

Impetigo: Adult & Pediatric

Skin and Integumentary

Clinical Decision Tools for RNs with Additional Authorized Practice [RN(AAP)s]

Effective Date: February 1, 2022

Background

Impetigo vulgaris is a highly contagious, superficial bacterial infection of the skin (Garnett, Winland-Brown, & Porter, 2019). Nonbullous impetigo, the most common form, is characterized by the formation of vesiculopustules that rupture, leading to crusting with a characteristic golden appearance (Garnett et al., 2019). Bullous impetigo, which is more prevalent in infants and children, progresses rapidly from small to large flaccid bullae, caused by epidermolytic toxin release (Garnett et al., 2019).

Further information from Garnett and colleagues (2019) is as follows:

- Staphylococci bacteria are usually present during the early stages of the lesions, whereas streptococci bacteria tend to predominate in the later stages.
- Nonbullous impetigo is caused solely by *Staphylococcus aureus*.

Immediate Consultation Requirements

The RN(AAP) should seek immediate consultation from a physician/NP when any of the following circumstances exist:

- lesions are widespread;
- recurrent cases;
- toxic-appearing infant or child, may be pale or cyanotic and is often lethargic or inconsolably irritable. In addition, tachypnea and tachycardia with poor capillary refill may be present;
- client is immunocompromised (Interprofessional Advisory Group [IPAG], personal communication July 19, 2019).

Predisposing and Risk Factors

Predisposing and risk factors for impetigo may include the following:

- Pre-existing skin conditions (e.g., atopic dermatitis) that become infected. Increased prevalence in hot, humid weather when biting insects are present. The trauma caused by the bites favors bacterial growth on moist skin.
- Increased incidence in lower socioeconomic groups which may be influenced by overcrowding, inadequate personal hygiene, and/or a higher incidence of anemia and malnutrition (Garnet et al., 2019).

Health History and Physical Exam

Subjective Findings

Clients typically present with the following complaints:

- a painless rash that starts as red spots, which may be itchy;
- progressive development of new lesions usually due to auto-inoculation from scratching;
- rupture of blisters with yellow pustular secretions;
- drying of exudate to form characteristic golden yellow crusts;
- mild fever, may be present, in more generalized infections; and
- other infected family members or contacts (Garnet et al., 2019).

Objective Findings

Clients with impetigo may present with the following signs and symptoms:

- lesions, more commonly located on face, scalp, and hands;
- thick, golden yellow, crusted lesion on a red base;
- numerous skin lesions at various stages are present (vesicles, pustules, crusts, serous or pustular drainage, healing lesions);
- bullae may be present;
- lesions and surrounding skin may feel warm to touch;
- regional lymph nodes may be enlarged, tender; and
- fever (rare) (Garnet et al., 2019).

Differential Diagnosis

The following should be considered as part of the differential diagnosis:

Nonbullous impetigo
<ul style="list-style-type: none">• secondary infection associated with atopic or contact dermatitis,• herpes simplex infection with blisters or crusts,• pemphigus foliaceus (erythema, scaling, crusting occasional vesicles),• shingles (herpes zoster) with blisters or crusts,• candidiasis,• scabies,• pediculosis,• tinea corporis, or• varicella
Bullous impetigo
<ul style="list-style-type: none">• thermal burn,• bullous pemphigoid,• pemphigus vulgaris,• Stevens-Johnson syndrome,• bullous erythema multiforme, or• necrotizing fasciitis

(Vernon, Brady, Barber-Starr, & Peterson-Smith, 2016; Garnet et al., 2019)

Making the Diagnosis

The diagnosis is based on history and physical findings as follows:

- nonbullous impetigo: honey-colored crust, or
- bullous impetigo: 1 to 2 centimetre serous filled vesicle that ruptures easily progressing to a honey colored crust (Garnet et al., 2019).

Investigations and Diagnostic Tests

Consider collecting and sending a swab for culture and sensitivity if methicillin-resistant *Staphylococcus aureus* (*S. aureus*) (MRSA) is known in community or if there is no response to initial treatment (Garnet et al., 2019).

Management and Interventions

Goals of Treatment

The primary goals of immediate treatment are to control infection, prevent auto-inoculation and prevent spread to other household members (Garnet et al., 2019).

Non-Pharmacological Interventions

The RN(AAP) should recommend, as appropriate, the following non-pharmacological options:

- attention to personal hygiene and maintaining a clean environment, and
- application of warm saline compresses using warm tap water or Burrow’s solution to soften and soak away crusts and dry out lesions. Advise client/caregiver to apply them for 10-20 minutes qid and prn (Garnett et al., 2019; VanRavenstein, Durham, Williams, & Smith, 2017).

Pharmacological Interventions

The pharmacological interventions recommended for the treatment of impetigo are in accordance with the *RxFiles Drug Comparison Charts* (RxFiles Academic Detailing Program, 2021), *Anti-infective Guidelines for Community-acquired Infections* (Anti-infective Review Panel, 2019), *Ozenoxacin, a New Effective and Safe Topical Treatment for Impetigo in Children and Adolescents* (Torrelo, Grimalt, Masramon, Albareda López, & Zsolt, 2020), *Management of Impetigo and Cellulitis* (Kosar & Laubscher, 2017), and *Bacterial Skin Infections* (Garnett et al., 2019).

Topical Antibiotics

Topical treatment for mild or moderate impetigo is as effective as treatment with oral antibiotics and is associated with fewer side effects (Garnett et al., 2019). However, topical antibiotics may be used with oral antibiotics for large areas of infection; if systemic symptoms are present; or within the context of athletic teams, child-care facilities or family clusters. Oral antibiotic therapy should cover *S. aureus* and group A beta hemolytic *Streptococcus* (Garnett et al., 2019).

	Drug	Dose	Route	Frequency	Duration
Pediatric and Adult					
	Mupirocin cream	based on surface area to be covered	topical	t.i.d.	5-7 days
OR	Fucidic acid cream	based on surface area to be covered	topical	t.i.d. or q.i.d.	5-7 days
Pediatric and Adult [with Methicillin-resistant <i>S. aureus</i> (MRSA)]					
	Mupirocin cream	based on surface area to be covered	topical	t.i.d.	5-7 days
OR	Polysporin triple therapy	based on surface area to be covered	topical	t.i.d.	5-7 days

Pediatric ≥ 2 months and Adult					
OR	Ozenoxacin 1% cream	based on surface area to be covered	topical	b.i.d.	5-7 days

Oral Antibiotics

Oral antibiotics may be necessary if a large area of skin is involved, systemic symptoms are present, or within the context of athletic teams, child-care facilities, or family clusters. Oral antibiotic therapy should cover *S. aureus* and group A beta hemolytic *Streptococcus*. Refer to *Northern Saskatchewan Guidelines (2014) for Skin and Soft Tissue Infections including suspect MRSA in the Community Setting* (Population Health Unit, Northern Saskatchewan, 2014).

	Drug	Dose	Route	Frequency	Duration
Pediatric (without penicillin allergy)					
	Cephalexin	50-100 mg/kg/day (maximum 2 g/day)	p.o.	divided q6h	5-7 days
OR	Cloxacillin	50 mg/kg/day (do not exceed adult dose)	p.o.	divided q6h before meals	5-7 days
Adult (without penicillin allergy)					
	Cephalexin	500 mg	p.o.	q.i.d.	5-7 days
OR	Cloxacillin	500 mg	p.o.	q.i.d.	5-7 days
Pediatric (for those allergic to penicillin or treatment of MRSA, if applicable)					
	Azithromycin	10 mg/kg on the first day then 5 mg/kg once daily for 4 days (do not exceed adult dose)	p.o.	once daily	5 days
OR	Clindamycin	20 mg/kg/day (do not exceed adult dose)	p.o.	divided into 3 or 4 doses	5-7 days
OR	Sulfamethoxazole-Trimethoprim (SMX-TMP)	8-12 mg/kg/day (TMP is used for calculations; do not exceed adult dose)	p.o.	divided q12h	5-7 days

OR	Doxycycline (≥ 8 years of age)	4 mg/kg/day (maximum single dose of 100 mg)	p.o.	divided b.i.d.	5-7 days
	Drug	Dose	Route	Frequency	Duration
Adult (for those allergic to penicillin or treatment of MRSA, if applicable)					
	Azithromycin	500 mg on the first day then 250 mg once daily for 4 days	p.o.	once daily	5 days
OR	Clindamycin	300 mg to 450 mg	p.o.	t.i.d.	5-7 days
OR	Sulfamethoxazole-Trimethoprim (SMX-TMP)	1-2 DS tabs (800/160 mg)	p.o.	b.i.d.	5-7 days
OR	Doxycycline	100 mg	p.o.	b.i.d.	5-7 days

Treatment of Pruritis using Antihistamines

May be considered if pruritus is bothersome to prevent skin damage through excoriation and decrease auto-inoculation of the infection. Second generation antihistamines including cetirizine and loratadine may be preferable as they are given once daily and do not cause drowsiness.

	Drug	Dose	Route	Frequency	Duration
Pediatric (≥ 6 months to ≤ 6 years of age)					
	Cetirizine	2.5 mg	p.o.	qhs	7 days
Pediatric (> 6 years of age)					
	Cetirizine	5-10 mg	p.o.	qhs	7 days
OR	Loratadine	10 mg	p.o.	qhs	7 days
Adult					
	Cetirizine	10 mg	p.o.	qhs	7 days
OR	Loratadine	10 mg	p.o.	qhs	7 days

	Drug	Dose	Route	Frequency	Duration
Pediatric under the age of 2, consult physician/NP					
Pediatric (≥ 2 to ≤ 6 years of age)					
	DiphenhydrAMINE hydrochloride	6.25 mg (maximum dose 25 mg/day)	p.o.	q4-6h prn	7 days
Pediatric (> 6 to ≤ 12 years of age)					
	DiphenhydrAMINE hydrochloride	12.5 mg (maximum dose 75 mg/day)	p.o.	q4-6h prn	7 days
Pediatric (> 12 years of age) and Adult					
	DiphenhydrAMINE hydrochloride	25-50 mg (maximum dose 150 mg/day)	p.o.	q4-6h prn	7 days

Client and Caregiver Education

The RN(AAP) provides client and caregiver education as follows:

- Counsel about the appropriate use of medications (including dose, frequency compliance, etc.).
- Advise to not attend work/school/daycare until 24 hours of treatment has been completed.
- Offer recommendations about proper hygiene, including single use of towels and washing clothes while acute infection is present.
- Educate about the contagious nature of impetigo and suggest strategies to prevent spread to other household members (e.g., proper handwashing, use of separate towels and other personal items such as razors, robes, etc.).
- Advise that they can cover open lesions until healed (Garnett et al., 2019).

Monitoring and Follow-Up

The RN(AAP) should recommend the client return for reassessment if fever develops or infection spreads despite therapy.

Complications

The following complications may be associated with impetigo:

- localized or widespread cellulitis,
- post-streptococcal glomerulonephritis (uncommon in adults),
- Scarlet fever (uncommon in adults),

- exacerbation of guttate psoriasis,
- invasive group A streptococcal disease (Garnet et al., 2019).

Referral

Refer to a physician/NP if client presentation is consistent with those identified in the *Immediate Consultation Requirements* section, if a fever develops, the infection fails to resolve, or spreads despite therapy (IPAG, personal communication, July 19, 2019).

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