



ANTIMICROBIAL STEWARDSHIP

Antimicrobial stewardship refers to “coordinated interventions designed to improve and measure the appropriate use of antimicrobials by promoting the selection of the optimal antimicrobial drug regimen, dose, duration of therapy and route of administration.”¹

WHY AN ANTIMICROBIAL STEWARDSHIP PROGRAM?

“Antibiotics are the only drug where use in one patient can impact the effectiveness in another. If everyone does not use antibiotics well, we will all suffer the consequences.”²

Although an important component of patient care, the use of antimicrobial therapy increases the risk for patient adverse effects such as allergies and consequences of drug toxicity, resistance of antibiotics to bacteria, and the selection of pathogenic organisms.³ For example, antibiotic exposure is the single most important risk factor for the development of *Clostridium difficile* infection (CDI).⁴ Effective antimicrobial stewardship in combination with a comprehensive infection control program has been shown to limit the emergence and transmission of antimicrobial-resistant bacteria. In addition, antimicrobial stewardship programs have been shown to be cost-effective through reduced drug costs and avoidance of microbial resistance.²

WHAT ARE THE COMPONENTS OF AN ANTIMICROBIAL STEWARDSHIP PROGRAM?

There are many potential evidence-based components to a successful antimicrobial stewardship program. They are all designed to reach the following goal for each patient:

The Right Drug, at the Right Time, using the Right Dose for the Right Duration of time.⁵

Interventions may include:

- Formulary of targeted antimicrobials and approved indications
- Education of health professionals about appropriate use of antimicrobials

- Guidelines and clinical pathways
- Antimicrobial order forms
- Streamlining or de-escalation of therapy
- Dose optimization
- Parenteral to oral conversion
- Prospective audit and feedback

Antimicrobial Stewardship Program teams need to be multidisciplinary and should involve nursing staff, pharmacists, physicians, infection control specialists, and institution administrators.² Lines of accountability for implementation of the program must be documented.² Mechanisms should be in place to evaluate the program on an ongoing basis. Results of assessments should be shared with stakeholders in the organization.²

RESOURCES

There are many resources available to help individuals and groups better understand the issues associated with Antimicrobial Stewardship Programs. Examples include:

- Public Health Ontario. ASP 101: What is antimicrobial stewardship? Online at www.publichealthontario.ca (Browse by topic)
- Canadian Antibiotic Awareness Partnership. Online at http://antibioticawareness.ca/?page_id=58
- Centers for Disease Control and Prevention (2010). Get Smart for Healthcare—Know When Antibiotics Work. Available at <http://www.cdc.gov/getsmart/healthcare/resources/slides/getsmart-healthcare.pdf>

The following websites deal with antimicrobial stewardship in long-term care, and they all have ideas and information on how to get started and sustain a program at your facility:

- <http://www.dobugsneeddrugs.org> (Alberta)
- <http://www.acfp.ca> (Alberta)
- www.oahpp.ca (Browse by topic) (Ontario)
- <http://www.ismp-canada.org/abx/> (Ontario)
- www.antibioticawareness.ca (Canada)
- <http://www.shea-online.org> (Browse by topic) (Canada)
- <http://www.kflapublichealth.ca> (Browse by topic) (Ontario) **MPT**

References:

1. Infectious Diseases Society of America. Promoting Antimicrobial Stewardship in Human Medicine. Online at http://www.idsociety.org/stewardship_policy/
2. Centers for Disease Control and Prevention (2010). Get Smart for Healthcare—Know When Antibiotics Work. Available at <http://www.cdc.gov/getsmart/healthcare/resources/slides/getsmart-healthcare.pdf>
3. Accreditation Canada. Antimicrobial Stewardship, in Required Organization Practices. 2013.
4. Chang HT, et al. Infect Control Hosp Epidemiol 2007;28:926-931
5. Dryden M, et al. J Antimicrob Chemother 2011;33: 2441-43

DuoTrav PQ[®] (travoprost/timolol ophthalmic solution)

DuoTrav PQ[®] is an ophthalmic solution that contains two active components, travoprost and timolol maleate. These two ingredients work together to reduce intraocular pressure through complementary mechanisms of action. Timolol maleate is a beta-adrenergic receptor blocking agent that does not have significant intrinsic sympathomimetic, direct myocardial depressant, or local anaesthetic activity. Travoprost is a highly selective prostaglandin F (FP) prostanoid receptor agonist that has been shown to reduce intraocular pressure by increasing uveoscleral and conventional outflow.

Dose & Administration

The recommended dose of DuoTrav PQ[®] is one drop in the affected eye(s) once-daily, either morning or evening. The dosage should not exceed once-daily, since more frequent administration may decrease the intraocular pressure lowering effect of the travoprost component. If more than one topical ophthalmic drug is being used, the drugs should be administered at least five minutes apart.

Adverse Effects

The most common adverse effects associated with DuoTrav PQ[®] includes hyperemia of the eye (11.8% of people in clinical trials), which encompasses ocular or conjunctival hyperemia. Hyperemia did not result in discontinuation of therapy in 91% of patients experiencing this adverse effect. Eye irritation occurs in approximately 5% of patients.

DuoTrav PQ[®] solution can potentially cause fatigue and/or drowsiness in some patients. No overall differences in safety or effectiveness have been found between elderly and other adult patients.

Precautions

Please see product monograph for precautions concerning potential drug interactions of beta-adrenergic blocking agents with other medications. **DN**

Please refer to DuoTrav PQ[®] product monograph for more comprehensive information.

Orencia[®] (abatacept) Subcutaneous Formulation

Orencia[®] (abatacept) is now available in a subcutaneous injection formulation for treatment of rheumatoid arthritis. Orencia[®] is a biologic medicine (specifically, a selective

co-stimulation modulator that attenuates the immunological mechanisms responsible for the symptoms of rheumatoid arthritis). It is indicated to reduce the signs and symptoms and induce clinical responses in the treatment of adult rheumatoid arthritis. Orencia[®] may be also used long-term to inhibit the progression of structural damage and improve physical function in adult patients with moderately to severely active rheumatoid arthritis who have had an inadequate response to other types of drugs used to treat the disease.

Orencia[®] may be taken in addition to a DMARD such as methotrexate or as the lone treatment for rheumatoid arthritis.

Orencia[®] subcutaneous injection is available in prefilled syringes with UltraSafe Passive[®] Needle Guard with Flange Extenders 125 mg/mL.

Contraindications

Orencia[®] should not be administered to patients with, or at risk of, sepsis syndrome, such as immunocompromised and HIV+ patients.

Dose & Administration

For Orencia[®] naïve patients, an appropriate single IV loading dose with the intravenous infusion formulation is normally administered. The first 125 mg subcutaneous injection of Orencia[®], regardless of weight, should be given within a day, followed by once-weekly subcutaneous injections at the fixed dose of 125 mg SC.

Patients who are unable to receive an infusion may initiate weekly injections of subcutaneous Orencia[®] without an intravenous loading dose.

Adverse Effects

The most commonly reported adverse events (occurring in at least 10% of patients treated with Orencia[®]) are headache, upper respiratory tract infection, nasopharyngitis, and nausea.

The most serious adverse reactions associated with Orencia[®] treatment are serious infections and malignancies.

Precautions

Treatment with Orencia[®] should not be initiated in patients with active infections, including chronic or localized infections, or in patients with latent infections. Treatment should be discontinued if a patient develops a serious infection. **DN**

Please refer to Orencia[®] product monograph for more comprehensive information.