Cost-Efficient Treatment Options for Uninsured or Underinsured Patients For Five Common Conditions

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ABSTRACT

The nurse practitioner’s (NP’s) role in providing quality care continues to evolve, concurrent with the ever-evolving health care system. With an influx of uninsured and underinsured patients, NPs must not only provide high-quality health care, they must also address cost-efficient treatment options for patients who cannot afford expensive medications. Familiarity with the cost of medications and prescribing cost-efficient medications are valuable tools NPs can use to encourage patient compliance with a specific care regimen, consequently improving the overall health of uninsured or underinsured individuals. Knowledge of patient assistance programs may also assist NPs in decreasing prescription drug costs for patients. Cost-efficient treatment options for upper respiratory infection, migraine headache, eczema, trichomoniasis, and polycystic ovarian syndrome are presented.

Keywords: Cost-efficient, eczema, migraine headache, polycystic ovarian syndrome, sinusitis, treatment, trichomoniasis, underinsured, uninsured, upper respiratory infection
The number of uninsured Americans continues to soar, reaching a new record high in 2007. In fact, there was an estimated 90 million uninsured population under the age of 65 for at least part of the 2006–2007 year, a number that has increased for the sixth year in a row. Essentially 1 of every 3 Americans has no health insurance. Unfortunately, current trends report the care provided to uninsured patients will only continue to rise. The lack of health insurance has significant and detrimental effects on the health of these patients. The purchase of prescription medications poses a unique challenge for uninsured patients and often promotes noncompliance with the treatment regimen. In fact, 37% of the uninsured will not fill a prescription because of cost.

The issue of noncompliance with a treatment regimen is also present within the underinsured population. In fact, underinsured patients report a financial burden of health care similar to uninsured patients. The term underinsured generally refers to those who cannot afford access to the health care system because their health insurance coverage is inadequate, requiring expensive premiums and high deductibles. Because inability to pay for medications is an established barrier discouraging a patient’s adherence to a medication treatment plan, cost-efficient methods for treating the underinsured should be considered by the health care provider when prescribing medications. Accordingly, the purpose of this article is to compare the cost and effectiveness of prescription treatment options for 5 common clinical diagnoses: upper respiratory infection, migraine headache, eczema, trichomoniasis, and polycystic ovarian syndrome (PCOS).

METHOD

Multiple searches of electronic bibliographic databases were examined to identify and collect studies related to the effectiveness of commonly prescribed expensive medications and lower-cost medication alternatives for upper respiratory infection, migraine headache, eczema, trichomoniasis, and PCOS. Databases utilized in the search included MEDLINE, MEDLINEPlus, EBSCO, PubMed, CINAHL, Clinical Pharmacology, Biomedical Reference Collection-Basic, Health Source-Consumer Edition, Health Source-Nursing/Academic Edition, Ovid, and the Cochrane Library Online. An internet search revealed which trade-name medications are most commonly prescribed for the 5 specified clinical diagnoses. Additionally, current guidelines and recommendations for upper respiratory infection and eczema were collected by conducting an internet search on the American Academy of Allergy Asthma and Immunology and American Academy of Dermatology websites.

RESULTS

The newer is better philosophy of prescribing medications is a common message to health care providers. Pharmaceutical companies are, in fact, successful in marketing the newest trade-name drugs to both the public and those who prescribe medications. However, newer medications are typically more expensive and unaffordable for uninsured and underinsured patients. Moreover, in some instances, newer medications are no more effective than traditional, more cost-efficient treatments. Therefore, NPs should strike a careful balance between cost and efficacy when prescribing medications to patients.

UPPER RESPIRATORY INFECTION

Acute sinusitis is a common upper respiratory infection for an estimated 35 million Americans. Acute sinusitis accounts for 25 million office visits per year, and the direct cost of this ailment is more than $3.3 billion when factoring lost work time, treatment expenses, and other associated costs. Sinusitis is the fifth most common diagnosis for which antibiotics are prescribed, although great variation exists regarding which antibiotics are best suited for treating the disease.

Zithromax (azithromycin) is the most commonly prescribed medication for the treatment of acute sinusitis, with Augmentin (amoxicillin clavulanate) also a popular choice for treating sinusitis. A regimen of Zithro-
max costs about $46 when prescribed for a 6-pack of 250-mg tablets, a cost equivalent of $7.66 per pill. Slightly less expensive, Augmentin costs $46 for a regimen of 20 pills taken twice a day for 10 days, a cost of about $2.30 per pill. Because of the frequency with which Americans suffer from sinusitis, uninsured and underinsured patients may lack the financial resources to purchase such antibiotics and NPs should consider cost-efficient options when working with this population.

### Cost-Efficient Substitute for Upper Respiratory Infection

According to the American Academy of Allergy, Asthma, and Immunology, amoxicillin or trimethoprim-sulfamethoxazole should be the first-line treatment of acute sinusitis. Amoxicillin is a reasonable initial antibiotic choice in both children and adults with uncomplicated disease because it is generally as effective as Zithromax, relatively inexpensive, and side effects are rare. However, if a patient does not respond in 3 to 5 days, the patient should then be moved to an antibiotic that covers antibiotic resistance, such as Zithromax or Augmentin.

Amoxicillin or trimethoprim-sulfamethoxazole are as effective in the treatment of sinusitis as the more expensive antibiotics such as Zithromax and Augmentin. In fact, a narrow-spectrum antibiotic such as amoxicillin or trimethoprim-sulfamethoxazole should be used as the first-line treatment of moderate to severe sinusitis. Amoxicillin is an extremely cost-efficient antibiotic for the treatment of acute sinusitis (Table 1). When prescribed at 500 mg 3 times a day for 10 days, amoxicillin can be purchased for $8 per regimen of 30 tablets, a cost of just $0.26 per pill. While the use of amoxicillin is contraindicated in patients with beta-lactam intolerance, trimethoprim-sulfamethoxazole is another less-expensive alternative to treat sinusitis, costing $8 for a regimen of 20 tablets, a cost of $0.40 per pill (Table 1).

### MIGRAINE HEADACHE

Migraine headaches are a painful reality for approximately 28 million Americans. Among migraine sufferers, 75% have debilitating symptoms that interfere with work productivity and can dramatically affect the patient’s quality of life. Thus, migraine headache is a significant health problem requiring effective communication between the NP and the patient to identify triggers and to develop goals of migraine treatment. Approximately 9% of adult patients who regularly experience migraine symptoms must use medications each week to treat their headache symptoms and, as a result, may find the cost associated with these medications a barrier to treatment.

Triptan–class medications have long been the drug of choice for treating migraine headaches. In fact, Imitrex (sumatriptan) is the number-one–selling drug for the treatment of migraines. Relpax (eletriptan), another medication in the triptan–class, is another popular choice for the treatment of migraines. Ferrari et al found the efficacy of both Imitrex and Relpax to be similar—59% of patients reported improvement to mild or no pain 2 hours after treatment. The cost of these medications, however, may be too expensive for the uninsured or underinsured patient. Imitrex, 50 mg, is currently $189 for 9 tablets—a cost of $21 per pill. Relpax is similarly priced at $114 for six 20-mg tablets, with each pill costing $19.

### Cost-Efficient Substitute for Migraine Headache

Acetaminophen/dichloralphenazone/isometheptene (Midrin) compares favorably with sumatriptan for the treatment of mild to moderate migraine, with or without aura, when taken at the first sign of an attack. With similar results, Midrin relieves pain 63.1% of the time compared with Imitrex at 68.9% of the time. Furthermore, 4 hours after treatment with either medication, there was no significant difference in relief of headache symptoms.
between patients treated with Imitrex (80%) and Midrin (76%). However, the difference in cost between Imitrex and Midrin is noteworthy. Midrin can be purchased with a prescription for $18 for 30 325/100/65 mg tablets, which is only $0.60 per pill (Table 2).

Ibuprofen at doses of 200 mg and 400 mg is also an efficacious, cost-effective, well-tolerated treatment for pain of migraine headache. In fact, nonsteroidal anti-inflammatory drugs (NSAIDs) should be first-line medications for mild to moderate migraine due to their proven efficacy, low cost, and favorable tolerability. In addition to ibuprofen, NPs can also prescribe metoclopramide to bolster the efficacy of the NSAID in the treatment of migraine. When comparing relief of migraine symptoms, there is no significant difference in the primary endpoint for 2-hour response between Imitrex and metoclopramide combined with NSAIDs.

Metoclopramide, for 5-mg tablets, is $9 for 30 pills, or a mere $0.30 per pill. When combined with a dose of 200 mg of ibuprofen, which costs approximately $0.02 per pill, the total cost per dose is a mere $0.32. When compared to the cost of Imitrex and Relpax, Midrin and metoclopramide with ibuprofen are more cost-efficient as a possible treatment for migraine headache (Table 2).

Table 2. Drug Comparison for Migraine Headache

<table>
<thead>
<tr>
<th>Name</th>
<th>Dosea</th>
<th>Cost/Treatmentb</th>
<th>Cost/Eachb</th>
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<tbody>
<tr>
<td>Imitrex</td>
<td>25-100 mg PO × 1</td>
<td>$189 for 9 (50 mg) tablets</td>
<td>$21</td>
</tr>
<tr>
<td>Relpax</td>
<td>20-40 mg PO × 1</td>
<td>$114 for 6 (20 mg) tablets</td>
<td>$19</td>
</tr>
<tr>
<td>Acetaminophen/dichloralphenazone/Isomethetpine (Midrin)</td>
<td>325/100/65 mg PO × 1 each hour</td>
<td>$18 for 30 (325/100/65 mg) tablets</td>
<td>$0.60</td>
</tr>
<tr>
<td>Metoclopramide + ibuprofen</td>
<td>5 mg PO tid prn + 300 mg PO tid prn</td>
<td>$9 for 30 (5 mg) tablets + $10 for 500 (200 mg) tablets</td>
<td>$0.30 + $0.02</td>
</tr>
</tbody>
</table>

Cost-Efficient Substitute for Eczema

While Elidel is effective in treating eczema, it should only be used after other treatments have been tried first and, even then, only continued until the acute flare improves. Topical corticosteroids should, in fact, be the first-line treatment option for eczema. The least-potent topical steroid should be used to achieve maximum benefit, then tapered, discontinued, or changed to a less-potent topical steroid. Optimally, topical steroids should be used for only a few weeks in a continuous fashion and then used intermittently twice a week to control the symptoms of eczema. When prescribing topical steroids, NPs can effectively treat eczema with low-potency steroids in maintenance therapy and mid-to-high-potency steroids to treat flares.

Topical corticosteroids are both cheaper and, in some cases, more effective than Elidel. While Elidel reduces eczema symptoms for only 66% of patients, topical steroids have long been established as an efficacious choice. Of course, one common concern with the use of topical corticosteroids is the potential side-effect of skin atrophy. While statistically significant skin atrophy has been demonstrated with ultrasound after twice-daily application of potent and very potent topical corticos-

ECZEMA

According to the National Institutes of Health, 15 million people in the United States have some form of eczema. About 10% to 20% of all infants have eczema, with the prevalence in adults decreasing but still significant. The economic burden caused by eczema is projected to be nearly $2.6 billion in the United States alone. Furthermore, the estimated annual insurance payments necessary to medically treat atopic dermatitis ranged from $580 to $1250 per patient. Considering the financial cost associated with the treatment of eczema, patients who are either uninsured or underinsured may choose to forego treatment rather than seek treatment from their health care provider.

Elidel (pimecrolimus) has become the number-one-selling drug for the treatment of eczema. Elidel is a topical calcineurin inhibitor that has anti-inflammatory properties but contains no steroids. Consequently, Elidel can be used in areas where the skin is thinner without the risk of developing epidermal atrophy. Although Elidel is prescribed with twice-a-day dosing; however, the cost of this medication can be unaffordable to some patients. At a cost of $76 for a 30-gram tube, Elidel costs approximately $2.53 per gram.
Terbexon (6 weeks) demonstrated normal skin thickness after 4 weeks of cessation. However, triacyclic acid patients showed no evidence of skin atrophy after 20 weeks of treatment. Triamcinolone (0.1% or 0.025%) can be used to treat acute eczema for 2 weeks, then a low-potency dose for maintenance. At a fraction of the cost of Eidel, triamcinolone is an affordable alternative.

TRICHOMONIASIS

A single-celled protozoan parasite causes trichomoniasis, the most common curable STD, affecting both women and men. Commonly diagnosed through microscopy of vaginal secretions or urine testing, trichomoniasis can be effectively treated with metronidazole. At a single 2-gram oral dose, metronidazole is $1.33 per tablet, compared to Tindamax's $20 for four 500-mg tablets. Currently, the Food and Drug Administration has not approved any insulin-lowering agent for PCOS. Insulin sensitizers are commonly prescribed.

POLYCYSTIC OVARIAN SYNDROME (PCOS)

A commonly inherited disorder, PCOS affects 5% to 8% of women and includes metabolic and reproductive dysfunction, as well as cardiovascular effects. Insulin sensitizers have been identified as key contributors to PCOS and are often targeted for treatment.

<table>
<thead>
<tr>
<th>Table 3. Drug Comparison for Eczema</th>
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<tbody>
<tr>
<td><strong>Name</strong></td>
</tr>
<tr>
<td>Elidel 1% Cream</td>
</tr>
<tr>
<td>Triamcinolone 0.1% Cream (mid-potency for acute inflammation)</td>
</tr>
<tr>
<td>Triamcinolone 0.025% Cream (low-potency for chronic inflammation)</td>
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Currently, the Food and Drug Administration has not approved any insulin-lowering agent for the treatment of PCOS, but all have proven to be effective in clinical trials.

Commonly prescribed insulin sensitizers include Actos.
The cost associated with either of these medications may be unreasonable for the uninsured or underinsured patient. At a cost of $5.87 for each 30-mg tablet, a 1-month supply of Actos is approximately $176. Slightly less expensive, Avandia costs $3.83 per tablet, or $115 per month.

**Cost-Efficient Substitute for Polycystic Ovarian Syndrome**

Metformin, another insulin-lowering agent, should be used as the first-line treatment for PCOS, considering its low cost and efficacy similar to other anti-insulin agents. While Actos, Avandia, and metformin all have a favorable influence on the basic hormonal deviations in PCOS, metformin may even be better at treating hyper-androgenemia. In addition, metformin may also reduce insulin resistance, increase high-density lipoproteins, and restore ovulation in the patient with PCOS.

At $0.66 per tablet, metformin is a cost-efficient, yet effective substitute for either Actos or Avandia. (Table 5).

### IMPLICATIONS FOR PRACTICE

The NP’s role in providing quality care continues to develop, concurrent with the ever-evolving health care system. With an influx of uninsured and underinsured patients, today’s NPs must not only provide high-quality health care, they must also address cost-efficient treatment options for patients who cannot afford expensive medications. There are times, however, when prescribing a less expensive medication may be contraindicated, such as when the patient has specific medication allergies or when the potential for a drug-to-drug interaction exists. In these cases, NPs may need to prescribe a more expensive medication.

Even when more expensive medications need to be prescribed, NPs can still help decrease the overall cost of more expensive medications by referring patients to patient assistance programs (PAP). PAPs provide more expensive medications at little or no cost to patients who have a financial need. NP knowledge of available PAPs is especially useful because some of these programs require the health care provider’s involvement to facilitate the process. In addition, NPs can facilitate a patient’s access to PAPs by utilizing valuable resources such as www.needymeds.com, www.rxassist.org, www.pparx.org, and www.mnh.org. While not a PAP, Walmart pharmacies also offer discounts on over 360 different medications, charging a mere $4 for a 1-month supply. The $4 prescription program at Walmart includes medications appropriate for the treatment of most common medical conditions and can be found at www.walmart.com/pharmacy.

Before the NP makes the final decision about which medication to prescribe, it is imperative to first consider any additional costs an uninsured or underinsured patient will incur as a direct result. Because the prescribing of some medications requires follow-up on routine lab tests and with the patient in clinic, the potential for additional costs associated with any prescribed medication should be considered. For example, when prescribing metformin for the treatment of PCOS, NPs should assess the patient’s kidney function levels before beginning treatment and again every 12 months. In a case such as this,
the cost of medication, in addition to routine lab tests and regular clinic visits, may become a financial burden to the uninsured or underinsured patient. Instead, NPs may opt to promote lifestyle modification and weight loss as the least expensive and most effective therapeutic intervention for PCOS.

CONCLUSION
As the uninsured and underinsured population grows, NPs must maintain the delicate balance between providing quality care and cost-efficient care of their patients. Familiarity with cost-efficient medicinal treatment options for common diagnoses such as upper respiratory infection, migraine headache, eczema, trichomiasis, and polycystic ovarian syndrome can assist in alleviating the economic burden uninsured and underinsured patients must endure, especially with respect to prescription medications. In addition, NPs may also help decrease the cost of medications by referring patients to PAPs. Careful consideration of prescription drug cost will help encourage a patient’s compliance with a specific plan of care, consequently improving the overall health of uninsured or underinsured patients. JNP

References


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