APPENDIX 1. The Cardiff Acne Disability Index

1. As a result of having acne, during the last month have you been aggressive, frustrated or embarrassed?	☐ ☐ ☐ ☐	a) Very much indeed b) A lot c) A little d) Not at all
2. Do you think that having acne during the last month interfered with your daily social life, social events or relationships with members of the opposite sex?	☐ ☐ ☐ ☐	a) Severely, affecting all activities b) Moderately, in most activities c) Occasionally or in only some activities d) Not at all
3. During the last month have you avoided public changing facilities or wearing swimming costumes because of your acne?	☐ ☐ ☐ ☐	(a) All of the time (b) Most of the time (c) Occasionally (d) Not at all
4. How would you describe your feelings about the appearance of your skin over the last month?	☐ ☐ ☐ ☐	(a) Very depressed and miserable (b) Usually concerned (c) Occasionally concerned (d) Not bothered
5. Please indicate how bad you think your acne is now:	☐ ☐ ☐ ☐	(a) The worst it could possibly be (b) A major problem (c) A minor problem (d) Not a problem

The scoring of each answer is as follows:
(a) 3
(b) 2
(c) 1
(d) 0

The Cardiff score is calculated by summing the score of each question resulting in a possible maximum of 15 and a minimum of 0. The higher the score, the more the quality of life is impaired.

APPENDIX 2. Initial Management of Acne

Acne Severity	Distribution and Scarring	Treatment Options	
		First Line	Second Line
Mild ***Comedonal***: Few to several comedones	Acne with no scarring, less than one-quarter of the face involved	Topical retinoid	Alternative topical retinoid Salicylic acid wash
Papular/pustular: Few scattered papules		Topical retinoid Topical antimicrobial: benzoyl peroxide, clindamycin, erythromycin Combination products	Alternative topical retinoid + alternative topical antimicrobial
Moderate ***Papular/pustular***: Many papules and pustules with variable comedones	Acne across about half of the face with little scarring and involvement of the chest and back	Oral antibiotics: tetracyclines, erythromycin (increased likelihood of resistance) Topical retinoid ± benzoyl peroxide Oral contraceptives	Alternative oral antibiotic Alternative topical retinoid Benzoyl peroxide
Nodular: Few nodules		Oral antibiotic Topical retinoid ± benzoyl peroxide	Oral isotretinoin Alternative oral antibiotic Alternative topical retinoid Benzoyl peroxide
Severe Numerous papules, pustules, and nodules with variable comedones, sinus tracts and/or cysts	Acne across face, back, and/or chest with moderate-to-severe scarring, hypertrophic and/or deep, possibly with drainage, pain, and hemorrhage of lesions	Oral isotretinoin	High-dose oral antibiotic Topical retinoid (also maintenance) Benzoyl peroxide

*In adult women, oral contraceptives or androgen receptor blockers may also be used.

Sources: Basak SA, Zaenglein AL. Acne and its management. *Pediatrics in review / American Academy of Pediatrics.* 2013;34:479-97; Laubscher T, Regier L, Jin M, Jensen B. Taking the stress out of acne management. *Canadian family physician Medecin de famille canadien.* 2009;55:266-9

APPENDIX 3. Summary of Topical Acne Therapies

Agent	Acne Severity	Response	Commentary	Dosing
Benzoyl peroxide aqueous 2.5%, 4%, 5%, 10% *	Monotherapy: Mild-moderate acne Combination: moderate-severe acne	2–4 weeks: possible worsening 8–12 weeks for large improvement	Bactericidal, keratolytic Avoid concentrations > 5% (more irritating but not more effective) Help prevent antibiotic resistance May bleach hair and clothes	Can be irritating (see Info point 16) Start with 2.5%, go to 5% if ineffective Optimal dosage: applied to affected area once or twice a day
Retinoids Tretinoin: 0.025%, Adapalene: 0.1% cream or gel, 0.1% gel Isotretinoin: 0.05% gel	Mild-moderate comedonal acne	2–4 weeks: possible worsening ~12 weeks for maximum response	Inhibits comedone formation & promotes comedonal drainage, decreases inflammation & hyperkeratinisation (helpful for postinflammatory hyperpigmentation) Adapalene least irritating Concomitant sunscreen needed Preferred agent for maintenance & postinflammatory hyperpigmentation	Irritating and drying, peaks at two weeks (see Info point 16) Optimal treatment dosage: thin layer applied at bedtime after washing Use less frequently for maintenance
Azelaic acid, 20% cream or 15% gel	Mild inflammatory & comedonal acne	Four weeks	Reverses abnormal keratinisation, inhibits bacterial growth, lightens postinflammatory hyperpigmentation	Once or twice daily, very well tolerated
Antibiotics Clindamycin 1% solution, lotion or gel, erythromycin 2% solution,	Mild-moderate inflammatory acne	8–12 weeks for large improvement	Bactericidal Use with benzoyl peroxide to prevent resistance Most effective combined with benzoyl peroxide or retinoid	Use clindamycin twice a day Discontinue when inflammation subsides
Combinations Benzoyl peroxide 3% and Clindamycin 1% gel(Duac®) Benzoyl peroxide 5% and potassium hydroxyquinoline sulfate 0.5% cream (Quinoderm®) Adapalene 0.1% and benzoyl peroxide 2.5% gel (Epiduo®) Isotretinoin 0.05% and erythromycin 2% gel (Isotrexin®) Tretinoin 0.025% and erythromycin 4% solution (Aknemycin®Plus) Tretinoin 0.025% and clindamycin 1% gel (Treclin®)	Mild-moderate inflammatory acne for more intensive therapy	2–4 weeks for noted improvement 8–10 weeks for maximal result	Convenience of combination product	Step down to retinoid or benzoyl peroxide when inflammation subsides

*Other formulations and products are available, including soaps and washes

Source: Acne pharmacotherapy: Comparison chart. RxFiles. Available at http://www.rxfiles.ca/rxfiles/uploads/documents/members/cht-acne.pdf . Accessed January 29, 2016. Laubscher T, Regier L, Jin M, Jensen B. Taking the stress out of acne management. Canadian family physician Medecin de famille canadien. 2009;55:266-9. Basak SA, Zaenglein AL. Acne and its management. Pediatrics in review / American Academy of Pediatrics. 2013;34:479-97. Radley K, Tucker R. Dapsone in the Management of Acne Vulgaris J Derm Nurs Assoc. 2013;5(6):316–9. Tanghetti E, Dhawan S, Green L, et al. Clinical evidence for the role of a topical anti-inflammatory agent in comedonal acne: findings from a randomized study of dapsone gel 5% in combination with tazarotene cream 0.1% in patients with acne vulgaris. J Drugs Dermatol. 2011;10(7):783-92.

APPENDIX 4. Summary of Oral Acne Therapies

Agent	Acne Severity	Response	Commentary	Dosing
Antibiotics Oxytetracycline or Tetracycline 250 mg tabs Doxycycline 100 mg caps/tabs Lymecycline 408mg caps Minocycline 50, 100 mg caps/tabs Erythromycin 250, 500 mg caps/tabs	Moderate-severe acne if topicals fail Moderate acne if tendency to scarring or postinflammatory hyperpigmentation	8–12 weeks for maximal response Pulse 2–4 months	Combine with benzoyl peroxide to decrease resistance Follow up with topical retinoid+ benzoyl peroxide Doxycycline well tolerated Serious potential side effects with minocycline*	Oxytetracycline or Tetracycline: 500 mg twice daily then 250–500 mg daily if maintenance Doxycycline: 100 mg daily Lymecycline 408mg daily Minocycline: 100 mg daily, then 50 mg daily if maintenance Erythromycin: 500 mg twice daily then 250–500 mg daily if maintenance
Combination oral contraceptives (COC): Standard COCs containing ethinylestradiol with norethisterone or levonprgestrel are suitable e.g. Microgynon®, Loestrin 30®. Yasmin® has been promoted for women with acne but is not specifically licensed for acne. Co-cyprindiol (Dianette®) is licensed for acne but not for the sole purpose of contraception	First line if also for contraception Moderate-severe acne + seborrhoea ± hirsutism ± androgenic alopecia ± late-onset acne	3–6 months for optimal response	Antiandrogen effect Caution if thrombosis risk, smoking, migraine with aura Relapse common if discontinued Progestogen-only contraceptives may worsen acne	Use daily for 21 days then seven days off per cycle
Spironolactone 25, 100 mg tabs	Late-onset acne when other treatments fail	2–3 months for maximum response	Monitoring: electrolytes (potassium) and renal function	50 or 100 mg daily
Isotretinoin 10, 20 mg caps	Severe nodulocystic acne, scarring, failure of oral antibiotics and/or oral contraceptives	Flare first two months (6%) 2–3 months for optimal response 3–4 months for complete suppression	Most effective for moderate-to-severe inflammatory acne See Info points 18 and 19 for adverse events, monitoring, and contraceptive requirements Teratogenic	Limit one month supply + monthly monitoring Optimal cumulative dose 120–150 mg/kg 0.5 mg/kg divided daily; bid x 4 weeks; then 1 mg/kg/day x 3–7 months

*Photosensitivity and rare reports of autoimmune hepatitis, lupus-like syndrome, and grey discolouration of sclera and mucous membranes

Source: Acne pharmacotherapy: Comparison chart. RxFiles. Available at http://www.rxfiles.ca/rxfiles/uploads/documents/members/cht-acne.pdf. Accessed January 29, 2016.

Laubscher T, Regier L, Jin M, Jensen B. Taking the stress out of acne management. *Canadian family physician Medecin de famille canadien.* 2009;55:266-9. Basak SA, Zaenglein AL. Acne and its management. *Pediatrics in review / American Academy of Pediatrics.* 2013;34:479-97.

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ACNE

What causes acne?

Acne is a skin disease that is very common in both teenagers and adults. When oil production of tiny glands (found mostly on the face and scalp) increases due to hormonal changes, the glands can become plugged, inflamed, or infected. This can result in blackheads, whiteheads, pimples, or cysts.

What doesn't cause acne?

Acne is **not** caused by diet, poor hygiene, or infection from contact with someone who has acne. Even though bacteria can infect plugged oil glands, bacteria do not cause acne, and acne is not contagious.

What can worsen acne?

- Hair or skin products, such as moisturisers or foundation, that clog pores.
- Sweating can worsen acne in some people.
- Pressure from tight clothing, such as bra straps or chin straps, and frequent hand contact, such as resting your face in your hands, can worsen acne at the point of contact.
- Overwashing skin (more than twice daily) or using scrubs, harsh cleansers, or toners with alcohol.
- Some medications, including oral corticosteroids, oral contraceptives containing only progesterone, and anticonvulsants. Ask your pharmacist about any medications you may be using.
- Menstrual cycles: some women and girls find acne worsens before their period.
- Picking, squeezing, or popping pimples can worsen acne, spread infection, and cause scarring.
- Exposure to sun or tanning beds.
- Stress can affect hormones and indirectly worsen acne.

What can I do to help my acne?

- Wash your face once or (at the most) twice daily with a gentle or soapless cleanser.
- Wash makeup brushes with antimicrobial soap to eliminate bacteria on them.
- Wash pillowcases and sheets often to remove oil that has been absorbed from your skin.
- Give your skin a break from makeup at least once a week.
- Use only noncomedogenic skin products and oil-free makeup. These products do not promote clogging of pores and are usually labelled "noncomedogenic."
- Shave lightly (once only) in the direction of hair growth.

What do I need to know about my acne treatment?

- Learn about acne so you can be a partner with your doctor in your treatment.
- There are many options for treating acne.
- Treatment takes a stepwise approach that usually starts with topical treatments (creams, gels or lotions).
- Your skin may temporarily get worse before it gets better; it can take six to eight weeks to see the full benefit from some acne treatments.
- Follow the prescription instructions to minimise potential skin irritation from topical treatments.
- For topical treatments, apply a *thin* layer of medication to the entire area, not just individual pimples.
- If you wear makeup, apply your acne medication and let it dry before applying makeup. Use sunscreen, as acne medications can increase sun sensitivity.
- Continue your treatment even after acne has improved to prevent new breakouts.
- If the acne medication is drying your skin, use a prescribed or recommended noncomedogenic moisturizer.

Sources: Basak SA, Zaenglein AL. Acne and its management. *Pediatrics in review / American Academy of Pediatrics.* 2013;34:479-97. Teen Acne. Canadian Dermatology Association. Available at http://www.dermatology.ca/wp-content/uploads/2012/01/Teen-Acne2009EN.pdf.