Wyoming Drug Utilization Review

Edited by Debra Devereaux, R.Ph., MBA

IN THIS ISSUE

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OMEGA-3 FATTY ACIDS

by Jaime Salmon, PharmD Candidate

Evidence from recent randomized trials in patients with coronary heart disease suggests that intake of omega-3 polyunsaturated fatty acids (omega-3 PUFAs) from marine and plant sources prevents cardiac death and nonfatal myocardial infarction. Consuming fish oil (a rich source of omega-3 fatty acids) has also been shown to lower total cholesterol and triglyceride concentrations[1]. The overall benefit of diets supplemented or rich in omega-3 PUFAs is that it may decrease mortality due to myocardial infarction, sudden death and overall mortality in patients with coronary heart disease[2].

Omega-3 PUFAs reduce platelet adherence and enhance endothelium-dependent vasodilation. They may also offer protection against ventricular arrhythmia. The omega-3 PUFAs may also act as an antihyperlipidemic agent. Large doses of fish oil have been shown to have profound effects in reducing triglyceride levels and to have a favorable change in HDL cholesterol metabolism[1]. These mechanisms may be important in decreasing the incidence of coronary events in people with atherosclerosis.

continued on page 2

FYI: DEPARTMENT OF HEALTH PERSONNEL

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Omega-3 Fatty Acids continued

Results of various prospective observational cohort studies have suggested a cardioprotective effect of omega-3 PUFAs. The US Physicians Health study followed 20,551 male physicians for 11 years and found that consuming at least one fish-meal per week reduced the risk of sudden cardiac death by 52% (P=0.03)[3]. The Lyon Diet Heart Study found that at 27 months, there was a 76% reduction risk in the major primary end points of cardiovascular death and nonfatal MI, when diets were supplemented with omega-3 PUFAs[4]. The GISSI-Prevenzione study found that supplementation with fish oil reduced cardiovascular events by 20%[5].

Controversy remains as to whether or not diets high in omega-3 PUFAs are beneficial for everyone or only those at risk of coronary heart disease. The role of omega-3 PUFAs in the secondary prevention of CHD is clearly supported by recent randomized trials, including the GISSI-Prevenzione Study and the Lyon Diet Heart Study, but their role in primary prevention will need to await future clinical trials.

Although no official recommendations for omega-3 PUFA intake have been made in the United States, an expert panel of nutrition scientists recently suggested these guidelines[1]:

PUFAs	**Current US Consumption, g/d**	**Expert US Panel Recommended Intake, g/d**
ALA	1.4	2.2
EPA + DHA	0.1-0.2	0.65
Total	1.6	2.85

ALA: α-linolenic acid
EPA: eicosapentaenoic acid
DHA: docosahexaenoic acid

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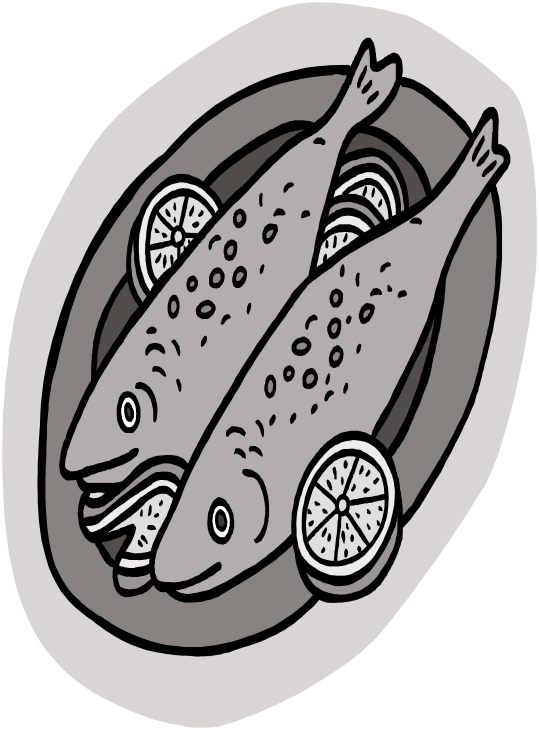


ANTIBIOTICS PRICING

URINARY TRACT INFECTIONS

DRUG	TREATMENT REGIMEN	RETAIL PRICE
Amoxicillin (various generic)	250 mg tid x 7 days	4.57
Trimethoprim/Sulfa DS (various generic)	One DS tab bid x 7 days	6.00
TROVAN (trovafloxacin) – uncomplicated	100 mg qd x 3 days	18.91
BACTRIM/SEPTRA DS	One DS tablet bid x 7 days	20.55
FLOXIN (ofloxacin) – uncomplicated	200 mg bid x 30 days	24.82
CEFTIN (cefuroxime)	125 mg bid x 7 days	28.68
LORABID (loracarbef)	200 mg q 24h x 7 days	29.37
VANTIN (cefpodoxime)	100mg bid x 7 days	42.75
PENETREX (enoxacin) – uncomplicated	200 mg bid x 7 days	47.70
CIPRO (ciprofloxacin) – uncomplicated	250 mg bid x 7 days	53.99
NOROXIN (norfloxacin)	400 mg bid x 7 days	54.10
AUGMENTIN (amoxicillin / clavulanate)	250 mg tid x 7 days	55.48
CIPRO (ciprofloxacin) – complicated	500 mg bid x 7 days	63.19
DURICEF (cefadroxil) – uncomplicated	500 mg bid x 7 days	66.28/47.26 generic
MAXAQUIN (lomefloxacin) – uncomplicated	400mg once daily x 10 days	69.34
LEVAQUIN (levofloxacin) – complicated	250 mg qd x 10 days	73.07
ZAGAM (sparfloxacin)	400mg stat/200mg qd days 2-10	73.58
FLOXIN (ofloxacin) – complicated	200 mg bid x 10 days	82.71
MAXAQUIN (lomefloxacin) – complicated	400 mg once daily x 14 days	97.03
PENETREX (enoxacin) – complicated	400 mg bid x 14 days	100.16
TROVAN (trovafloxacin) – complicated	200 mg qd x 14 days	106.80
DURICEF (cefadroxil) – complicated	1 fram bid x 7days	132.56

SKIN AND SOFT TISSUE INFECTIONS

DRUG	TREATMENT REGIMEN	RETAIL PRICE
Cloxacillin (various generic)	250 mg qid x 7 days	4.35
Oxacillin (various generic)	500 mg qid x 7 days	5.32
Erythromycin (various generic)	250 mg qid x 7 days	6.87
Dicloxacillin (various generic)	250 mg qid x 7 days	11.51
Cephalexin (various generic)	500 mg bid x 7 days	17.63
ZITHROMAX (azithromycin)	500mg stat/250 mg days 2-5	41.84
KEFLEX (cephalexin)	500 mg bid x 7 days	45.32
DYNABAC (dirithromycin)	500 mg qd x 7 days	45.59
BIAXIN (clarithromycin)	250 mg bid x 7 days	52.96
AUGMENTIN (amoxicillin / clavulanate)	250 mg tid x 7 days	55.48
OMNICEF (cefdinir)	300 mg bid x 7 days	57.69
LORABID (loracarbef)	200 mg bid x 7 days	58.74
CEFTIN (cefuroxime)	250 mg bid x 7 days	58.80
CIPRO (ciprofloxacin)	500 mg bid x 7 days	63.19
DURICEF (cefadroxil)	500 mg bid x 7 days	66.28/38.74 generic
VANTIN (cefpodoxime)	400 mg bid x 7 days	112.90

continued on page 4

ANTIBIOTICS PRICING

MISCELLANEOUS

DRUG	TREATMENT REGIMEN	RETAIL PRICE
Metronidazole (various generic)	250 mg qid x 10 days	4.29
Doxycycline (various generic)	100 mg bid x 10 days	9.13
Epivir (lamivudine)	150 mg bid	9.54 Daily cost
Combivir (lamivudine/zidovudine)	150 mg/300 mg bid	10.34 Daily cost
RETROVIR (zidovudine)	600 mg/day	11.15 Daily cost
CRIZIVAN (indinavir)	800 mg tid	16.71 Daily cost
Nystatin (various generic)	500,000 units tid x 10 days	19.32
Minocycline (various generic)	100 mg qd x 10 days	20.01
INVIRASE (saquinavir)	600 mg tid	21.57 Daily cost
NORVIR (ritonavir)	600 mg bid	24.75 Daily cost
NIZORAL (ketoconazole)	200 mg once daily x 10 days	36.83
Clindamycin (various generic)	150 mg qid x 10 days	47.64
DORYX (doxycycline)	100 mg bid x 10 days	61.18
FLAGYL (metronidazole)	250 mg qid x 10 days	69.78
DIFLUCAN (fluconazole)	100 mg once daily x 10 days	77.08
LAMISIL (terbinafine)	250 mg qd x 10 days	80.29
VIBRAMYCIN (doxycycline)	100 mg bid x 10 days	84.46
VALTREX (valacyclovir)	1 gm tid x 7 days	99.05
SPORANOX (itraconazole)	200 mg once daily x 10 days	148.30
FAMVIR (famciclovir)	500 mg tid x 7 days	154.91
ZOVIRAX (acyclovir)	800mg 5x/day x 7 days	215.69/42.56 generic
VANCOCIN (vancomycin)	250 mg qid x 10 days	447.46

The dosages listed were generally the lowest recommended for the given indication based on USP DRUG INFORMATION, FACTS AND COMPARISON, THE MEDICAL LETTER AND AMA DRUG EVALUATIONS. These comparisons were made from Average Wholesale Price listed by the manufacturer. Actual retail prices that Wyoming Medicaid may reimburse to pharmacies may differ because of contractual arrangements and market place pricing. However, these comparisons should serve as a guide for all providers to make relative comparisons based on the price list.

Bioterrorism Preparedness

by Roxanne Homar R.Ph.

On January 11, 2002, state Department of Health employees, along with Sweetwater County Health Department employees, and a number of other individuals representing emergency medical services, mental health, etc., participated in a bioterrorism preparedness drill in Rock Springs, Wyoming.

The fake scenario included a positive exposure to anthrax of at least one hundred people. Students participated as exposed patients and acted out a variety of scenarios and symptoms. The cooperation and teamwork among the nurses, pharmacists and County Health Officer, Dr. Stachon, along with a number of other participants, was something to be admired. Problems were encountered, as would occur if this had been a true emergency, and were largely dealt with quickly and effectively.

The Department of Health hopes to have more bioterrorism preparedness drills throughout communities in Wyoming. A special thanks to Ed Baker, R.Ph. (past DUR Board member), and Becky Drnas, R.Ph. (current DUR Board member) for volunteering to participate in this drill.

About The
DUR PROGRAM

by Jaime Salmon, PharmD Candidate

The Omnibus Budget Reconciliation Act (OBRA) of 1990 required each state to establish a Drug Utilization Review program for covered outpatient drugs "to assure that prescriptions are appropriate, medically necessary and are not likely to result in adverse medical results." This process began with the State Medicaid program. OBRA '90 also required that each Drug Utilization Review (DUR) program establish a DUR Board. DUR Boards are responsible for Prospective DUR, Retrospective DUR and its educational intervention program. Other responsibilities usually include approval and modification of DUR criteria, the design and implementation of the education intervention program and approval of drugs placed on Medicaid drug prior approval lists. OBRA '90 also requires each State Medicaid DUR program to estimate the impact of the program on cost and quality of care. However, a main focus of the DUR Board is to provide active and ongoing educational outreach programs to educate practitioners on common drug therapy problems to improve prescribing and dispensing practices.

Prospective DUR (Pro DUR) is performed by the pharmacist, either on-site or through an on-line point of sale (POS) system that allows the electronic submission of a drug claim for reimbursement. In both cases, pharmacists are responsible for reviewing each prescription submitted by Medicaid patients to ensure that the medication prescribed will pose no risks to the patient's health. The on-line POS systems use information from paid claims stored in a central database that is part of a Medicaid Management Information System (MMIS). Prescription information is then compared to a patient's Medicaid prescription drug history and predetermined criteria to determine whether a prescription is accepted for payment or needs further investigation by the pharmacist. Prospective DUR includes screening prescriptions for potential drug therapy problems due to therapeutic duplication, drug-disease contraindications, drug-drug interactions, drug-interactions with non-prescription or over-the-counter drugs, incorrect drug dosage or duration of drug treatment, drug allergy interactions or clinical abuse or misuse.

Retrospective DUR also uses the MMIS data to screen paid drug claims against predetermined standards and identify instances of potentially inappropriate drug therapy. The DUR Board reviews MMIS data reports to determine where educational intervention is necessary. These reviews are used to identify patterns of fraud and abuse, gross overuse and inappropriate medical care among physicians, pharmacists or Medicaid recipients. General categories of inappropriate care required by OBRA '90 are: over-utilization of medication or services, under-utilization of medication or services, drug therapy contraindicated by diagnosis, iatrogenic or adverse drug reactions and contraindicated drug combinations. In instances where inappropriate drug therapy has been identified, the DUR Board decides whether to intervene by contacting the provider involved. Common intervention techniques are letters, phone calls and face-to-face interventions. The purpose of these interventions is to educate and modify the prescribing or dispensing practices of the provider.

The Wyoming Drug Utilization Review Board (WYDUR) comprises of five physicians, five pharmacists and one mid-level prescriber, who each serve a three-year term. The review board is designed to enhance the quality of care for patients by assuring appropriate drug therapy and improving therapeutic outcomes. Intervention criteria and standards developed by WYDUR must be clinically relevant and are derived though a combination of evaluations of the peer reviewed clinical and scientific literature, compendia, and guidelines obtained from consensus of professional groups, experience of practitioners with expertise in drug therapy and data obtained from WYDUR program operations.

Disease Management Costs

(January - December 2001)

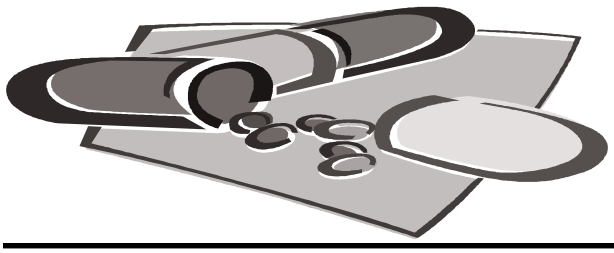
by Debra Devereaux, R.Ph., MBA and Cory Moss, PharmD

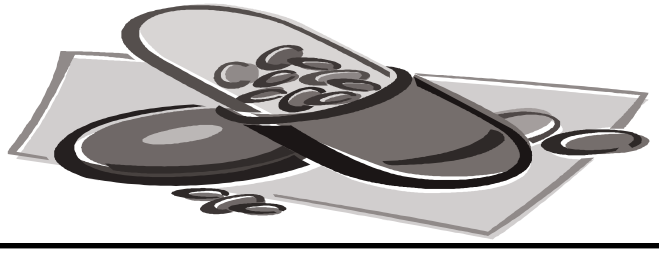
The following table and graph represent the calendar year 2001 disease management costs for peptic ulcer/esophagitis, bipolar depression, depression, adjustment reaction, multiple sclerosis, diabetes, HIV, asthma, coagulation defects, psychosis and hypertension patients in the Wyoming Medicaid population. Patients with ICD9 diagnosis codes for the above conditions were selected and aggregate costs including total medical costs, total drug costs, total cost/patient, medical cost/patient and drug cost/patient were calculated.

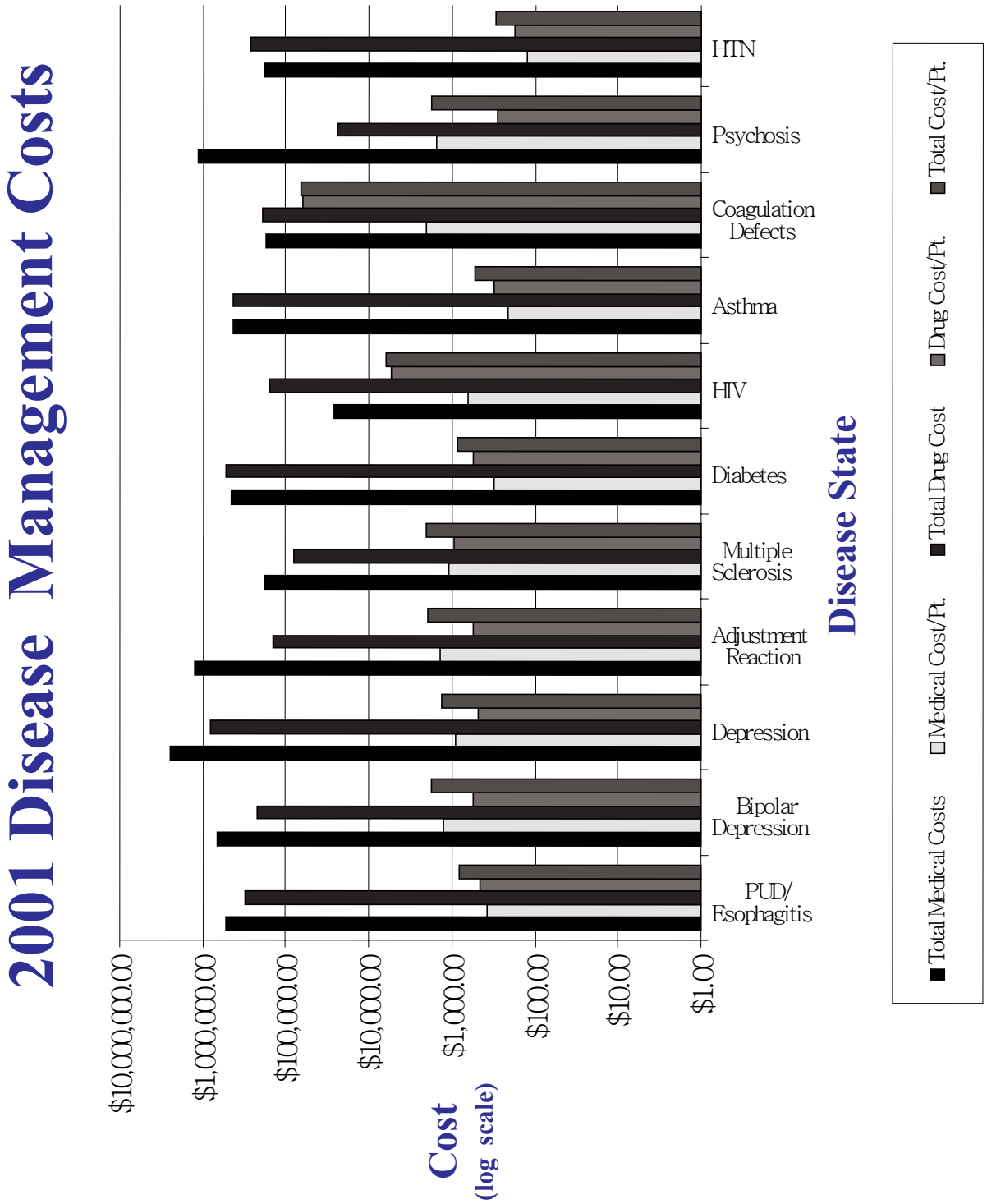
Total medical costs include physician or other provider office visits, emergency room visits, community mental health center visits and inpatient hospitalizations. Total drug costs include only the drugs indicated to treat the specific disease selected NOT all the medications the patient might be receiving. For instance, any patient with a diagnosis for peptic ulcer disease or esophagitis utilizing sucralfate, misoprostol, omeprazole, lansoprazole, rabeprazole, pantoprazole, esomeprazole, cimetidine, ranitidine, famotidine or nizatidine would be included in the calculations. The total cost per patient was calculated by adding together the medical cost per patient and the drug cost per patient.

The cost figures are interesting to compare on a relative basis. For instance, the average total cost for a patient with coagulation effects was $66,239 compared to the average total cost to treat a patient with hypertension of $301. The average medical cost to treat an HIV patient was $652 compared to the average medical cost to treat a patient with a psychosis diagnosis of $1516. For the specific medication included for each diagnosis code, please contact the WYDUR program at 307-766-6120.

Disease State	Total Medical Costs	Medical Cost/Pt.	Total Drug Cost	Drug Cost/Pt.	Total Cost/Pt	# Of Pt's
PUD/ Esophagitis	$517,856.94	$384.17	$314,651.77	$452.74	$836.91	1348
Bipolar Depression	$656,010.20	$1,240.09	$219,918.83	$562.45	$1,802.54	529
Depression	$2,477,394.67	$881.01	$831,582.43	$470.24	$1,351.25	2812
Adjustment Reaction	$1,271,427.70	$1,401.79	$140,486.16	$561.94	$1,963.73	907
Multiple Sclerosis	$185,214.48	$1,115.75	$79,734.10	$938.05	$2,053.80	166
Diabetes	$452,160.23	$309.28	$534,641.75	$555.76	$865.04	1462
HIV	$26,736.05	$652.10	$157,369.49	$5,426.53	$6,078.63	41
Asthma	$424,300.70	$216.37	$430,586.16	$312.47	$528.84	1961
Coagulation Defects	$174,121.84	$2,072.88	$192,498.93	$64,166.31	$66,239.19	84
Psychosis	$1,119,119.07	$1,516.42	$24,357.40	$283.23	$1,799.65	738
HTN	$182,552.39	$123.51	$263,587.01	$177.86	$301.37	1478






2001 Disease Management Costs
$10,000,000.00
$1,000,000.00
$100,000.00
$10,000.00
$1,000.00
$100.00
$10.00
$1.00
Cost
(log scale)
HTN
Psychosis
Coagulation Defects
Asthma
HIV
Diabetes
Multiple Sclerosis
Adjustment Reaction
Depression
Bipolar Depression
PUD/ Esophagitis
Disease State
Total Medical Costs
Medical Cost/Pt.
Total Drug Cost
Drug Cost/Pt.
Total Cost/Pt.

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