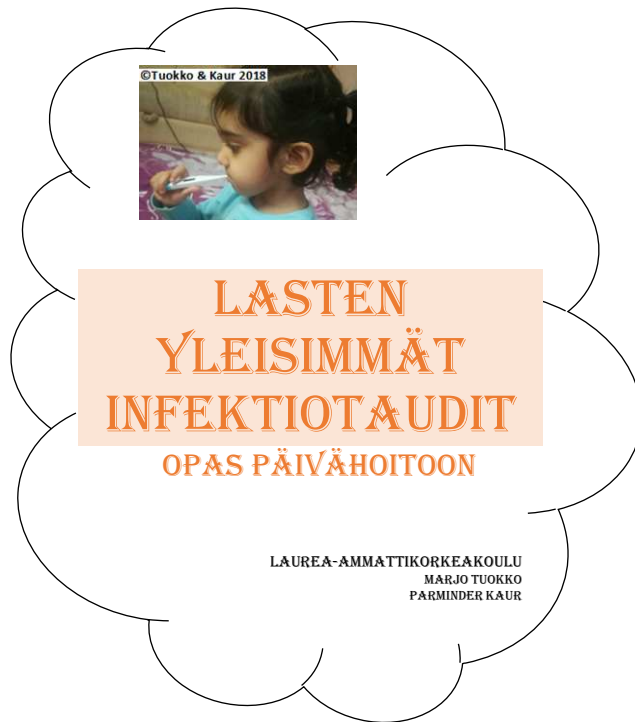
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APPENDICES

Appendix 1: Pages of the guide



LAUREA-AMMATTIKORKEAKOULU
MARJO TUOKKO
PARMINDER KAUR
2018

ENTEROROKKO

Yleistä

- Enteroviruksen aiheuttama
- Itämisaika 3-6 vrk
- Esiintyy erityisesti loppukesällä ja syksyllä
- Helposti tarttuva



Oireet

- Flunssaoireet
- Ripuli
- Kuume
- Kutiamattomat rakkulat suussa, kämmenissä ja jalkaterissä
- Ihottumaa voi olla myös vartalolla

Tartunta

- Pisara- ja kosketustartunta sekä ruuan ja ulosteen välityksellä

Ehkäisy

- Ilmoitus huoltajille
- Hyvä käsihygienia
- Eritteiden kosketuksen välttäminen

Hoito

- Oireiden mukaisesti
- Paranee itsestään noin viikossa
- Kuume/kipulääke

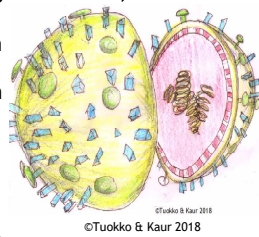
Poissaolo päivähoitosta

- Yksi kuumeeton päivä ennen päivähoitoon palaamista
- Lapsen yleisvoinnin mukaisesti

INFLUENSSA

Yleistä

- Aiheuttaja A- ja B-virus
- Alkaa äkillisesti ja rajusti
- Sen itämisaika on useimmiten 1-3 vuorokautta
- Erittäin tarttuva



Poissaolo päivähoitosta

- Yksi kuumeeton päivä ennen päivähoitoon palaamista
- Lapsen yleisvoinnin mukaisesti

Tartunta

- Pisaratarjunta sekä eritteiden välityksellä
- Tarttuu leluista ja pinnoilta

Oireet

- Kova yskä
- Väsymys ja huonovointisuus
- Kylmänväristykset
- Korkea kuume ja päänsärky
- Mahakipua ja oksennusta
- Kuume alkaa laskea 3-4 päivän kuluttua

Hoito

- Paranee itsestään
- Lepo
- Kevyt vaatetus
- Riittävä nesteytys
- Pidä huoneen lämpötila viileänä
- Kuumelääke

Ehkäisy

- Tiedottaminen huoltajille
- Influenssarokote on paras tapa estää
- Hyvä käsihygienia

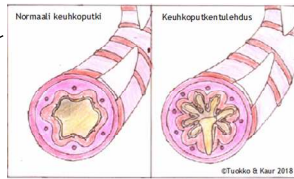
KEUHKOPUTKENTULEHDUS

Yleistä

- Yleisin aiheuttaja virus, ja harvoin bakteeri

Tartunta

- Pissartartunta
- Hengitystieinfektio saattaa laukaista ahtauttavan reaktion
- Reaktion voimakkuus vaihtelee lapsesta toiseen



Oireet

- Nuha
- Yskä
- Vilunväristykset
- Kipeä kurkku
- Vinkuminen
- Lievä kuume ja huonovointisuus

Poissaolo päivähoidosta

- Yksi kuumeeton päivä ennen päivähoitoon palaamista
- Lapsen yleisvoimin mukaisesti

Ennaltaehkäisy

- Tiedottaminen huoltajille
- Hyvä käsihygienia
- Sairas lapsi hoidetaan kotona

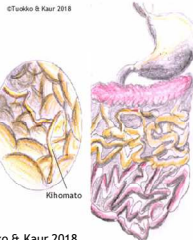
Hoito

- Bakteeri-infektio hoidetaan antibiooteilla
- Riittävä nestehoito
- Lämpimät juomat voivat lievittää kurkkukipua ja rauhoittaa kuivaa yskää
- Paranee 1-2 viikon kuluessa

KIHOMADOT

Yleistä

- Aiheuttaja loismato
- 1-2 cm pitkiä, valkoisia
- Elävät peräsuolessa
- Enimmäkseen 4-15 -vuotiailla lapsilla
- Itämissaika ½ kk - 2 kk



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Tartunta

- Kosketustartunta
- Tarttuu sormin syömisen, lelujen ja esineiden kautta, vuodevaatteista, huonepölystä jne., josta ne joutuvat hengittäessä nieluun
- Tarttuu, kun madon munia niellään
- Munat säilyvät tartuttavina ympäristössään useita päiviä
- Yksi kihomato elää noin kuukauden, mutta sairastava voi tartuttaa itsensä herkästi yhä uudestaan

Poissaolo päivähoidosta

- Päivähoitoon voi palata hoidon jälkeen

Oireet

- Oireiden alkamiseen kuluu kuutisen viikkoa
- Peräaukon kutina etenkin nukkumaan mennessä iltaisin
- Suurin osa kantajista on oireettomia

Ehkäisy

- Tiedottaminen huoltajille
- Hyvä käsihygienia
- Sormenkynnet leikataan lyhyiksi, jottei niiden alle jää munia
- Patjat ja tynnyt imuroidaan

Hoito

- Itselääkitys tai reseptilääkitys apteekista, hoidon uusinta 1-2 viikon päästä
- Vuodevaatteiden- ja alusvaatteiden vaihto ja pesu hoidon aloittamisen jälkeen
- Koko perhe tulee hoitaa samanaikaisesti
- Jos päiväkotiryhmässä todetaan kihomatoja usealla lapsella kannattaa hoitaa koko ryhmä

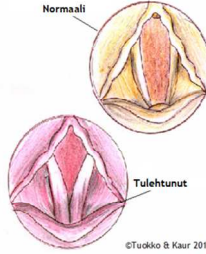
KURKUNPÄÄNTULEHDUS

Yleistä

- Aiheuttaja on virus
- Alle 7 vuotiaat lapset sairastuvat eniten, tavallisesti 2-3 vuotiaat
- Esiintyy syksyllä ja talvisin

Tartunta

- Kosketus- ja pisaratartunta sekä eritteiden välityksellä
- Tarttuu lelujen välityksellä
- Tarttuu jo ennen kuin oireita ilmaantuu



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Ehkäisy

- Tiedottaminen huoltajille
- Hyvä käsihygienia

Poissaolo päivähoidosta

- Yksi kuumeeton päivä ennen päivähoitoon palaamista
- Lapsen yleisvoimien mukaisesti

Oireet

- Käheys ja heikko ääni
- Kuiva ja vinkuva yskä
- Äänen menetys
- Kipeä ja kuiva kurkku
- Voi olla hengitysvaikeuksia

Hoito

- Yskä parantuu itsestään
- Höyryhengitys
- Puoli-istuva asento
- Kipulääke
- Joskus kortisonihoito hengitysvaikeuksien vuoksi

KUUME

Yleistä

- Kainalosta mitattuna yli 37,5 astetta
- Korkea kuume on vaaraton, jos lapsi muuten vaikuttaa pirteältä
- Kuumesta ei voi päätellä, miten vakavasta sairaudesta on kyse

Syy

- Kuume on merkki infektiosta tai sairaudesta

Oireet

- Väsymys
- Ärtisyys
- Ruokahaluttomuus
- Kuumeouristukset
- Kuume voi kestä noin 3-4 päivää



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Ehkäisy

- Hyvä käsihygienia
- Vältä kosketusta sairastuneen kanssa
- Varmista, että rokotukset ovat ajan tasalla

Poissaolo päivähoidosta

- Yksi kuumeeton päivä ennen päivähoitoon palaamista
- Lapsen yleisvoimien mukaisesti

Hoito

- Kuumeinen lapsi hoidetaan aina kotona
- Rasituksen välttäminen
- Lepo
- Kevyt vaatetus ja ympäristön viilentäminen
- Riittävä nesteytyys
- Kuumetta alentava lääke
- Aspirinia tulee välttää

MÄRKÄRUPI

Yleistä

- Aiheuttaja streptokokki- tai stafylokokkibakteeri
- Atooppinen ihottuma altistaa
- Erittäin tarttuva
- Itämis aika 2-5 vrk

Oireet

- Paksu märkivä rupi (yleensä suun ympärillä), mutta voivat olla missä vaan
- Tauti alkaa märkärakkulana joka karstoituu, leviää ja rupeutuu
- Niitä on eniten ohuilla ihoalueilla, kuten kynnärtäpeissa, reisissä ja polvitaiepeissa

Tartunta

- Tarttuu helposti henkilöstä toiseen ihon rikkoutuman kautta ja voivat levitä raapimisen seurauksena ympäri vartaloa
- Tarttuu lelujen välityksellä



Hoito

- Rupia haudotaan ja liotellaan tarvittaessa useita kertoja päivässä, niin että ne pehmenevät ja irtoavat
- Paikallinen antibiottihoito, jos leviää laajemmalle, antibioottihoito suun kautta

Ehkäisy

- Hyvä käsihygienia
- Lyhyet kynnet, jotta iho pysyisi ehjänä raapiessa
- Lelujen päivittäinen pesu

Poissaolo päivähoitosta

- Päivähoitoon voi palata, kun märkiviä rupia ei enää esiinny, tai 1 vrk suun kautta otettavan, tai 2 vrk paikallisen antibioottihoiton alusta

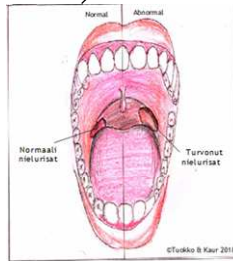
NIELUTULEHDUS

Yleistä

- Aiheuttaja virus tai bakteeri
- Erittäin yleinen lapsilla
- Esiintyy talvikuukausina

Oireet

- Kurkun turvotus ja punoitus
- Karhea ääni
- Väsymys ja päänsärky
- Kipeät korvat ja kurkku
- Kuume tai vilunväristykset
- Punertava tai turvonnut kurkku
- Voi olla hengitysvaikeuksia
- Pahoinvointi ja oksentelu



Tartunta

- Kosketus-, pisara- ja eritetartunta
- Tarttuu leikkikalujen ja pintojen välityksellä

Hoito

- Bakteeri-infektio hoidetaan aina antibiooteilla
- Riittävä nesteytys
- Kurkkukivun vuoksi lapsi voi syödä jäätelöä tai jääpaloja
- Kipulääke

Ehkäisy

- Tiedottaminen huoltajille
- Hyvä käsihygienia

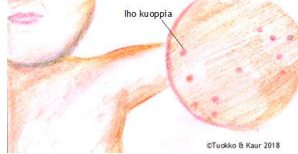
Poissaolo päivähoitosta

- Bakteeri-infektiossa päivähoidon palaaminen kahden vuorokauden jälkeen hoidon aloittamisesta sekä yksi kuumeeton päivä
- Lapsen yleisvoimin mukaisesti

ONTELOSYYLÄT

Yleistä

- Aiheuttaja virus
- Esiintyy tavallisimmin kuivaihosisilla atoopikkolapsilla
- Itämisaika 2-7 viikkoa



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Oireet

- Pieniä vaaleita kiiltäviä kohoumia iholla, jotka keskeltä hieman kuopalla
- Niitä on eniten ohuilla ihoalueilla, kuten kyynärtaiteissa, reisissä ja polvitaiteissa
- Kohoumat voivat kutista, ja iho rikkoutua raapimisesta

Tartunta

- Suora ihokosketus, tai välillinen tartunta lelujen, vaatteiden, pöytien, pyyhkeiden, pottien ja käsien ym. välityksellä
- Tarttuu tavallisesti toisilta lapsilta

Ehkäisy

- Hyvä käsihygienia
- Kuivan ihon rasvaus
- Lyhyet kynnet, jotta iho pysyisi ehjänä raapiessa

Poissaolo päivähoidosta

- Ei tarvetta poissaoloon päivähoidosta

Hoito

- Paranee itsestään 2 kk – 2 vuoden kuluessa
- Ensimmäisten syylien tyhjennys molluskapihdeillä puuduttavan rasvan kanssa voi taltuttaa vaivan alkuunsa
- Jos hoito ei ole kohtuullisella vaivalla toteutettavissa, kannattaa odotella spontaania paranemista

PARVOROKKO

Yleistä

- Aiheuttaja parvovirus 19
- Yleisin 5-15 -vuotiailla
- Itämisaika 1-2 viikkoa
- Esiintyy kevättalvella epidemioina



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Tartunta

- Pisarartartunta
- Tarttuu jo itämisaikavaiheessa, joten hyvin vaikea välttää
- Kun oireet ilmaantuvat on tartuttavuus jo ohi

Poissaolo päivähoidosta

- Yksi kuumeeton päivä ennen päivähoitoon palaamista
- Lapsen yleisvoinnin mukaisesti

Hoito

- Ilmoitus huoltajille
- Hyvä käsihygienia
- Oireiden mukaisesti
- Paranee itsestään
- Kuume/kipulääke

Oireet

- Pään-, lihas- ja nivelsärkyä
- Lievä kuume
- Poskien punoitus, jota seuraa vartalosta raajoihin leviävä ihottuma
- Ihottuma kestää 1-3 viikkoa

RIPULI JA OKSENTELU

Yleistä

- Yleisin aiheuttaja on virus
- Rotavirus yleinen etenkin alle 5-vuotiaalla
- Norovirus yleinen lapsilla ja aikuisilla
- Esiintyy yleensä keväällä
- Itämisaika 12 tuntia -2 vrk
- Erittäin tarttuva



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Tartunta

- Kosketus- ja pisaratartunta sekä eritteistä
- Tarttuu helposti leluista ja pinnoilta

Oireet

- Kuume
- Mahakipu
- Ripuli ja oksentelu
- Kesto 3-14 vrk

TÄIT

Yleistä

- Loishyönteinen
- Elää päänahan tuntumassa imemällä verta
- 2-4 mm pitkä ja harmahtava
- Tavallisesti täitä esiintyy 3-11 vuotiailla
- Esiintyy epidemioina alkusyksystä sekä tammi-helmikuussa

Tartunta

- Suora kontakti
- Tarttuvat helposti lapsiryhmässä
- Kaikki voivat saada täitartunnan
- Tytöt saavat helpommin täitä pitkien hiuksien vuoksi



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Ehkäisy

- Ilmoitus huoltajille
- Hyvä käsihygienia erityisesti wc-käynnin jälkeen ja ennen ruokailua
- Lelujen, erilaisten pintojen puhdistaminen
- Rotavirusta vastaan on rokote, joka kuuluu kansalliseen rokotusohjelmaan

Hoito

- Riittävä nesteytys, jotta vältetään nestevajaukselta
- Apteekista voi ostaa oraalihoitoa ripulitaudin hoitoon
- Paranee itsestään

Poissaolo päivähoitosta

- Päivähoitoon voi palata kaksi vuorokautta ripuloinnin ja oksentelun päättymisen jälkeen
- Lapsen yleisvoinnin mukaisesti

Hoito

- Pesu täishampoolla tai hoitoliuoksella (Apteekista), täikampaa voi käyttää apuna
- Kampausta tarkistusta 2-3 vrk välein 2-3 viikon ajan
- Vuodevaatteiden, vaatteiden ja lelujen pesu
- Lapsia tutkittava ja hoidettava saman aikaisesti
- Äärimmäinen hoitokeino lapsille on lyhyet hiukset

Ehkäisy

- Tiedottaminen huoltajille
- Huoltajille kehoitettava tarkastamaan lastensa hiukset ja niska
- Omat kammat, päähineet, vuodevaatteet

Oireet

- Päänahan kutina ja ärsytys
- Punoittavien näppyliöiden muodostuminen
- Päänahkaa raavittaessa iho rikkoutuu ja siihen voi päästä bakteereja
- Tulehduksen oireita punoitus, kuumotus, turvotus ja arkuus

Poissaolo päivähoitosta

- Päivähoitoon voi palata, kun täihoito on annettu

SILMÄN SIDEKALVONTULEHDUS

Yleistä

- Aiheuttajine yleensä samat virukset ja bakteerit, jotka aiheuttavat lasten hengitystieinfektioita ja korvatulehduksia
- Erittäin tarttuva

Oireet

- Kirvely, rähmiminen ja punoitus silmässä
- Lievä tulehdus voi mennä ohi itsestään, mutta usein tarvitaan antibioottitipat

Tartunta

- Kosketustartunta
- Lapsi hieroo silmiään ja koskettelee leluja ja tavaroita, joista se tarttuu muihin



Hoito

- Silmien puhdistus ja hoito vedellä silmän ulkonurkasta sisäänpäin
- Voimakkaaseen rähmimiseen ja ärsytykseen antibioottitipat (reseptillä apteekista)

Poissaolo päivähoidosta

- Päivähoitoon voi palata, kun silmiä on alettu hoitamaan antibioottitipoilla ja/tai oireet ovat hävinneet

Ehkäisy

- Hyvä käsihygienia
- Lelujen päivittäinen pesu

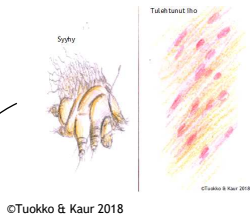
SYYHY

Yleistä

- Aiheuttaja *Sarcoptes scabiei* -punkki
- Esiintyy kaikissa ikäryhmissä mutta erityisesti lapsilla
- Tartunnasta oireiden alkamiseen n. 3-6 viikkoa
- Epidemiat kausiluonteisia

Tartunta

- Ihokontakti, vuodevaatteet, vaatteet, lelut, huonekalut
- Tarttuu läheisen fyysisen kontaktin välityksellä
- Tartunnan voi saada myös huonekaluista, vaatteista ja vuodevaatteista
- Syyhyypunkki tarttuu helposti, joten usein koko perhe tai päivähoitopaikka saa tartunnan



Poissaolo päivähoidosta

- Päivähoitoon voi palata hoidon jälkeen

Oireet

- Kutiseva ihottuma erityisesti sormien välissä, ranteissa, kädenselässä, kainaloissa, kasvoissa, päässä, jalkapohjissa ja pakaroissa
- Kutina on voimakkainta öisin
- Raapimisalueet voivat tulehtua

Hoito

- Lääkevoide apteekista, viikon jälkeen uusintahoido
- Koko perhe tulee hoitaa samanaikaisesti
- Lääkehoidon jälkeen vaihdetaan puhtaat vuodevaatteet ja alusvaatteet, patjat ja tyynyt imuroidaan
- Vaatteet ja vuodevaatteet pestään 60 asteen pesuohjelmalla

Ehkäisy

- Tiedottaminen huoltajille
- Suoran ihokontaktin välttäminen tartunnan saaneen kanssa
- Tehostettu ympäristöhygienia
- Päivittäinen vuodevaatteiden ja alusvaatteiden vaihto
- Pehmeät lelut ja materiaalit pestään ja poistetaan käytöstä pariiksi päiväksi

TULIROKKO

Yleistä

- Aiheuttaja streptokokki A-bakteeri
- Itämisaika 2-5 vrk
- Melko helposti tarttuva

Tartunta

- Pisara- ja kosketustartunta

Oireet

- Kurkkukipu
- Punoittava nielu, posket ja kieli (mansikkakieli)
- Peitteet nielurisoiissa
- Kuume
- Punertava ihottuma, etenkin kasvoilla, joka alkaa yleensä parin päivän jälkeen kuumeen noususta ja vähenee kolmen päivän kuluttua

Turvonneet nielurisat



Valkoinen kieli



Mansikkakieli



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Ehkäisy

- Ilmoitus huoltajille
- Hyvä käsihygienia

Hoito

- Vaatii antibioottihoidon
- Kuumetta alentava lääke

Poissaolo päivähoitosta

- Päivähoitoon voi palata päivän jälkeen hoidon aloittamisesta
- Lapsen yleisvoinnin mukaisesti

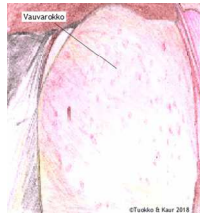
VÄUVÄROKKO

Yleistä

- Aiheuttaja Herpesvirus 6 ja 7
- Alle 3-vuotaiden tauti
- Itämisaika 5-15 vrk
- Erittäin tarttuva

Oireet

- 2-4 vrk kestävä korkea kuume
- Nielu voi punoittaa, lievää yskää ja/tai nuhaa
- Niskan imusolmukkeet voivat olla hiukan suurentuneet
- Kuumeen laskettua vaaleahkon punapilkkuisen ihottuman ilmaantuminen ylävartaloon ja kasvoihin



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Tartunta

- Pisarartartunta
- Oireeton aikuinen voi tartuttaa lapsen

Ehkäisy

- Ilmoitus huoltajille
- Hyvä käsihygienia

Hoito

- Oireiden mukaisesti
- Paranee itsestään
- Kuumetta alentava lääke

Poissaolo päivähoitosta

- Yksi kuumeeton päivä ennen päivähoitoon palaamista
- Lapsen yleisvoinnin mukaisesti

VESIROKKO

Yleistä

- Aiheuttaja varicella zoster- virus
- Itämisaika 10-21 vrk
- Erittäin tarttuva

Oireet

- Kuume
- Ruokahaluttomuus
- Väsymys
- Pieniä punoittavia näppylöitä päänahassa, kasvoilla ja vartalolla, jotka muuttuvat rakkuloiksi ja ruviksi
- Uusia näppylöitä ilmestyy 3-4 päivän ajan

Tartunta

- Pisara-, kosketus ja ilmatartunta
- Tarttuu jo 1-2 vrk ennen ihottuman ilmaantumista ja 5 vrk sen jälkeen



Ehkäisy

- Ilmoitus huoltajille
- Vesirokkoa vastaan on rokote, joka kuuluu kansalliseen rokotusohjelmaan
- Hyvä käsihygieniä
- Rakkulaeritteen kosketuksen välttäminen

Hoito

- Oireiden mukaista
- Paranee itsestään noin viikossa
- Viileä suihku tai antihistamiinia kutinaan (apteekista)
- Suihkutettava mentolisprii voi viilentää kutiavaa ja kuumottavaa ihoa (apteekista)
- Kuumetta alentava lääke

Poissaolo päivähoidosta

- Eristämistarve 5 vrk ihottuman ilmaantumisesta ja kunnes rakot ovat kuivuneet
- Yksi kuumeeton päivä ennen päivähoitoon palaamista
- Lapsen yleisvoinnin mukaisesti

