



Therapeutic Class ReviewSM

Hormones – Topical/Buccal Testosterone Replacement Products

March 2005

New Product for Review

testosterone gel 1% (AndroGel[®]) [Unimed/Solvay]
testosterone gel 1% (Testim[™]) [Auxilium]
testosterone transdermal system (Androderm[®]) [Watson]
testosterone buccal system (Striant[®]) [Columbia]

Dossier Provided by Manufacturer:

Dossier: yes **Quality of Dossier:** 2

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Dossier: requested -- Not received

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Dossier Ranking:

1 - Low quality (dossier w/missing components)

2 - Medium quality (all components, except pharmacoeconomic model)

3 - High quality (all components, well done)

Executive Summary

- The American Association of Clinical Endocrinologists hypogonadism guidelines recommend maintaining serum testosterone within the physiological limits during testosterone replacement therapy (TRT).
- All testosterone analogues, such as gels, transdermal patches or buccal adhesive tablets, can rapidly restore and maintain serum testosterone levels within the recommended physiological limits. However, TRT with intramuscular injections is associated with abnormal fluctuations in serum testosterone.
- TRT increases the lean muscle mass, muscle strength, bone mineral density, and improves certain sexual parameters in hypogonadal men. However, there are no long-term, placebo controlled clinical trials to determine the medical value and the potential risks of TRT.
- All testosterone products cause varying degrees of polycythemia, prostate enlargement and elevate the prostate specific antigen. However, there is no evidence that TRT using any delivery system increases the incidence of adverse health outcomes in hypogonadal men.
- Testosterone transdermal patches cause more skin reactions than gel formulations. Testosterone gels carry minimal risk of virilization of a female partner through dermal transfer. However, some patients do not prefer the musky odor of testosterone gel 1% (Testim). The buccal adhesive testosterone tablets (Striant) often dislodge and are swallowed. These tablets also cause gum irritation and have bitter taste; its long-term effects on oral mucosa is unknown.
- AndroGel, Testim, Androderm, and Striant have similar clinical efficacy. However, there is no evidence that these new products offer any superior clinical benefit over injectable testosterone products.

Decision

Maintain AndroGel, Testim, Androderm and Striant as non-formulary/non-preferred because:

- There is no evidence that TRT provides an overall medical value in health outcomes.
- These products do not offer superior clinical benefits over injectable testosterone products.

I. Products

Drug Product	Date of FDA Approval	FDA Approved Indication(s)	Dose Route	Potential Off-Label Use(s)
testosterone 1% gel (AndroGel [®])	02/28/2000	<p>All products listed in this table are indicated for testosterone replacement therapy in adult males for conditions associated with a deficiency or absence of endogenous testosterone:</p> <p>1) <u>Primary hypogonadism (congenital or acquired)</u>: testicular failure due to cryptorchidism, bilateral torsion, orchitis, vanishing testis syndrome, orchiectomy, Klinefelter's syndrome, chemotherapy, or toxic damage from alcohol or heavy metals. These men usually have low serum testosterone levels and gonadotropins (FSH, LH) above the normal range.</p> <p>2) <u>Hypogonadotropic hypogonadism (congenital or acquired)</u>: idiopathic gonadotropin or luteinizing hormone-releasing hormone (LHRH) deficiency or pituitary-hypothalamic injury from tumors, trauma, or radiation. These men have low testosterone serum levels but have gonadotropins in the normal or low range.</p>	Transdermal	To improve muscle strength, mobility and quality of life in elderly. ^[1, 2]
testosterone 1% gel (Testim [®]),	10/31/2002		Transdermal	To treat refractory depression. ^[3, 4]
testosterone transdermal 2.5 and 5mg patches (Androderm [®])	09/29/1995		Transdermal	To improve cognitive function. ^[5] To increase bone mineral density in elderly. ^[6, 7] To improve angina threshold. ^[8]
testosterone buccal 30 mg tablet (Striant [®])	06/19/2003		Buccal	

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