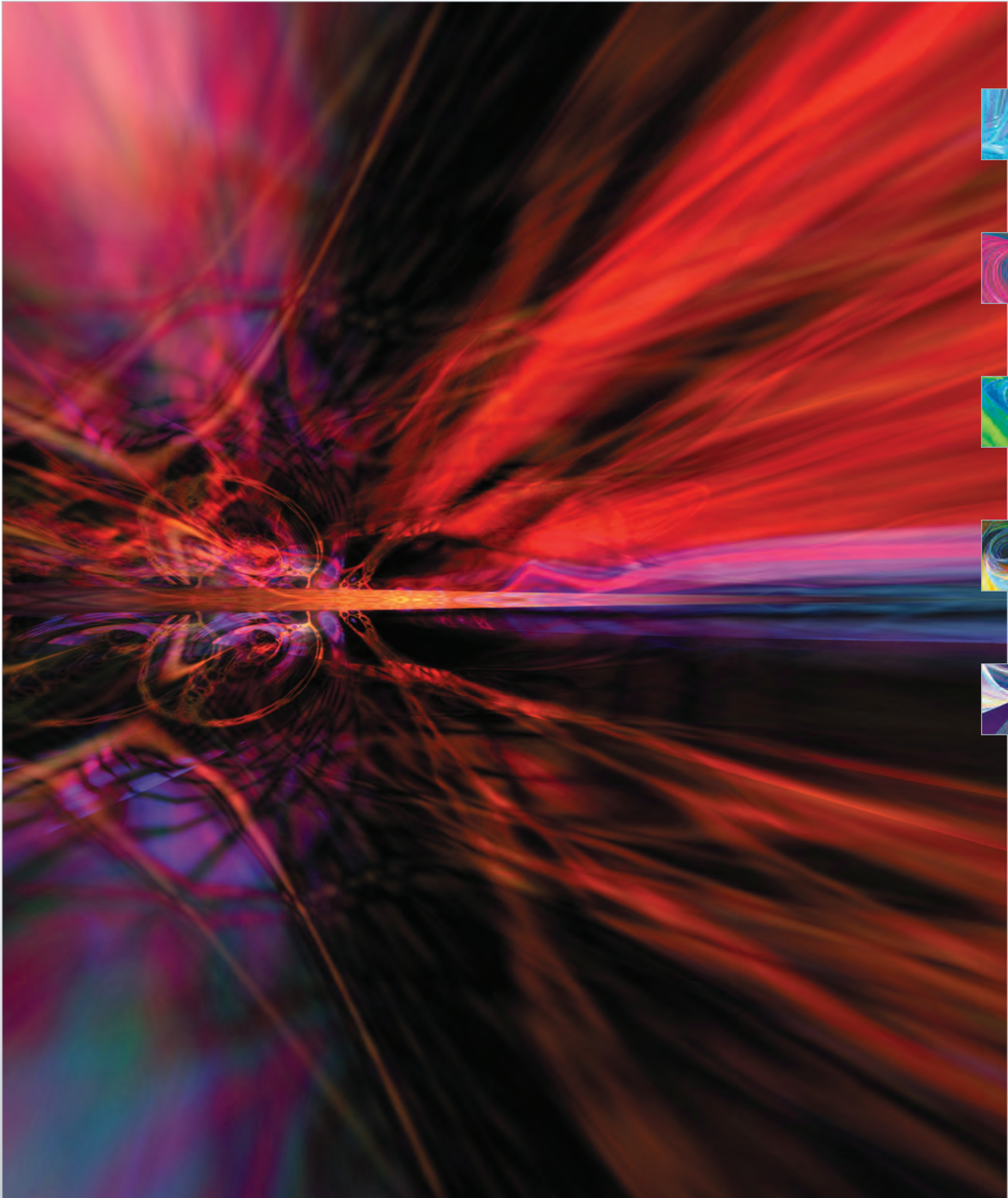


The Silver Book[®]: **Atrial Fibrillation (AFib)**



Skyrocketing Prevalence

Atrial fibrillation (AFib) is the most common heart arrhythmia in the U.S. Often going undiagnosed, AFib prevalence estimates vary between...

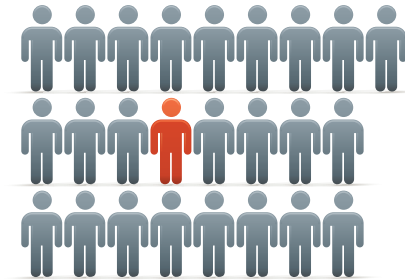


2.7M - 6.1M
AMERICANS

(Go 2001; Miyasaka 2006)

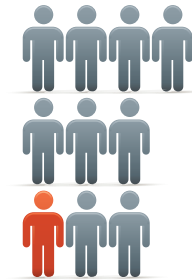
AGING POPULATION

Age is a major risk factor and prevalence increases significantly as we grow older.



At age 60+,
1 in 25

Americans have AFib



At age 80+, this increases to nearly
1 in 10

Americans have AFib (Go 2001)

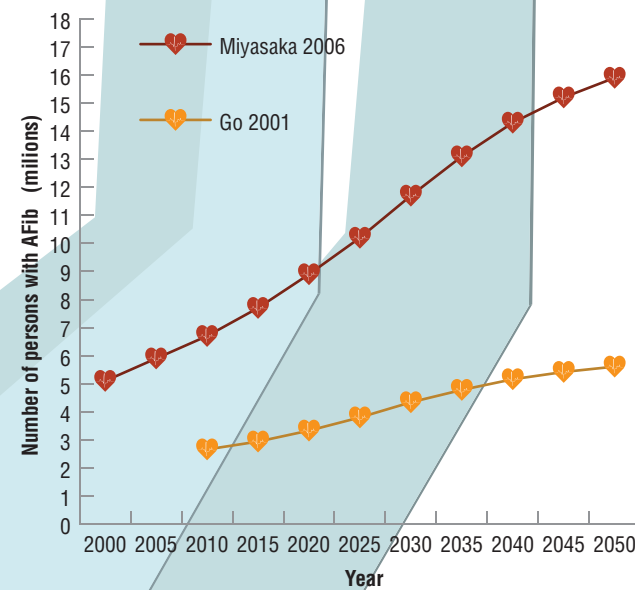
As our population continues to age, prevalence is going to skyrocket—

Projected increase by 2050

5.6 – 15.9
MILLION
ADULTS WITH AFIB

(Go 2001; Miyasaka 2006)

PROJECTED INCREASES IN THE PREVALENCE OF AFIB
(Go 2001; Miyasaka 2006)



An Expensive Disease

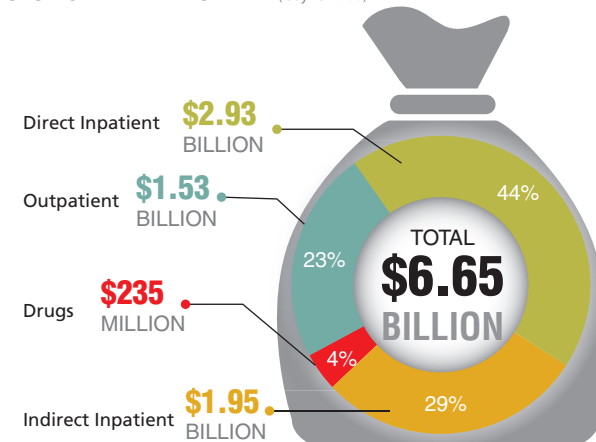
AFib is a major economic burden for the U.S. with at least

\$6.65 billion

IN HEALTH CARE COSTS ATTRIBUTABLE TO THE DISEASE EACH YEAR. (Coyné 2006)

The \$6.65 billion a year estimate for direct health care costs from AFib may in fact be extremely low. One study estimates that Medicare alone pays \$15.7 billion per year to treat newly diagnosed AFib patients. (Lee 2008)

DISTRIBUTION OF INPATIENT & SELECTED OUTPATIENT COSTS FOR TREATING AFIB (Coyné 2006)



- The per-patient direct annual medical costs for individuals with AFib are 5-fold higher than for those without the disease. (Wu 2005)
- The estimates of per patient cost of managing AFib range from \$10,000 to \$14,200. (Wolowacz 2011)
- Hospitalizations are the major cost drivers in AFib—representing 44% of total annual direct costs; which total to an estimated \$2.93 billion a year. (Coyné 2006)
- Inpatient care and interventional procedures represent the largest cost component in AFib and account for 50% to 70% of total costs. (Wolowacz 2011)

Complications & Death



The most serious and debilitating complication of AFib is stroke—the risk of having a stroke increases 5-fold in individuals with AFib. Individuals with AFib also have more severe and recurrent strokes than those without the disease. (Wolf 1991; Dulli 2003)



Stroke is very disabling and individuals recovering from a stroke who also have AFib, have a **higher risk of remaining disabled or handicapped** compared to stroke patients without AFib. (Lamassa 2011)



AFib can also lead to heart failure. Within the first year of diagnosis, AFib patients have a 36.7% chance of experiencing heart failure—compared to 10.4% in those without AFib. (Lee 2008)

Individuals with AFib have **2X RISK OF DEMENTIA.** (Ott 1997)

Not surprisingly, individuals with AFib report **substantially worse quality of life** compared to those without the disease. (Dorian 2000).



Most importantly, AFib doubles the person's risk of death and is...

100,000
DEATHS
IN THE U.S. EACH YEAR.

(Kannel, 1998; Benjamin 1998)

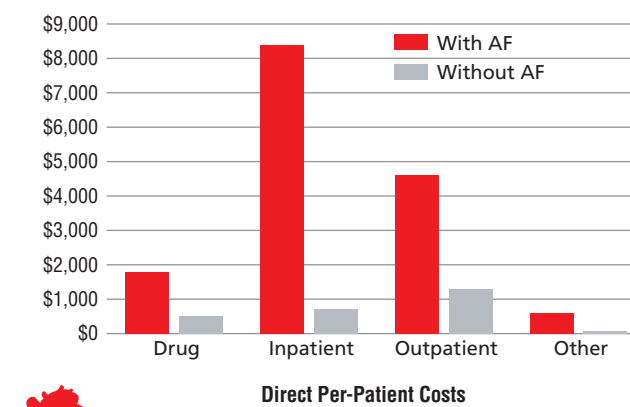
- Outpatient and ambulatory treatment costs for AFib are also significant—office visits account for 66% of costs, emergency department visits for 17%, and hospital outpatient department visits for 16%. (Coyné 2006)
- Adjusted total Medicare spending in one year was found to be 8.6- to 22.6-fold greater in men and 9.8- to 11.2-fold greater in women with AFib compared with a matched group without AFib. (Wolf 1998)



The Cost of Stroke

- The cost of stroke in AFib individuals is dominated by acute hospitalization (46%), inpatient rehabilitation (13%), hospital readmissions (12%), and nursing care (10%). (Bruggenjürgen 2007)
- The annual cost of stroke in Medicare patients with AFib is estimated at \$8 billion. (Caro 2004)
- Stroke in Medicare patients with AFib who were not treated with anticoagulants, cost Medicare \$4.8 billion each year in direct costs. Those who had strokes despite prophylactic treatment cost an additional \$3.1 billion. (Caro 2004)
- The cost of caring for stroke associated with AFib is around 33% higher than for a non-AFib stroke. (Bruggenjürgen 2007)

AVERAGE ANNUAL COST COMPARISON BETWEEN PATIENTS WITH & WITHOUT ATRIAL FIBRILLATION (Wu 2005)



The Cost of Bleeding

- The annual all-cause health care costs for patients with an intracranial hemorrhage and major gastrointestinal bleeds are 64.4% and 49% higher, respectively, compared with patients with no bleeding events. (Ghate 2011)
- Mean annual all-cause health care costs were \$41,903 per patient with an intracranial hemorrhage, \$40,586 per patient with a major gastrointestinal (GI) bleed, and \$24,129 per patient with no bleeding events. (Ghate 2011)
- Hospital care is the major cost driver with bleeding complications and the average hospitalization cost per patient was \$15,988. (Fanikos 2005)

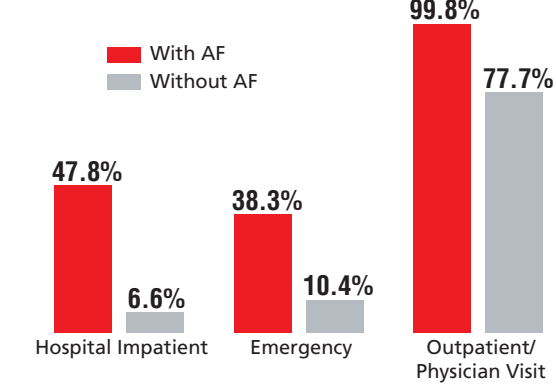
Major Resource Utilization

AFib substantially increases resource utilization—particularly inpatient services, emergency room visits, and hospitalizations. (Wu 2005)

EACH YEAR AFIB LEADS TO AROUND: (Coyné 2006)

350,000	hospitalizations
5 million	office visits
276,000	emergency department visits
234,000	hospital outpatient department visits

MEDICAL SERVICE UTILIZATION IN PERSONS WITH AND WITHOUT ATRIAL FIBRILLATION (Wu 2005)



Prevention of stroke in AFib can also lead to bleeding events.



6 Days
THE AVERAGE LENGTH OF STAY FOR MAJOR BLEEDING COMPLICATIONS
(Fanikos 2005)

The Value of Innovation

Prevention of AFib Related Strokes

- Studies show that anticoagulants are underused in AFib patients despite being cost-effective and proven to save lives. The rate of use in patients who should be receiving treatment has been found to be below 60%. (Ogilvie 2010)
- Adjusted-dose warfarin reduces stroke risk in AFib patients by 60%. Antiplatelet agents reduce stroke risk by 20%. (Hart 2007)
- Anticoagulants can reduce the risk of recurrent stroke by 2.1-fold, and the risk for recurrent severe stroke by 2.4-fold. (Penado 2003)
- If half of all AFib patients receiving no anticoagulation instead received optimal anticoagulation, 19,380 strokes could be prevented each year at a savings of around \$1.1 billion in direct costs. If 50% of those currently receiving warfarin therapy were *optimally* anticoagulated, 9,582 additional would be prevented at a savings of \$1.3 billion. (Caro 2004)
- Over a two-year period warfarin use was associated with savings in medical costs averaging \$9,836 per patient per year. (Meraldi 2011).
- New oral anticoagulants as a whole result in a lower risk of stroke, systemic embolism, hemorrhagic stroke, and all-cause mortality compared to warfarin—with stroke reduction increases as high as 21%. Major and intracranial bleeding are also lower with the new oral anticoagulants—as high as 31% reduction in major bleeding. (Lip 2012; Granger, 2011; Patel, 2011; Connolly 2009)
- Institution of a practice guideline for the management of patients presenting in the emergency department with a primary diagnosis of AFib, was associated with a decreased hospital admission (from 74% to 38%). (Zimetbaum 2003)
- The large decrease in resource utilization seen with the institution of a practice guideline for patients presenting in the emergency department with a primary diagnosis of AFib, translated to an average decrease in 30-day total direct health care costs of ~\$1,400 per patient. (Zimetbaum 2003)

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