NICE guideline

Human and animal bites: antimicrobial prescribing

Draft for consultation, November 2019

This guideline sets out an antimicrobial prescribing strategy for human and animal bites. It aims to optimise antibiotic use and reduce antibiotic resistance.

The recommendations in this guideline are for the use of antibiotics to manage human and animal bites (excluding insect bites) in adults, young people and children aged 72 hours and over. It does not cover diagnosis.

The recommendations do not cover children in the first 72 hours of life. Seek specialist advice for this population.

For managing other skin and soft tissue infections see our web pages on wound management and infections. We have also produced related antimicrobial prescribing guidance on cellulitis and erysipelas and insect bites and stings.

See a 2-page visual summary of the recommendations, including tables to support prescribing decisions.

Who is it for?

- Healthcare professionals
- People with a human or animal bite, their families and carers

The guideline contains:

- the draft recommendations
- the rationales
- summary of the evidence.

Information about how the guideline was developed is on the guideline's page on the NICE website. This includes the full evidence review, details of the committee and any declarations of interest.

Recommendations

1.1 Managing human and animal bites

Assessment

1.1.1 For people with a human or animal bite, assess the type and severity of the bite and the risk of tetanus, rabies or bloodborne viral infection. Manage the wound and be aware of potential safeguarding issues as outlined in the NICE guideline on child maltreatment and child abuse and neglect. See also the recommendations on referral and seeking specialist advice.

1.1.2 Seek specialist advice for bites from a wild or exotic animal (including birds) because the spectrum of bacteria involved may be different and there may be a risk of other serious non-bacterial infections.

To find out why the committee made the recommendations on assessing human and animal bites see the rationales.

Antibiotic prophylaxis for uninfected bites

1.1.3 Do not routinely offer antibiotic prophylaxis if the human or animal bite has not broken the skin or the bite has broken the skin but there has been no bleeding.

1.1.4 Offer antibiotic prophylaxis (see the recommendations on choice of antibiotic) for any human bite that has broken the skin and caused bleeding or involves the hands, feet, skin overlying joints or skin overlying cartilaginous structures.

1.1.5 For other human bites that have not caused bleeding and do not involve the hands, feet, skin overlying joints or skin overlying cartilaginous

structures, consider antibiotic prophylaxis, particularly if the person is at risk of a serious wound infection. This includes people with diabetes, asplenia, chronic liver disease, immunosuppression, heart valve disease, a prosthetic heart valve or joint, or someone who is very young or frail.

1.1.6 Offer antibiotic prophylaxis (see the recommendations on choice of antibiotic) for an animal bite that has broken the skin and caused bleeding if it is:

- a cat bite
- penetrating bone, joint, tendons or vascular structures
- deep, a puncture or crush wound, or has resulted in significant tissue damage
- contaminated (for example, there may be dirt or a tooth in the wound)
- located on the face or genitals
- in an area of poor circulation
- near a prosthetic joint implant.

1.1.7 For other animal bites that have broken the skin and caused bleeding, consider antibiotic prophylaxis if it:

- involves the hands, feet, skin overlying joints or skin overlying cartilaginous structures
- is in a person at risk of a serious wound infection (such as a person with diabetes, asplenia, chronic liver disease, immunosuppression, heart valve disease, a prosthetic heart valve, or someone who is very young or frail).

Treating infected bites

1.1.8 Take a swab for microbiological testing to guide treatment if there is discharge from the human or animal bite wound.

1.1.9 Offer an antibiotic (see the recommendations on choice of antibiotic) for people with a human or animal bite if there are symptoms or signs of

infection, such as increased pain, inflammation, fever, discharge or unpleasant smell.

To find out why the committee made the recommendations on antibiotic prophylaxis and treatment of human and animal bites see the rationales.

Advice

1.1.10 Give advice to people with a human or animal bite about:

- possible adverse effects of antibiotics (if they have been offered antibiotics)
- seeking medical help if symptoms or signs of infection develop or worsen rapidly or significantly at any time, or do not start to improve within 1 to 2 days of starting treatment.

Reassessment

1.1.11 Reassess the human or animal bite if:

- symptoms or signs of infection develop or worsen rapidly or significantly at any time, or do not start to improve within 1 to 2 days of starting treatment
- the person becomes systemically unwell or has severe pain out of proportion to the infection.

1.1.12 If a skin swab has been sent for microbiological testing, review the choice of antibiotic based on the swab results. If a change of antibiotic is needed, use a narrow-spectrum antibiotic if possible.

To find out why the committee made the recommendations on reassessment for human and animal bites see the rationales.

Referral and seeking specialist advice

1.1.13 Refer people with a human or animal bite to hospital if they have:

- symptoms or signs suggesting a more serious illness or condition (these include severe cellulitis, abscess, osteomyelitis, septic arthritis, necrotising fasciitis, sepsis, or lymphadenopathy after a cat bite).
- a penetrating wound involving arteries, joints, nerves, muscles, tendons, bones or the central nervous system.

1.1.14 Consider referral or seeking specialist advice for people with a human or animal bite if:

- they are systemically unwell
- they have developed symptoms or signs of infection after taking prophylactic antibiotics
- they have lymphangitis
- they are at risk of a serious wound infection because of a pre-existing medical condition
- they cannot take oral antibiotics (in these cases, explore locally available options for intravenous antibiotics at home or in the community, rather than in hospital, if appropriate)
- the bite is infected and is not responding to oral antibiotics
- the bite is in an area of poor circulation.

To find out why the committee made the recommendations on referral and seeking specialist advice for human and animal bites see the rationales.

1.2 Choice of antibiotic

1.2.1 When prescribing an antibiotic for prophylaxis of an uninfected human or animal bite, or treatment of an infected human or animal bite:

- follow table 1 for adults aged 18 years and over
- follow table 2 for children and young people under 18 years.

1.2.2 Give oral antibiotics if the person can take oral medicines, and the severity of their condition does not require intravenous antibiotics.

1.2.3 If intravenous antibiotics are given, review within 48 hours and consider switching to oral antibiotics if possible.

Table 1 Antibiotics for prophylaxis and treatment for adults aged 18 years and over

Antibiotic[1]	**Dosage and course length for prophylaxis and treatment**[2]
First-choice oral antibiotic	
Co-amoxiclav	250/125 or 500/125 mg three times a day Give for 3 days for prophylaxis Give for 5 to 7 days[3] for treatment
Alternative first-choice oral antibiotics for penicillin allergy or if co-amoxiclav unsuitable (guided by microbiological results if available)	
Doxycycline ***with***	200 mg on first day, then 100 or 200 mg daily Give for 3 days in total for prophylaxis Give for 5 to 7 days[3] in total for treatment
Metronidazole	400 mg three times a day Give for 3 days for prophylaxis Give for 5 to 7 days[3] for treatment
Azithromycin (in pregnancy) ***with***	500 mg once a day Give for 3 days for prophylaxis Give for 3 days[3] for treatment
Metronidazole	400 mg three times a day Give for 3 days for prophylaxis Give for 5 to 7 days[3] for treatment
First-choice intravenous antibiotic (if unable to take oral antibiotics or severely unwell)[4,5]	
Co-amoxiclav	1.2 g three times a day
Alternative first-choice intravenous antibiotics for penicillin allergy or if co-amoxiclav unsuitable (guided by microbiological results if available)[4,5]	
Cefuroxime (caution in penicillin allergy) ***with***	750 mg to 1.5 g three or four times a day
Metronidazole	500 mg three times a day
Ceftriaxone (caution in penicillin allergy) ***with***	2 g once a day
Metronidazole	500 mg three times a day
Consult local microbiologist if cephalosporin not appropriate	
[1] See BNF and MHRA advice for appropriate use and dosing in specific populations, for example: hepatic impairment, renal impairment, pregnancy and breast-feeding, and administering intravenous (or, if appropriate, intramuscular) antibiotics. [2] Oral doses are for immediate-release medicines.	

[3] A longer course than this may be needed based on clinical assessment of the wound, for example if it has resulted in significant tissue destruction or has penetrated bone, joint, tendons or vascular structures.

[4] Give oral antibiotics first if the person can take oral medicines, and the severity of their symptoms does not require intravenous antibiotics.

[5] Review intravenous antibiotics within 48 hours and consider switching to oral antibiotics if possible.

Table 2 Antibiotics for prophylaxis and treatment for children and young people under 18 years

Antibiotic[1]	**Dosage and course length for prophylaxis and treatment[2]**
Children under 1 month	
Antibiotic choice based on specialist advice	
Children aged 1 month and over	
First-choice oral antibiotic	
Co-amoxiclav[3]	1 to 11 months, 0.25 ml/kg of 125/31 suspension three times a day 1 to 5 years, 0.25 ml/kg or 5 ml of 125/31 suspension three times a day 6 to 11 years, 0.15 ml/kg or 5 ml of 250/62 suspension three times a day 12 to 17 years, 250/125 or 500/125 mg three times a day Give for 3 days for prophylaxis Give for 5 to 7 days[4] for treatment
Alternative first-choice oral antibiotics for penicillin allergy or if co-amoxiclav unsuitable (guided by microbiological results if available)	
For human and animal bites in young people aged 12 to 17 years	
Doxycycline ***with***	200 mg on first day, then 100 or 200 mg daily Give for 3 days in total for prophylaxis Give for 5 to 7 days[4] in total for treatment
Metronidazole	400 mg three times Give for 3 days for prophylaxis Give for 5 to 7 days[4] for treatment
Azithromycin (in pregnancy) ***with***	Bodyweight 46 kg and above, 500 mg once a day Give for 3 days for prophylaxis Give for 3 days[4] for treatment
Metronidazole	400 mg three times a day Give for 3 days for prophylaxis Give for 5 to 7 days[4] for treatment
For human bites in children under 12 years	
Clarithromycin ***with***	1 month to 11 years: Under 8 kg, 7.5 mg/kg twice a day 8 to 11 kg, 62.5 mg twice a day

	12 to 19 kg, 125 mg twice a day 20 to 29 kg, 187.5 mg twice a day 30 to 40 kg, 250 mg twice a day Give for 3 days for prophylaxis Give for 5 to 7 days[4] for treatment
Metronidazole	1 month, 7.5 mg/kg twice a day 2 months to 11 years, 7.5 mg/kg three times a day (maximum per dose 400 mg) Give for 3 days for prophylaxis Give for 5 to 7 days[4] for treatment
For animal bites in children under 12 years	
Azithromycin ***with***	6 months to 11 years, 10 mg/kg once a day (maximum per dose 500 mg); seek specialist advice for under 6 months or 6 months to 11 years: 15 to 25 kg, 200 mg once a day 26 to 35 kg, 300 mg once a day 36 to 45 kg, 400 mg once a day Give for 3 days for prophylaxis Give for 3 days[4] for treatment
Metronidazole	1 month, 7.5 mg/kg twice a day 2 months to 11 years, 7.5 mg/kg three times a day (maximum per dose 400 mg) Give for 3 days for prophylaxis Give for 5 to 7 days[4] for treatment
First-choice intravenous antibiotic (if unable to take oral antibiotics or severely ill)[5,6]	
Co-amoxiclav	1 to 2 months, 30 mg/kg twice a day 3 months to 17 years, 30 mg/kg three times a day (maximum per dose 1.2g)
Alternative first-choice intravenous antibiotics for penicillin allergy or if co-amoxiclav unsuitable (guided by microbiological results if available)[5,6]	
Cefuroxime (caution in penicillin allergy) ***with***	1 month to 17 years, 20 mg/kg three times a day (maximum 750 mg per dose), can be increased to 50 to 60 mg/kg three or four times a day (maximum per dose 1.5 g)
Metronidazole	1 month, loading dose 15 mg/kg, then (after 8 hours) 7.5 mg/kg three times a day 2 months to 17 years, 7.5 mg/kg three times a day (maximum per dose 500 mg)
Ceftriaxone (caution in penicillin allergy) ***with***	1 month to 11 years (up to 50 kg), 50 to 80 mg/kg once a day (maximum 4 g per day) 9 to 11 years (50 kg and above) and 12 to 17 years, 1 to 2 g once a day
Metronidazole	1 month, loading dose 15 mg/kg, then (after 8 hours) 7.5 mg/kg three times a day

	2 months to 17 years, 7.5 mg/kg three times a day (maximum per dose 500 mg)
Consult local microbiologist if cephalosporin not appropriate	
[1] See BNF for Children and MHRA advice for appropriate use and dosing in specific populations, for example: hepatic impairment, renal impairment, pregnancy and breast-feeding, and administering intravenous antibiotics. [2] Oral doses are for immediate-release medicines. [3] Co-amoxiclav 400/57 suspension may also be considered to allow twice-daily dosing (see BNF for Children for dosing information). [4] A longer course than this may be needed based on clinical assessment of the wound, for example if it has resulted in significant tissue destruction or has penetrated bone, joint, tendons or vascular structures. [5] Give oral antibiotics first if the person can take oral medicines, and the severity of their symptoms does not require intravenous antibiotics. [6] Review intravenous antibiotics within 48 hours and consider switching to oral antibiotics if possible.	

To find out why the committee made the recommendations see the rationales on choice of antibiotic.

Terms used in the guideline

Lymphadenopathy

This refers to painful or swollen lymph glands which may be felt under the chin or in the neck, armpits or groin. It can be caused by a bacterial infection known as cat-scratch disease after being bitten or scratched by an infected cat.

Rationales

The recommendations in this guideline are based on the evidence identified and the experience of the committee.

Assessment

Why the committee made the recommendations

Recommendations 1.1.1 to 1.1.2

The committee agreed that it was good practice to assess and manage the wound in line with NICE clinical knowledge summary on human and animal bites. The

committee agreed that for human and animal bites, healthcare professionals should also consider potential safeguarding issues in line with the NICE guidelines on child maltreatment and child abuse and neglect. There was only evidence on the management of bites from humans, dogs and cats; no evidence was identified for bites from other animal species. The committee agreed that it was reasonable to extrapolate this evidence to bites from other common pet mammals such as rabbits and hamsters, and to those from farm animals including horses. The committee agreed that specialist advice should be sought for bites from wild and exotic animals (including birds), such as snakes, lizards, monkeys or bats, because there may be a potentially different spectrum of bacteria involved and a risk of other serious non-bacterial infections. For example, monkey bites are associated with herpes B virus which may have serious consequences.

Return to the recommendations.

Antibiotic prophylaxis for uninfected human and animal bites

Why the committee made the recommendations

Recommendations 1.1.3 to 1.1.7

Evidence was only identified for antibiotic prophylaxis after a dog, cat or human bite and it was limited and of low quality. The committee concluded that many bites are superficial abrasions which are at very low risk of infection and do not usually need antibiotic prophylaxis. They agreed that antibiotic prophylaxis should not routinely be offered if the bite has not broken the skin, or if the bite has broken the skin but there has been no bleeding. If there has been no bleeding, the dermis will not have been penetrated, so the risk of infection is low.

The committee went on to discuss and agree when antibiotic prophylaxis should either be offered or considered for a person with a human or animal bite, based on the evidence and their knowledge of the risk of infection.

The committee discussed the pooled evidence on human bites, which suggested that antibiotic prophylaxis was more effective than placebo at reducing the incidence of infection. The committee discussed that a human bite is at high risk of infection because of the associated oral bacterial. However, they also discussed that the site

and depth of a bite also affects the risk of infection. In a study of human bites to the hand, antibiotic prophylaxis was particularly effective. The committee discussed that wounds to the hand have a higher risk of infection because of the multiple small compartments and number of joints. And the same high level of infection risk applies to the feet and skin overlying other joints or cartilaginous structures.

The committee went on to discuss the evidence for human bites that are lower risk, as outlined in Broder (2004). These bites penetrated only the epidermis (that is, they did not cause bleeding) and did not involve the hands, feet, skin overlying joints or skin overlying cartilaginous structures. For this study, there was a very low rate of infection: signs of infection were seen in 1 of 62 people having placebo and none of the 63 people having antibiotics.

The committee agreed that if a person has sustained a human bite that is high risk (which the committee defined as not having the low-risk characteristics described by Broder 2004), antibiotic prophylaxis should be offered. Therefore antibiotic prophylaxis should be offered for any human bite that has broken the skin and caused bleeding (which means it has penetrated the dermis) or involves the hands, feet, skin overlying joints or skin overlying cartilaginous structures.

For other human bites that have not caused bleeding (so have only penetrated the epidermis) and do not involve the hands, feet, skin overlying joints or skin overlying cartilaginous structures, the committee agreed that antibiotic prophylaxis could be considered. These are lower-risk bites in terms of site and depth, but the oral bacteria associated with a human bite could lead to infection and other serious consequences. This is particularly the case for people with pre-existing medical conditions or age that put them at risk of a serious wound infection.

The committee went on to discuss when antibiotic prophylaxis should be offered to a person with an animal bite. The evidence on cat bites, which was based on a very small sample size of 10, did not show a statistically significant difference between antibiotic prophylaxis and placebo in reducing the incidence of infection in cat bites. Based on such limited data the committee could not judge the certainty of the evidence. However, they agreed that based on their expertise and experience, cat bites are at high risk of infection because of cat oral bacteria and because the nature

of cat bite wounds (needle-like) leads to a small, deep puncture wound which makes them very hard to irrigate. The committee went on to discuss that this wound type causes difficulties with assessment (because it can often be deeper than thought) and there is the possibility of infection in deep skin structures which has serious consequences, such as infection of the bone.

The committee went on to discuss and agree other situations when antibiotic prophylaxis should be offered for an animal bite. Evidence suggested no difference between antibiotic prophylaxis and placebo in reducing the incidence of infection based on the type and location of the animal bite wound. However, based on their experience, the committee agreed that in these situations antibiotic prophylaxis should be offered for an animal bite because of the high risk of infection:

- if the bite is deep, involves complex structures (such as tendons) or significant tissue destruction
- if the bite wound is contaminated (for example, there may be teeth or dirt in the wound)
- if the bite is located on the face or genitals, in an area of poor circulation or near a prosthetic joint implant.

The committee agreed that the principles of the evidence from Broder (2004) on human bites could be extrapolated to animal bites (not including cats) and therefore agreed that antibiotic prophylaxis should be considered for animal bites that are at higher risk of infection because they involve the hands, feet, skin overlying joints or skin overlying cartilaginous structures. The committee discussed that antibiotic prophylaxis would only be considered for an animal bite fulfilling these criteria because, in their experience, animal bites (other than cat bites) have a lower risk of infection than human bites. This is supported by the evidence which showed no difference between antibiotic prophylaxis and placebo in reducing the incidence of infection after a dog bite. The committee also discussed that antibiotic prophylaxis should be considered for people who are at risk of serious wound infection and its consequences, such as people with certain medical conditions, people with immunosuppression, and people who are very young or frail.

For more detail see the summary of the evidence on antibiotics.

Return to the recommendations.

Treating infected human and animal bites

Why the committee made the recommendations

Recommendations 1.1.8 to 1.1.9

There was no evidence on the treatment of human or animal bites. However, the committee agreed that antibiotics should be offered for human or animal bites with symptoms or signs of infection because of the potential consequences of not treating an infected bite.

The committee also agreed that if there is discharge from the bite wound this should be swabbed and sent for microbiological testing before antibiotics are taken.

For more detail see the summary of the evidence on antibiotics.

Return to the recommendations.

Reassessment

Why the committee made the recommendations

Recommendations 1.1.11 to 1.1.12

The committee agreed that a human or animal bite should be reassessed if an infection develops or worsens rapidly or significantly at any time or does not start to improve within 1 to 2 days of starting treatment because of the consequences of complications from an infection.

The committee agreed that it is good antimicrobial stewardship to review and potentially change the antibiotic used when microbiological testing results are available. A narrow-spectrum antibiotic should be used if appropriate.

Return to the recommendations.

Referral and seeking specialist advice

Why the committee made the recommendations

Recommendations 1.1.13 to 1.1.14

The committee agreed that people with a human or animal bite should be referred to hospital if they have symptoms or signs of a more serious illness or condition, or if they have penetrating wounds with certain features because of the serious consequences of these.

The committee agreed other circumstances when the prescriber may want to refer the person or seek specialist advice.

Return to the recommendations.

Choice of antibiotic

Recommendation 1.2.1 to 1.2.3

Why the committee made the recommendations

No evidence was found comparing different antibiotics to inform the choice of antibiotic for human and animal bites. Therefore, the committee based these recommendations on its experience, current practice, antimicrobial resistance and the need to provide choices that cover the relevant range of likely aerobic and anaerobic pathogens in human and animal bites.

The committee agreed that the same antibiotic choices should be available for both prophylaxis and treatment because the pathogens will be the same.

Oral antibiotics

The committee agreed that the first-choice oral antibiotic for all people with a human or animal bite is co-amoxiclav. Co-amoxiclav has good activity against the relevant range of likely pathogens.

If co-amoxiclav is unsuitable, the alternative first-choice oral antibiotics for adults and young people over 12 years are doxycycline with metronidazole (an antibiotic with high activity against anaerobic bacteria). If co-amoxiclav is unsuitable and a person

is pregnant, azithromycin with metronidazole is recommended. Azithromycin is not usually the macrolide of choice for widespread use, but the committee agreed to recommend it because azithromycin has good activity against Pasteurella compared with other options for pregnancy, and the population of pregnant women with a human or animal bite will be small.

The committee agreed that if co-amoxiclav is unsuitable, the alternative first-choice oral antibiotics for children under 12 years are clarithromycin with metronidazole for human bites and azithromycin with metronidazole for animal bites.

Intravenous antibiotics

The committee agreed that intravenous antibiotics should only be used if a person cannot take oral antibiotics or the severity of their condition requires intravenous antibiotics. The first-choice intravenous antibiotic for all people with a human or animal bite is co-amoxiclav because it has good activity against the relevant range of likely pathogens.

If co-amoxiclav is unsuitable, the alternative first-choice intravenous antibiotics for all people with a human or animal bite are:

- cefuroxime with metronidazole
- ceftriaxone with metronidazole.

The committee agreed that both options have good activity against the relevant likely pathogens. The cephalosporins, cefuroxime and ceftriaxone have a similar spectrum of activity but providing more than 1 option allows for choice to be made locally. If a cephalosporin is not appropriate, for example in people with a history of immediate hypersensitivity to penicillins, the committee agreed that a local microbiologist should be consulted to suggest a suitable alternative.

Dosage, course length and route of administration

There was no evidence comparing antibiotic dosage, course length and route of administration. Therefore, the recommendations were based on the committee's experience and current practice. The committee agreed that the shortest course that is likely to be effective should be prescribed to reduce the risk of antimicrobial

resistance and adverse effects. However, because the type and severity of bites can vary, a longer course may be needed based on clinical assessment of the wound.

The committee agreed that for both oral and intravenous routes of administration (which would be switched to oral antibiotics when possible), a course length of 3 days should be effective for prophylaxis, and a course length of 5 to 7 days should be effective for treatment (except for azithromycin, which has a course length of 3 days for both prophylaxis and treatment; this is the licensed dosage with proven efficacy). However, the committee discussed that because the type and severity of bites can vary, a longer course may be needed based on a clinical assessment of the wound, and whether it has, for example, resulted in significant tissue destruction or has penetrated bone, joint, tendons or vascular structures.

Return to the recommendations.

Context

Human and animal bites are at risk of infection. Human bites are most commonly infected by Streptococcus, *Staphylococcus aureus*, Haemophilus, *Eikenella corrodens*, Bacteroides and other anaerobes. Most infections from animal bites are polymicrobial and contain both aerobic and anaerobic organisms. Causative organisms for infections from cat and dog bites (the most common animal bites) include Pasteurella, Streptococcus, Staphylococcus, Neisseria, Corynebacterium, *Fusobacterium nucleatum* and Bacteroides (Abrahamian et al. 2011).

Summary of the evidence

This is a summary of the evidence, for full details see the evidence review.

The evidence included 1 systematic review (Medeiros et al. 2001) and 2 randomised controlled trials (Quinn et al. 2009 and Broder et al. 2004). These studies considered various prophylactic antibiotics compared with no antibiotic or placebo for managing animal and human bites. No evidence was identified for choice of antibiotic, course length or route of administration.

Antibiotic efficacy

If no route of administration for an antibiotic is given, no details were reported in the primary study.

For human bites

Prophylactic antibiotics (oral cefaclor, intravenous cefazolin, intravenous benzylpenicillin and oral cefalexin/penicillin) were shown to be more effective than placebo at reducing signs of infection after human bites in adults.

For animal bites

There was no difference between prophylactic antibiotics (oral phenoxymethylpenicillin, oral dicloxacillin, oxacillin, oral cefalexin, oral erythromycin, co-trimoxazole, cloxacillin and oral co-amoxiclav) and no treatment or placebo in signs of infection after dog bites in adults, young people and children.

One small study suggests that there was no difference between a prophylactic antibiotic (oxacillin) and placebo in signs of infection after cat bites in adults.

By bite type

There was no difference between prophylactic antibiotics (oxacillin, oral phenoxymethylpenicillin, oral dicloxacillin, oral cefalexin and oral erythromycin) and no treatment or placebo in the incidence of infection in adults, young people and children when treating puncture, laceration or avulsion wounds.

By bite location

There was no difference between prophylactic antibiotics (oral dicloxacillin, oral cefalexin, oral erythromycin, oral phenoxymethylpenicillin, co-trimoxazole, oral cefaclor, intravenous cefazolin and intravenous penicillin) and no treatment or placebo in the incidence of infection in adults, young people and children when treating trunk, head and neck, hand or arm wounds.

Choice of antibiotic

There was no evidence identified about the choice of antibiotic.

Course length

There was no evidence identified about the course length of antibiotics.

Route of administration

There was no evidence identified about the route of administration of antibiotics.

Other considerations

Medicines safety

Antibiotic-associated diarrhoea is estimated to occur in 2 to 25% of people taking antibiotics, depending on the antibiotic used (NICE clinical knowledge summary on diarrhoea – antibiotic associated).

About 10% of the general population claim to have a penicillin allergy; this is often because of a skin rash that occurred while taking a course of penicillin as a child. Fewer than 10% of people who think they are allergic to penicillin are truly allergic. See the NICE guideline on drug allergy: diagnosis and management for more information. People with a history of immediate hypersensitivity to penicillins may also react to cephalosporins and other beta lactam antibiotics (BNF, September 2019).

Cholestatic jaundice can occur with co-amoxiclav, and is more common in people over 65 years and in men; treatment should not usually exceed 14 days (BNF, September 2019).

Macrolides (for example clarithromycin) should be used with caution in people with a predisposition to QT interval prolongation (BNF, September 2019).

Tetracyclines (for example doxycycline), can deposit in growing bone and teeth (by binding to calcium) causing staining and occasionally dental hypoplasia. They should not be given to pregnant or breast-feeding women, and use in children under 12 years is either contraindicated or there is a caution for use only in severe or life-threatening infections where there are no alternatives (BNF, September 2019).

See the summaries of product characteristics for information on contraindications, cautions and adverse effects of individual medicines.

Medicines adherence

- Medicines adherence may be a problem for some people taking antibiotics that need frequent dosing or longer treatment duration (see the NICE guideline on medicines adherence).

Resource implications

- Recommended antibiotics are available as generic formulations. See Drug Tariff for costs.

See the evidence review for more information.