HARM:

Side & adverse effects of conventional medicine & hospitals vs. natural (alternative medicine or CAM) health care practitioners and supplements

&

Side & adverse effects of natural & wholistic health care practices & supplements

(A Compendium)

MAY 2012

Side & adverse effects: Conventional medicine & hospitals vs. natural (alternative medicine) health care practitioners & supplements

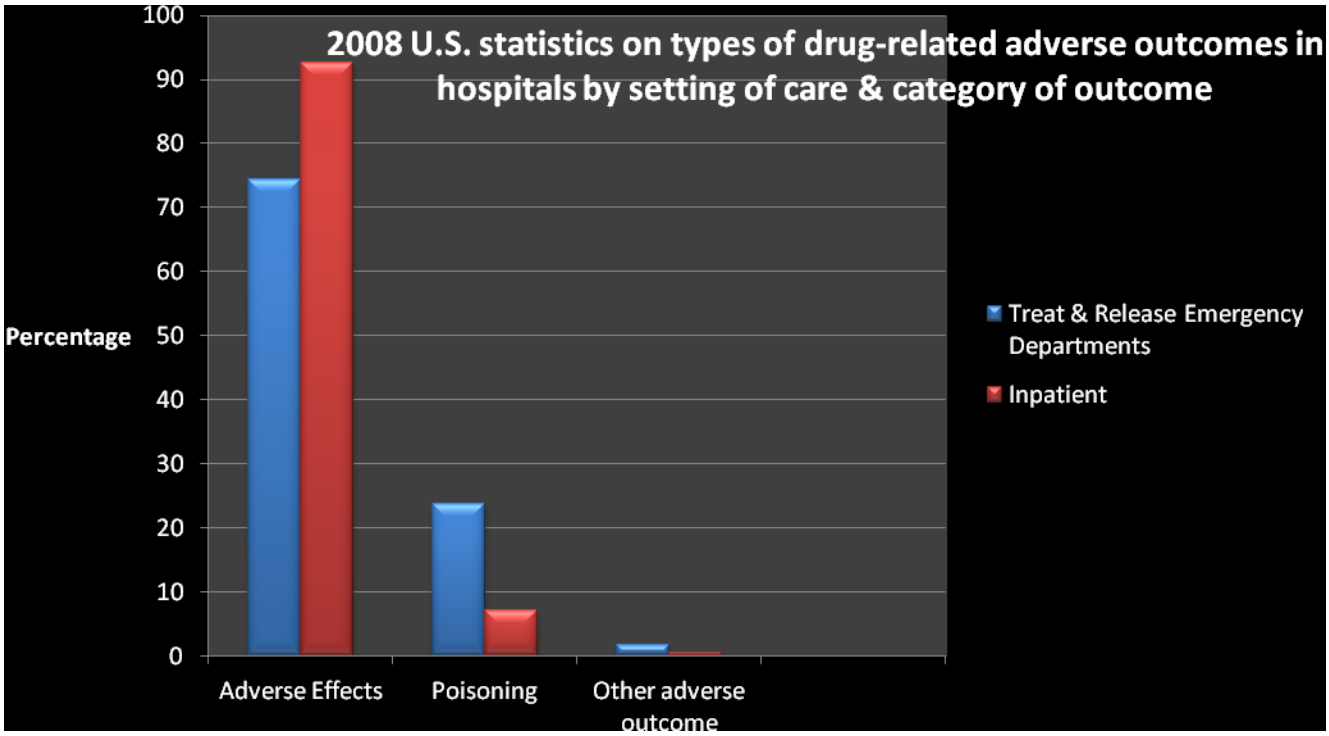
STATISTICS & OTHER INFORMATION ON SIDE & ADVERSE EFFECTS: CONVENTIONAL MEDICINE & HOSPITALS

The highlights box and charts that follow are reproduced from "Medication-Related Adverse Outcomes in U.S. Hospitals and Emergency Departments, 2008"

Lucado, J. (Social & Scientific Systems, Inc.), Paez, K. (Social & Scientific Systems, Inc.), and Elixhauser A. (AHRQ). *Medication-Related Adverse Outcomes in U.S. Hospitals and Emergency Departments, 2008.* HCUP Statistical Brief #109. April 2011. Agency for Healthcare Research and Quality, Rockville, MD. http://www.hcup-us.ahrq.gov/reports/statbriefs/sb109.pdf.

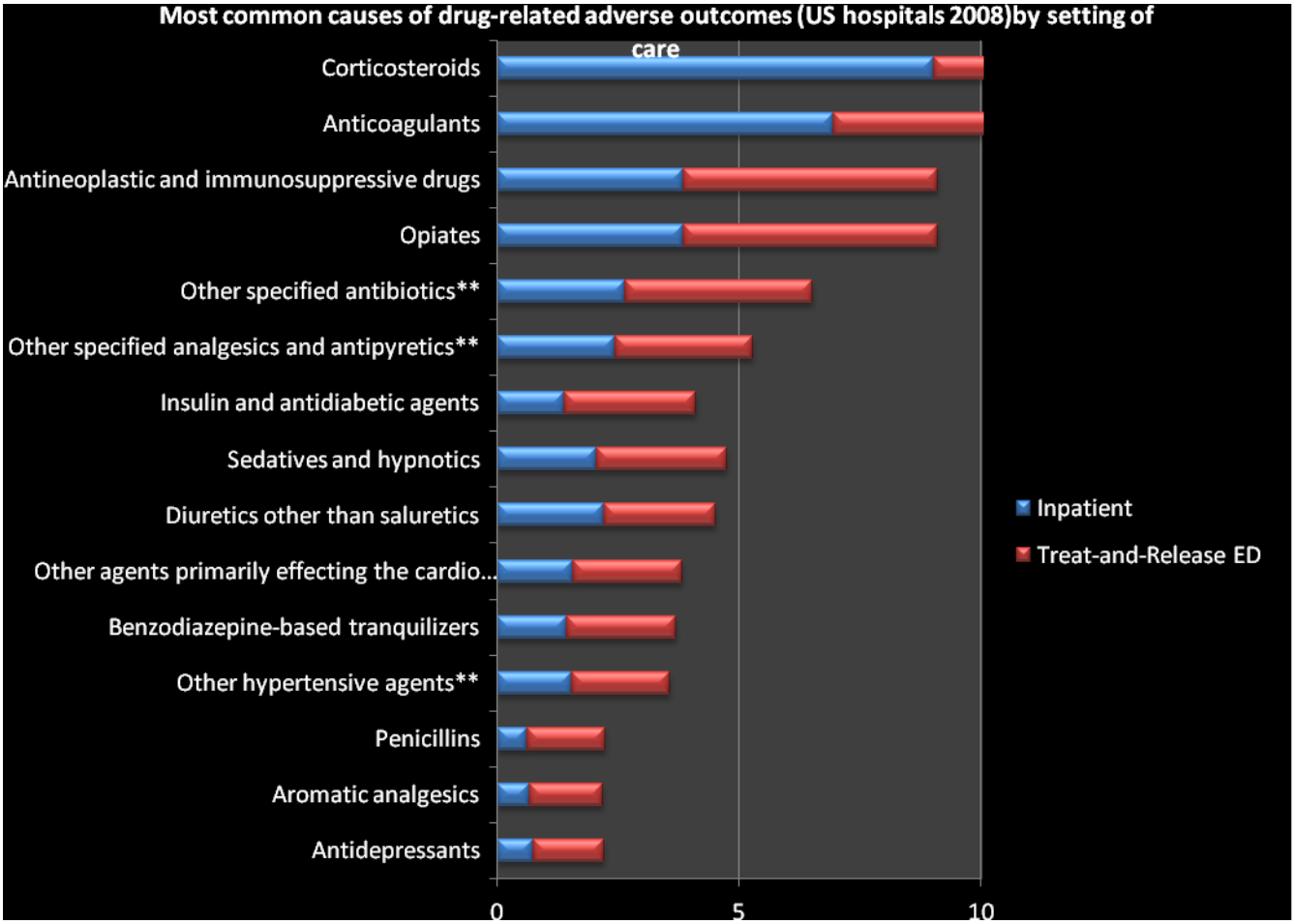
HIGHLIGHTS

- In 2008, drug-related adverse outcomes were noted in nearly 1.9 million inpatient hospital stays (4.7 percent of all stays), and 838,000 treat-and-release ED visits (0.8 percent of all visits).
- Over the five years **between 2004 and 2008, there was a 52 percent increase in drug-related adverse outcomes in the inpatient setting**—more than half of this increase was due to corticosteroids, anticoagulants, and sedatives and hypnotics.
- In the inpatient setting, corticosteroids, such as prednisone, caused 13.2 percent of all drug-related adverse outcomes.
- Analgesics, antipyretics, and antirheumatics were the second most common general cause of drug-related adverse outcomes for both inpatient and treat-and-release ED events, accounting for 12.5 percent and 11.8 percent of events, respectively. Within this category, opiates were the most common specific cause of drug-related adverse outcomes, responsible for 5.6 percent of all inpatient events and 4.4 percent of treat-and-release ED events.
- **Over 53 percent of all inpatient stays with a drug-related adverse outcome were for patients 65 or older**. Only 18.5 percent of treat-and-release ED visits with a drug-related adverse outcome were for elderly patients.
- Among treat-and-release ED visits involving drug-related adverse outcomes, analgesics and antibiotics were common causes of events for all age groups. **Psychotropics were another common drug-related adverse outcome for all age groups younger than 65. Agents affecting the blood (such as anticoagulants) were a common drug-related adverse outcome for those 65 and older.**



Based on a total of 1,874,800 in-patient stays and 838,000 ED visits.

Source: AHRQ, Center for Delivery, Organization, and Marketing, Healthcare Cost and Utilization Project, Nationwide Inpatient Sample and Nationwide Emergency Department Samples 2008



Based on a combined total of 2,147,700 drug-related adverse outcome events in 1,874,800 inpatient stays, and 997,100 events in 838,000 treat and release ED visits with at least one drug-related adverse outcome recorded.

* More than one event can be recorded during an inpatient stay or ED visit.

** See appendix for details on these categories. Diagnoses in these categories reflect adverse events of unidentified or unclassified drugs; more specific information is not available in the codes.

Source: AHRQ, Center for Delivery, Organization, and Markets, Healthcare Costs and Utilization Project, Nationwide Inpatient Sample and Nationwide Emergency Department Sample, 2008.

THE TOLL OF MEDICATION ERRORS FROM RIGHT DIAGNOSIS

A 2000 Institute of Medical (National Academies) report divulged a great deal of information concerning deaths and adverse events due to errors in medication:

- 7,391 deaths were estimated to result from medication errors in 1993.
- The IOM report cited a study which found that about 2% of hospital admissions had a preventable adverse drug event although the majority of them were not fatal.
- Medication error was the cause of death for 1 in 131 outpatient deaths and 1 in 854 inpatient deaths.

Prescription errors:

There were nearly 2.5 billion prescriptions dispensed by US pharmacies in 1998 compared to an estimated 3.75 billion drug administrations in hospitals.

The IOM report cites an Australian study (1988-1996) in which it was reported that 2.4 to 3.6 percent of hospital admissions were “due to medication events, of which 32 to 69% were preventable”.

Causes of these errors:

Individuals with kidney and liver conditions as well as known drug allergies were at greatest risk. The IOM report cites the following as causal in these errors:

- Failure to modify or alter a medication or dosage due to reduced kidney or liver function (13.9%)
- Known allergy to same medication class (12.1%)
- Using the wrong drug name, dosage form, or abbreviation (11.4%)
- Incorrect dosage calculations (11.1%)
- Atypical or unusual and critical dosage frequency considerations (10.8%)

The data showed that the greatest risk in prescription errors came from doctors rather than pharmacists. The estimates are as follows:

- Prescribing errors (68%)

- Administration errors (25%)
- Supply errors (7%)

Adverse drug reactions:

Adverse drug reactions (ADR) are not necessarily a medical error although they can be. In adverse drug reactions a patient suffers a reaction, side effect, or other injury from the drug given.

In one study (Lazarou, Pomeranz, and Corey published in the *Journal of the American Medical Association* "Incidence of adverse drug reactions [ADRs] in hospitalized patients: a meta-analysis of prospective studies," *JAMA,* 1998;279:1200-1205), the authors estimated that 6.7% of hospitalizations resulted in an adverse drug reaction, and 0.32% of cases were fatal. **This translates to about 2,216,000 cases annually in hospitalized patients and 106,000 deaths.**

In another study (Holland et al 1997) **it was estimated that as many as 1 million patients are injured while in hospital and about 180,000 die as a result.**

The cost of this is estimate at more than $136 billion annually.

Right Diagnosis: http://www.rightdiagnosis.com/mistakes/medicat.htm

THE FLIP SIDE

Harriet Hall, MD, discusses what's wrong with contrasting the harm done by modern medicine with that of alternative medicine in an article titled "Death by Medicine" that was posted in the Science Based Medicine" blog on 6-24-2008: http://bit.ly/LJFGg4

In her blog entry Dr. Hall mentions Critics of "conventional" medicine delight in pointing out how much harm it causes. Carolyn Dean, Gary Null, and others have written extensively about "death by medicine." This link is to the article "Death by Medicine" penned by the aforementioned individuals: http://bit.ly/6SD7pX

Death and serious patient outcomes from FDA approved drugs (2000-2010)

"These data describe the outcome of the patient as defined in U.S. reporting regulations (21 CFR 310.305, 314.80, 314.98, 600.80) and Forms FDA 3500 and 3500A (the MedWatch forms). *Serious* means that one or more of the following outcomes were documented in the report: death, hospitalization, life-threatening, disability, congenital anomaly and/or other serious outcome. Documenting one or more of these outcomes in a report does not necessarily mean that the suspect product(s) named in the report was the cause of these outcomes."

Editor's Note: These data show "deaths" totaling 452,780 and "serious outcomes" equaling 2,816,297 occurred during the eleven years from 2000 to 2010 as tabulated from the FDA's Adverse Event Reporting System for prescription drugs.

Comparing the five years (2001-2005) with the five years (2006-2010) finds that the number of deaths grew by +66.7% for the second time frame as compared to first. For the same comparative spans, serious patient leaped by almost three quarters (+77.5%).

AERS[1] Patient Outcomes by Year		
Year	**Death**	**Serious**
2000	19,445	153,818
2001	23,988	166,384
2002	28,181	159,000
2003	35,173	177,008
2004	34,928	199,510
2005	40,238	257,604
2006	37,465	265,130
2007	36,834	273,276
2008	49,958	319,741
2009	63,846	373,535
2010	82,724	471,291
Total 2000-2010	452,780	2,816,297
Total 2001-2005	162,508	959,506

Total 2006-2010	270,827	1,702,973
% Chg	**+66.7%**	**+77.5%**

1 AERS = Adverse Events Reporting System. This system managed by the U.S. Food and Drug Administration (FDA) contains over four million reports of adverse events and reflects data from 1969 to the present. Data from AERS are presented as summary statistics. These summary statistics cover data received over the last ten years. These data are presented at the individual report level; some of the numbers may reflect duplicate reporting due to factors such as follow-up reports received on a case or different persons reporting on the same patient case.

Source:

"AERS Patient Outcomes by Year," Food and Drug Administration (Washington, DC: U.S. Department of Health and Human Services, March 31, 2010).
http://www.fda.gov/Drugs/GuidanceComplianceRegulatoryInformation/Surveil...

Side & adverse effects: Natural & wholistic health care practices & supplements

Reliable statistics on side and adverse effects of CAM practices and procedures as well as dietary supplements is not easy to come by.

THE FDA

The FDA does not appear to tabulate and publish sweeping statistics on side and adverse effects of CAM practices and procedures as well as dietary supplements. This federal agency does invite consumers and health care providers who have general complaints or concerns about food products including supplements contact them. Those who believe have had a "serious harmful effect or illness from a dietary supplement" are urged to have their health care provider report this by calling the FDA's MedWatch hotline at 1-800-FDA-1088 or submitting a report online. "The MedWatch program allows health care providers to report problems possibly caused by FDA-regulated products such as drugs, medical devices, medical foods and dietary supplements. The identity of the patient is kept confidential."

The FDA adds that "Consumers may also report an adverse event or illness they believe to be related to the use of a dietary supplement by calling FDA at 1-800-FDA-1088 or online. FDA would like to know when a product causes a problem even if you are unsure the product caused the problem or even if you do not visit a doctor or clinic**."**

The FDA's MedWatch program is found at http://www.fda.gov/Safety/MedWatch/default.htm

The FDA's webpage on supplements is found at
http://www.fda.gov/Food/DietarySupplements/default.htm

OTHER SOURCES

Information is available from various other governmental and private sector sources though no comprehensive or sweeping statistical analysis that covers hard done by both CAM treatments & diagnostic methods and dietary/herbal supplements appears to exist at this time.

JOURNAL OF MEDICAL TOXICOLOGY STUDY

For instance there was a paper published in the Journal of Medical Toxicology in June 2008 concerning the result of a study in which a firm called Amgen "collaborated with the FDA Center

for Food Safety and Nutrition (CFSAN) to conduct a 1-year prospective surveillance study of dietary supplement-related poison control center calls in 2006. Prompt follow-up of symptomatic cases, laboratory analysis of implicated dietary supplements, and causality assessment by a case review expert panel were performed".

In the study abstract posted on PubMed, it states that "Of 275 dietary supplements calls, 41% involved symptomatic exposures; and two-thirds were rated as probably or possibly related to supplement use. Eight adverse events required hospital admission. Sympathomimetic toxicity was most common, with caffeine products accounting for 47%, and yohimbe products accounting for 18% of supplement-related symptomatic cases. Suspected drug-herb interactions occurred in 6 cases, including yohimbe co-ingested with buproprion (1) and methamphetamine (3), and additive anticoagulant/antiplatelet effects of NSAIDs taken with fish oils (1) and ginkgo (1). Laboratory analysis identified a pharmacologically active substance in 4 cases; supplement toxicity was ruled unlikely when analytical testing was negative in 5 cases."

"Most supplement-related adverse events were minor. Clinically significant toxic effects were most frequently reported with caffeine and yohimbe-containing products. Active surveillance of poison control center reports of dietary supplement adverse events enables rapid detection of potentially harmful products, which may facilitate regulatory oversight."

The entire paper can be accessed by clicking this link: http://bit.ly/MlIhuo

NATURAL PRODUCTS ASSOCIATION

The **Natural Products Association**, a private nonprofit organization **"**dedicated to the natural products industry" shared this on their website under "Dietary Supplement Safety"

> Dietary supplements have a great safety record, especially compared with other consumer goods, such as drugs and even other foods. Below are a few statistics that support this claim.
>
> The truth is that dietary supplements are far safer than most common foods and drugs that consumers use without a second thought. For instance, it may surprise you that ibuprofen, one of the most common pain relievers, is responsible for more than 17,000 deaths annually [New England Journal of Medicine].
>
> Prescription drugs, for all the testing they go through and copious usage directions that are issued with them, are estimated to be one of the top five leading causes of death in the U.S. at more than 106,000 annually[Journal of the American Medical Association].
>
> More than 5,000 Americans are killed each year by food borne illnesses [U.S. Centers for Disease Control].

One reason there is so much fearmongering about supplements is because few experts can agree on accurate sources for statistical information about their safety. But even when trusted sources, such as the Food and Drug Administration or the American Association of Poison Control Centers, do issue statistics on adverse reactions connected with supplements, they are usually dismissed as being unrealistically low.

In 2001, the FDA received 1,214 reports of adverse events regarding dietary supplements. That same year, it received more than 300,000 adverse reports about drugs. So, supplements represent less than half-of-one percent of drug adverse events using current FDA data.

Is the higher safety profile for dietary supplements unique to the FDA's data? No. **According to reports from poison control centers throughout the United States, adverse reactions to drugs are more than 800 percent higher than those to dietary supplements [American Association of Poison Control Centers].**

Wolfe M. M., Lichtenstein D. R., Singh G.,"Medical Progress: Gastrointestinal Toxicity of Nonsteroidal Antiinflammatory Drugs," New England Journal of Medicine 340:1888-1899 (1999).

Lazarou, Jason, Pomeranz, Bruce H., Corey, Paul N., "Incidence of Adverse Drug Reactions in Hospitalized Patients: A Meta-analysis of Prospective Studies," Journal of the American Medical Association 279:1200-1205 (1998).

Paul S. Mead, et al, "Food-Related Illness and Death in the United States," Morbidity and Mortality Weekly Report (Sept.-Oct. 1999). Electronic version available here.

U.S. Food and Drug Administration, "FDA Proposes Manufacturing and Labeling Standards for all Dietary Supplements," backgrounder, March 7, 2003. Electronic version available here.

U.S. Food and Drug Administration, Center for Drug Evaluation and Research, Office of Financial Management, "Human Drugs," report (2002). Electronic version available here.

Toby L. Litovitz, at al, "2001 Annual Report of the American Association of Poison Control Centers Toxic Exposure Surveillance System," American Journal of Emergency Medicine, 20, no. 5 (2002). Electronic version available here.

WHAT'S THE HARM?

The "**What's The Harm?**"website is devoted to promoting the vital need for critical thinking skills by accruing and sharing accounts of harm done people who purportedly did not possess them or did but did not exercise them (Whether when it came to their own person or someone in their orbit). This includes accounts of folks harmed not just various CAM practices and dietary supplements but also a whole host of other things such as the "supernatural and paranormal" and more. In the site's own words:

"This site is designed to make a point about the danger of not thinking critically. Namely that you can easily be injured or killed by neglecting this important skill. We have collected the stories of over 670,000 people who have been injured or killed as a result of someone not thinking critically. "

What follows below was gleamed from their website:

Acupuncture - **1,184 people harmed**. 1 death (AIDS), 3 other deaths including one with untreated breast cancer, 3 useless or ineffective treatment, 1 bruised back, 1144 infections, 30 Hepatitis B infections in London

Alternative Dentistry - **9 people harmed**.

Applied Kinesiology - **5 people harmed**. 1 death untreated epilepsy, 1 death untreated cancer, 2 near deaths, 1 improper treatment & subsequent infection

Ayurvedic Medicine - **20 people harmed.** 1 death, 12 lead poisoning cases, 7 Delayed treatment in breast cancer, worsening disease

Chelation Therapy - **12 people harmed**. 6 deaths, 1 kidney failure, 1 heart attack, 1 useless treatment

Chiropractic - **312 people were harmed.** Worst of the lot: 2 paralyzed, 4 injured, 17 died, 18 strokes.

Colloidal Silver - **6 people were harmed.** All 6 developed Argyria (permanent skin condition).

Colon Cleansing - **44 people were harmed.** Worst: 7 deaths, 1 kidney failure.

Detoxification - **17 people were harmed.** Worst: 10 deaths, 1 brain damaged.

Energy Medicine - **100,018 people were harmed. Worst of the lot:** 14 deaths.

Escharotics - **5 people were harmed**. 4 people disfigured, 1 death.

Herbal Remedies - **100,508 people were harmed**. **Worst of the lot:** At least 47 deaths many related to treating serious illness like AIDS or cancer with herbs or herbal products. Some arsenic and other poisoning.

Holistic Medicine - **4 people were harmed**. 1 kidney failure, some deaths due to delayed treatment.

Home childbirth - **14 people were harmed**. Worst: 8 deaths.

Homeopathy - **437 people were harmed. Worst:** At least 29 deaths most due to delayed treatment.

http://whatstheharm.net/iridology.html - **204 people were harmed. Worst of the lot:** 3 deaths.

Naturopathy - **200 people were harmed. Worst of the lot:** At least 18 deaths many due to delayed or inappropriate treatments.

Osteopathy (Osteopathic Manipulation)- **13 people were harmed. Worst of the lot:** 6 deaths, 4 paralyzed.

Ozone Therapy - **13 people who were harmed. Worst of the lot:** 4 deaths.

Vaccine denial - **4,403 people were harmed**. **Worst of the lot:** 11 deaths.

Vitamin Megadoses - **100,174 people were harmed. Worst of the lot:** 18 deaths.

The websites tally of harm from all causes is: *368,379 people killed, 306,096 injured and over $2,815,931,000 in economic damages*

AMERICAN POISON CONTROL CENTERS 2010 REPORT

What follows below are statistics from the 2010 report of the American Association of Poison Control Centers" titled **"2010 Annual Report of the American Association of Poison Control Centers ' National Poison Data System (NPDS): 28th Annual Report**" :

Table 6A. Reason for Human Exposure Cases – Page 924

Reason	**N**	**%Human exposures**
Unintentional		
Unintentional - General	1,367,682	57.3
Unintentional - Therapeutic error	269,889	11.3
Unintentional - Misuse	128,923	5.4
Unintentional - Bite/sting	61,584	2.6

Unintentional - Environmental	57,384	2.4
Unintentional - Food poisoning	26,221	1.1
Unintentional - Occupational	24,546	1.0
Unintentional - Unknown	4,619	0.2
Subtotal	**1,940,848**	**81.4**
Adverse Reaction		
Adverse reaction - Drug	42,201	1.8
Adverse reaction - Other	13,612	0.6
Adverse reaction - Food	5,775	0.2
Subtotal	**61,588**	**2.6**

On page 934 a table appears titled "**Table 17A. Substance Categories Most Frequently Involved in Human Exposures (Top 25)" in** which the entry for vitamins breaks down as:

Substance (Major Generic Category)	**All substances**	**% [a]**	**Single substance exposures**	**% [b]**
Vitamins	71,545	2.57	62,743	2.92

a. Percentages are based on the total number of substances reported in all exposures (N = 2,784,907).
b. Percentages are based on the total number of single substance exposures (N = 2,147,248).

And on page 935 there is a table titled "**Table 17B. Substance Categories with the Greatest Rate of Exposure Increase (Top 25)**

Increase in exposures per year a

Substance (Major Generic Category)	**Mean**	**95% CIa**	**All substances in 2010**
Vitamins	2,337	[2005, 2668]	71,545
Dietary Supplements/Herbals/Homeopathic	900	[448, 1351]	32,052

a Increase and confidence intervals are based on least squares linear regression of the number of calls per year for 2000 – 2010.

On the same page there is a table titled **"Table 17C. Substance Categories Most Frequently Involved in Pediatric (< 5 years) Exposures (Top 25)[a]"**

Substance (Major Generic Category)	All substances	% b	Single substance exposures	% c
Vitamins	52,254	4.16	47,758	4.07
Dietary Supplements/Herbals/Homeopathic	22,017	1.75	20,240	1.73

a Includes all children with actual or estimated ages < 5 years old. Results do not include " Unknown Child " or " Unknown Age " .
b Percentages are based on the total number of substances reported in pediatric exposures (N = 1,257,025).
c Percentages are based on the total number of single substance pediatric exposures (N = 1,173,168).

The Summary section on page 940 includes these statements:

"Unintentional and intentional exposures continue to be a significant cause of morbidity and mortality in the US. The near real-time, always current status of NPDS represents a national public health resource to collect and monitor US exposure cases and information calls.

Changes in encounters in 2010 compared to 2009 shown in Figure 4 include:
• Total encounters (all exposure and information calls) decreased by 7.7%;
• All information calls decreased 12.6%, Drug ID calls decreased 10.9%, and human exposures decreased 3.8%;
• Health care facility (HCF) information calls decreased 13.6% while HCF exposures *increased* 2.7%;
• Human exposures with less serious outcomes decreased 5.9% while those with more serious outcomes (minor, moderate, major, or death) *increased* 4.5%;

These data support the continued value of poison center expertise and need for specialized medical toxicology information to manage the more severe exposures, despite **a decrease in calls involving less severe exposures."**

NEWSPAPER AND OTHER PUBLIC SOURCES

In an essay titled "**Diet Supplements and Safety: Some Disquieting Data"**
By Dan Hurley that appeared in the Health section of the New York Times dated January 16, 2007, many facts and figures on harm done by dietary supplements are shared including:

"All diet supplements: 125,595 exposures, 5,334 adverse reactions, 17,843 health care visits, 12,314 medical outcomes."

Certain dietary supplements associated with increased risk of death in older women (October 2011) http://www.eurekalert.org/pub_releases/2011-10/jaaj-cds100611.php

On a University of Minnesota information webpage titled "Taking Charge of Your Health" under "Are Botanical Medicines Safe?" this question appears and is addressed:

How big a risk are adverse reactions?

The 2006 Dietary Supplement and Non-prescription Drug Consumer Protection Act added more rigorous oversight of dietary supplements and mandated reporting of serious adverse events associated with dietary supplements and over-the-counter products.

But this is not to say that there have been large problems with botanical safety. While serious adverse reactions to botanicals have been reported from time to time, botanicals typically possess an inherently wide margin of safety (Farnsworth, 1993). Most adverse reactions are produced by a small number of botanicals.

Data from the American Association of Poison Control Centers Toxic Event Surveillance Database supports this. A study compared the adverse events due to one botanical, ephedra, to that for all other botanical medicines. Ephedra products were responsible for 64 percent of adverse reactions but accounted for only 0.82 percent of total sales (Bent, 2003). In April 2004, the FDA issued a ban on all dietary supplements containing ephedra.

Since the ephedra ban in 2004, numerous alternative products, such as bitter orange extracts containing synephrine, have been introduced to fill the void. While information on the safety and efficacy of these alternative products is generally lacking, there has not been a dramatic upturn in reported adverse reactions that can be attributed to the marketing of these ephedra alternatives (Seamon & Clauson, 2005).

Compare adverse reactions in pharmaceuticals and botanicals

Pharmaceuticals	**Botanicals (Dietary Supplements)**
Adverse drug reactions to pharmaceutical medications were responsible for more than 100,000 fatalities per year, while non-fatal adverse reactions serious enough to warrant hospitalization were reported for approximately 2.2 million cases (Lazarou, 1998). These statistics apply only to adverse drug reactions in which the medication was appropriately used. This places adverse reactions to pharmaceuticals as the fifth leading cause of mortality in the U.S.	Reported fatalities from adverse reactions to botanical supplements range from less than 12 to 24 (at most). Admittedly, adverse reactions to dietary supplements are not as well monitored as for pharmaceuticals. Even allowing for under-reporting, however, the documented number of serious or life-threatening adverse reactions to botanical medicines remains extremely low. For current information on adverse events reported to the FDA, visit the FDA Center for Food Safety and Applied Nutrition.

And from a paper titled "**Herbal Products and Dietary Supplements: A Survey of Use, Attitudes, and Knowledge Among Older Adults"** that appeared in the Journal *of the American Osteopathic Association* (January 1, 2007 vol. 107 no. 1 13-23) which can be accessed in its entirety at http://www.jaoa.org/content/107/1/13.full.pdf+html:

"Anecdotally, it is thought that herbal products and dietary supplements are popular as a result of a widespread belief that the preparations are natural and, therefore, safe. However, in conjunction with this increasing popularity, the number of adverse events, drug interactions, and deaths involving these products has been on the rise.13,15,17,19,20 The World Health Organization reported in 1995 that it had received thousands of reports of suspected adverse reactions to herbal products.21

From 1994 to 1998, the FDA received more than 800 reports of adverse events associated with dietary products containing ephedrine alkaloids, specifically Ephedra or *ma huang*.22 In 2004, after a meta-analysis commissioned by the National Institutes of Health reported more than 16,000 adverse events associated with Ephedra,23,24 the FDA banned dietary supplements containing this plant-based alkaloid.25 Adverse events associated with Ephedra sinica include cardiac arrest, heart palpitation, insomnia, stroke, and tremor.23-25 Drug interactions involving a number of other herbal products are also becoming increasingly well documented.15,18-20"

RESOURCES & ADDITIONAL READING

NIH's Office of Dietary Supplements: http://ods.od.nih.gov/

FDA's Dietary Supplement Alerts and Safety Information webpage: http://www.fda.gov/Food/DietarySupplements/Alerts/default.htm

National Health Information: http://www.health.gov/nhic/

The Cochrane Collaborative – Useful source for evaluating evidence

PIER (American College of Physicians) - Provides information on specific diseases and includes interpretations of the extant evidence

DrugWatch Keeping an eye on pharmaceuticals - recent drug alerts included**.**

MedLine Plus: Drugs, Supplements, and Herbal Information http://www.nlm.nih.gov/medlineplus/druginformation.html

Selected Herb-Drug Interactions (University of Michigan): http://www-personal.umich.edu/~mshlafer/Lectures/herbdrug.pdf

Online Resources for Checking Drug & Supplement Interactions http://www.prohealth.com/library/showarticle.cfm?libid=13668

Walgreen's offers a way to check drug interactions on-line: https://www.walgreens.com/pharmacy/library/checkdrug/selectfirstdrug.jsp

Mayo Clinic searchable Drugs and Supplements database: http://www.mayoclinic.com/health/drug-information/DrugHerbIndex

SafeMedication (Easy to read and reliable information on prescription drugs from the American Society of Health-System Pharmacists (ASHP)) http://www.safemedication.com/

PDRhealth (Consumer health information on drugs and medications provided by publishers of Physicians' Desk Reference) http://www.pdrhealth.com/

DrugDigest (Evidence-based drug information site helping consumers make informed choices about medications and treatment options) http://www.drugdigest.org/wps/portal/ddigest

University of Maryland Medical Center Alternative Medicine Index (Extensive information on alternative medicines, herbs and supplements, in areas such as treatment approaches, conditions, side effects, and interactions with prescription drugs) http://bit.ly/1pRPIJ

ARTICLE: How to Avoid Drug Conflicts and Interactions Other Drugs, Foods, Beverages, Vitamins and Supplements Can Cause Problems By Trisha Torrey, About.com Guide Updated August 05, 2011 http://bit.ly/MBohpv

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