Many of you were kind enough to answer my questionnaire. I have heard you. Most of you prefer me to cover a subject all at once. That is ok unless I am featuring a complex and large subject, such as diabetes, cancer, or headaches. I am in the middle of these subjects right now, so I must complete them. I know it is more work for you to review what I have previously covered by going to the website, but I don’t want to be redundant. I am trying to include a link on each subject. The references are often from subscriptions I pay for from medical journals, and you will not be able to access them.

I will have subjects that will appeal to men and women most months. If you have any subjects you want me to cover, let me know.
I am dedicating this report to my dear friend, Win Boileau, who passed away from a brainstem cancer in just 3 months. He will be greatly missed by all.

Subjects for June, 2014

1. Physician compensation, etc.
2. More on the future of Medicine—part 3
3. Diabetes treatment—final part
4. Heart Failure—part 2
5. Choosing wisely; what you need to know
   Regarding patient care from the American Academy of Family Practice
6. HPV testing to replace the Pap Test?
7. Headaches—migraines—review and treatment—Part 2
8. Consumer report on recommended sunscreens
1. Physician compensation

The average income for each type of specialist is listed in the chart below. I would have to say these incomes are more modest than you thought!

<table>
<thead>
<tr>
<th>Specialty</th>
<th>2013 Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orthopedics</td>
<td>$413,000</td>
</tr>
<tr>
<td>Cardiology</td>
<td>$391,000</td>
</tr>
<tr>
<td>Urology</td>
<td>$348,000</td>
</tr>
<tr>
<td>Gastroenterology</td>
<td>$348,000</td>
</tr>
<tr>
<td>Radiology</td>
<td>$340,000</td>
</tr>
<tr>
<td>Anesthesiology</td>
<td>$328,000</td>
</tr>
<tr>
<td>Plastic Surgery</td>
<td>$311,000</td>
</tr>
<tr>
<td>Dermatology</td>
<td>$308,000</td>
</tr>
<tr>
<td>General Surgery</td>
<td>$296,000</td>
</tr>
<tr>
<td>Ophthalmology</td>
<td>$291,000</td>
</tr>
<tr>
<td>Oncology</td>
<td>$280,000</td>
</tr>
<tr>
<td>Critical Care</td>
<td>$281,000</td>
</tr>
<tr>
<td>Emergency Medicine</td>
<td>$272,000</td>
</tr>
<tr>
<td>Pulmonary Medicine</td>
<td>$266,000</td>
</tr>
<tr>
<td>Ob/Gyn &amp; Women's Health</td>
<td>$243,000</td>
</tr>
<tr>
<td>Nephrology</td>
<td>$242,000</td>
</tr>
<tr>
<td>Pathology</td>
<td>$239,000</td>
</tr>
<tr>
<td>Neurology</td>
<td>$239,000</td>
</tr>
<tr>
<td>Rheumatology</td>
<td>$215,000</td>
</tr>
<tr>
<td>Psychiatry &amp; Mental Health</td>
<td>$197,000</td>
</tr>
<tr>
<td>Internal Medicine</td>
<td>$195,000</td>
</tr>
<tr>
<td>Diabetes &amp; Endocrinology</td>
<td>$184,000</td>
</tr>
<tr>
<td>Pediatrics</td>
<td>$176,000</td>
</tr>
<tr>
<td>Family Medicine</td>
<td>$176,000</td>
</tr>
<tr>
<td>HIV/AIDS</td>
<td>$176,000</td>
</tr>
</tbody>
</table>

Family physicians take at least 3 years of residency to become board-eligible with the American Board of Family Medicine.

You break it down to dollars per hour, stress and responsibility of the job, etc. physicians are a bargain. Note that Family Medicine is next to last in compensation (infectious disease doctors are worst in compensation). This curve must change for doctors to choose Family Medicine.
Notice that 36% of physicians will stop taking new Medicaid or Medicare patients.

Reference—Medscape—an internet medical site

This is the third installment of amazing information on the future of medicine. The previous 20 items are in the last 2 reports. [www.themedicalnewsreport.com/archives](http://www.themedicalnewsreport.com/archives)

21. **Microchips with living cells** to monitor all organ systems on how the body will react to an experimental drugs or treatment.

22. **MRI scans that monitor cognitive behavior** (The Human Brain Project), which will be used in the development of drugs that treat Alzheimer’s, Parkinson’s, and other neurological diseases. In Europe there are already simulations of brain function, which will finally crack the code of how the brain functions.

23. **Nanorobotics in the blood** used to prevent disease. An example is a tiny robotic that can keep the oxygen levels safe for up to 4 hours after a heart attack. Another is a nanorobotic white blood cell is used to produce disease fighting white cells.

24. **Optogenetics** are being developed to remove bad memories from the brain. Imagine memories of abuse, traumatic events, tragic accidents, etc. Other research is coming to repair lost senses or targeting a DNA defect with a nanolasers.

25. **Personalized Genomics**—some would have you believe this is already here, and it is in its infancy, but sequencing DNA has only begun and is used in specific genetic codes for a few cancers, however the future will bring us DNA analysis at the
bedside to be used in prescribing drugs based on our genetic individuality.

26. **Real time diagnostics in the operating room** are being developed that use a special knife that analyze chemicals in the smoke of a laser or cautery that would tell the surgical specimen contains no cancer cells. This will make lumpectomies in breast cancer, and excisions of tumors of the skin, etc. much more efficient. Today we depend on frozen sections of excised tissue to determine this by a pathologist who analyzes tissue near the OR. It is time consuming and only about 90% accurate. German scientists are using a computer and knife for surgeons to see 3D while cutting so that they can see a nerve or vessel in the vicinity of the surgery, thus protecting them.

28. A **device is being developed to help blind patients** using an implant into the retina and a pair of special glasses that has a mini-camera that projects images onto the retina, which stimulates the rods and cones (retinal cells) that are still viable. This has been performed on 4 patients with retinitis pigmentosa. The patients could see images of their loves ones for the first time. Obviously, this research has a way to go, but seems like a miracle to these patients.

29. **Robotic surgery** is already here and is used extensively in prostate cancer surgery and other parts of the body, but the cost is huge and the success is totally dependent on the experience and expertise of the surgeon. For instance, hysterectomy by this method is being discouraged.

30. **Endoscopic surgery** is being advanced with new technologies, so that even abdominal aortic aneurysms can be repaired with this technique. Microsurgery is also expanding as well with the addition of assisted radiological techniques especially in the brain.

[www.prevention.com/2013/10/30/whitepaper/fda-approvedelectricdevice](http://www.prevention.com/2013/10/30/whitepaper/fda-approvedelectricdevice)

If you go to the site, there are many other references in the article from Dr. Mesko’, the medical futurist.
This completes the top 30 out 40 factors in the guidelines for the future of medicine.

Cappadocia, Turkey (one of my favorite trips)

3. Heart Failure—Part 2—Workup and Treatment

The left heart is normal and the right heart shows the effect of pump failure with dilation of the left ventricle.

Above is the difference between a normal (left) and heart failure heart (right). As I pointed out last month, heart failure (pump failure) is one of the most common causes of death in America (1 in 9 deaths-5.1 million occur with heart failure as a major
550,000 new cases per year are being diagnosed, and 51,000 deaths. Healthcare costs are $32 Billion a year. With a diagnosis of heart failure, there is a 50% death rate within 5 years. After 65 years of age, it is the most common reason for hospitalization in the US, and 1 in 4 that are hospitalized are readmitted in 30 days.

Risk factors include hypertension, diabetes, hyperlipidemia, and obesity. Coronary artery disease, the most common cause of heart failure, weakens the heart muscle and causes failure.

There are two types of failure depending on whether the right or left side of the heart fails. That means the heart either can’t pump enough blood through the lungs (right) or the heart can’t pump enough blood out to the body (left). Treatment is very similar....make the pump work more efficiently.

There are complications that guide the treatment as well. Kidney failure, liver damage from back up of blood into the hepatic (liver) veins, stroke from lack of oxygenated blood from the heart, and heart valve damage can also lead to heart failure as well as the results of inflammation of the heart muscle (cardiomyopathy).

Tests include blood work, EKG; Echocardiogram (ultrasound) can differentiate between right and left heart failure. A measurement of the ejection fraction can tell how what percentage of blood per beat can be pumped out of the heart. This is determined by nuclear tests, cardiac catheterization, and cardiac MRI. Sometimes a cardiac muscle biopsy is necessary to define a disease of the heart muscle.

The treatment includes:

1) ACE inhibitors—these are antihypertensive medications that improve heart function by dilating vessels in the heart (Prinivil, Vasotec, Capoten, etc.) Lowering the blood pressure also takes the strain off the heart.

2) ARBs—Angiotensin receptor blockers can also be used especially if ACE inhibitors are not well tolerated (Cozaar, Diovan, etc.).
3) **Digoxin** (an old but still good treatment). These digitalis meds increase the strength of the heart muscle.

4) **Beta Blockers** (Coreg, Lopressor, Zebeta, etc.) slow the heart rate so that the heart has time for the blood to fill the heart chambers which will make how much blood is pumped per beat. These meds can also reduce arrhythmias.

5) **Diuretics**—water pills; like Hydrodiuril, Aldoril, and Lasix increase renal blood flow and lets the kidneys rid the body of the excess fluid backing up in the body from heart failure.

6) **Aldosterone Antagonists** prevent the hormone aldosterone from creating hypertension and heart failure. They also don’t deplete the body of potassium, which diuretics will do.

7) **Inotropes** are intravenous drugs for severe failure when hospitalized.

8) **Surgery** for the underlying cause of the heart failure

   a) coronary bypass, b) heart valve replacement, c) placement of defibrillators, which shock the heart if the heart goes into ventricular fibrillation, an arrhythmia which is not compatible with life, d) placement of cardiac pacemakers that control the heartbeat, and artificial heart pumps (Vice-Pres. Cheney), which are used while a patient waits for a heart transplant.

   A Danish study is experimenting with injections of **stem cells** directly into the heart muscle and showing great promise for improving the function of the heart muscle by growing new cardiac cells.

   There is another study that recently reported that depression may increase the risk of heart failure, therefore proper treatment with anti-depressants is very important in patients who have cardiac disease.

   Again, the best way to deal with a failing heart is prevention by treating the risk factors.

   Ref. [www.heartfailuresocietyofamerica.org](http://www.heartfailuresocietyofamerica.org)

   [www.cdc/heartfailure.org](http://www.cdc/heartfailure.org)
4. Diabetes—management—final part

I have spent the last year (Medical News Reports 15,16,17,18,19,22,24,26) reporting on the diagnosis, causes, and organ complications from this epidemic disease. Type 2 diabetes, in most cases, can be prevented or is well managed with proper diet, weight management, daily exercise, avoidance of substances and medications. **Weight loss surgery is now touted as the most successful treatment of difficult diabetics.**
The reason good control of the blood sugar is necessary is to prevent the complications of the disease.

There is research to implicate that complications may be genetically based. High blood sugar and even insulin itself is implicated in creating the complications. Even with good control, there is no guarantee that the diabetic complications will not progress. The hallmark of treatment starts with control of the blood sugar and the occasional monitoring of hemoglobin A1c levels. The HgbA1-c is a longer term estimate (over 2-3 months) of how well the blood glucose is being controlled (70-130mg/dl) on a daily basis. Management of diabetes requires a team effort which should include THE PATIENT, the primary care doctor, internist, endocrinologist, dietician, podiatrist, dermatologist, ophthalmologist, even bariatric surgeons for severe cases, exercise consultants, nurse practitioners, and physician assistants. No matter how many great doctors a patient has, management is the responsibility of the patient.
Major lifestyle changes, behavior modification, and compulsive monitoring of the blood sugar is MANDITORY. And yet, as many as 50% of diabetics do not do this!! This is patient malpractice!! And the patient will pay with their life!!

One-third of diabetic are insulin dependent. Since insulin is necessary to maintain normal blood sugar, the patient will either be placed on some type of insulin (different types of insulin are based on how fast they are metabolized—regular, fast acting, and more prolonged acting ), which must be injected as often as it takes to maintain near normal blood sugars. It is very easy to become hypoglycemic (low blood sugar—less than 50mg/dl), if a patient misses a meal, has a stomach virus, does not adjust the dosage of insulin based on monitoring blood sugar levels.

The heart, kidney, nerves, eye, and the foot are the most serious complications of the disease on previous reports. Knowledge of all these problems diabetics face must be understand so that the patient sees those specialists to monitor their status.

Cinque Terre
Italian Riviera,
Mediterranean
To treat low blood sugar the 15/15 rule is usually applied. Eat 15 grams of carbohydrate and wait 15 minutes. The following foods will provide about 15 grams of carbohydrate:

- 3 glucose tablets
- Half cup (4 ounces) of fruit juice or regular soda
- 6 or 7 hard candies
- 1 tablespoon of sugar

After the carbohydrate is eaten, the person should wait about 15 minutes for the sugar to get into their blood. If the person does not feel better within 15 minutes more carbohydrate can be consumed. Their blood sugar should be checked to make sure it has come within a safe range.
Infection, another disease gets out of hand (co-morbidity), any physical or mental stress, exercise levels are just a few factors leading to the increase need of insulin.

**PATIENT EDUCATION:**

*A DIABETIC MUST KNOW ABOUT THE DISEASE, PREVENTATIVE TECHNIQUES, DIET MANAGEMENT INCLUDING CALORIE COUNTING, MAINTAINING AN IDEAL WEIGHT, KNOWLEDGE OF FACTORS THAT CAN INCREASE OR DECREASE THE NEED FOR INSULIN, HOW TO TEST FOR BLOOD SUGAR AND HEMOGLOBIN A-1C (normal is 4-6mg/dl), URINE TESTING FOR KETONES AND SUGAR, HOW PREVENT AND TREAT LOW BLOOD SUGAR (always carry some sugar based candy), PAYING ATTENTION TO THE POTENTIAL COMPLICATIONS OF THE DISEASE, AND HOW TO INJECT INSULIN.* It is very important to monitor the organs most vulnerable to injury by diabetes. My recommendation is go to a medical center that has all the specialists in one center. Knowing when to call the doctor is
another very important factor in management. Monitoring all the major organ systems that complicate this disease is also mandatory.

If the disease is mild, **oral hypoglycemic agents** (Orinase, Tolinase, Diabinese, Amanyl, Starlix, Prandin, Januvia) may be all that is necessary to control the blood sugar. Other factors that will control the blood sugar are just as important as it is for insulin dependent diabetics (diet, weight management, eating the proper foods, avoiding excess alcohol, and avoiding the foods that will quickly raise the blood sugar). Do not play Russian Roulette with this disease….you will eventually lose!

The cost for a **diabetic’s healthcare** is an average of 20% more than the rest of the population. 100,000 visits occur yearly because of hypoglycemia and 60% presented with severe neurological events (altered mental state, falls, passing out, etc.). The other 40% were meal related problems and improper insulin dosage. These figures double for patients over 80.

The overall complication rate has fallen since 1990, but the number of diabetics is rapidly climbing, more adolescents are being diagnosed with type 2, and the weight of our country is **OUT OF CONTROL**.

We all must be concerned about the increasing numbers with this disease as it parallels obesity in this country. I will return to the treatment of obesity in a future report.

[www.americandiabetesassociation.org](http://www.americandiabetesassociation.org)

[www.mayoclinic.com/type2diabetes](http://www.mayoclinic.com/type2diabetes)

5. **HPV test can potentially now replace Pap test in diagnosing cervical cancer**

The FDA has just approved the Human Papilloma Virus test instead of the standard Pap Test. The reason behind the approval is that types 16 and 18 account for 70% of cervical cancer. For children 8-11, the Gardasil vaccinations are strongly recommended to prevent HPV infections in young girls when they become sexually active. 20% of the population and women
30 years and over test positive for one or more strains of HPV. Young boys 8-11 should also receive the vaccine. This is clearly a sexually transmitted cancer of the cervix, anus, vulva, and penis. 70% of oropharyngeal cancers (in the back of the mouth and throat-tonsil, base of tongue primarily) test positive for strains 16 and 18.

If a woman tests positive for either the type 16 or 18, a colposcopy should be performed to decide if there is the slightest abnormal tissue on the surface of the cervix. If there is, a Pap test is recommended. If it is abnormal, a biopsy or cone biopsy is recommended.

You must discuss this FDA change with your doctor and follow his or her recommendation. This will be very controversial with doctors.

Adair Manor, Historic Castle in Southwest Ireland (a great golf course there)

6. Choosing Wisely — recommendation from the American Academy of Family Practice

The recommendations for patient care were posted by the American Board of Internal Medicine for 61 medical
organizations. These are intended to be an attempt by physicians to reform healthcare by not ordering unnecessary tests thus reducing the cost of healthcare and to inform patients that these recommendations should be considered when the most common issues are faced. There is good evidence that over-ordering tests do nothing to improve outcomes. There are many circumstances that would over-ride these recommendations. The 5 most common are:

1. Back pain—Do not order imaging studies the first 6 weeks unless there is neurological evidence of worsening without improvement.
2. Do use antibiotics for mild to moderate sinusitis unless symptoms worsen after initial improvement in the first 7 days of the illness.
3. Do not order DEXA scans for osteoporosis in women younger than 65 or men younger than 70 unless risk factors exist.
4. Do not order routine EKGs or any cardiac imaging tests for cardiac screening for low risk patients without symptoms.
5. Don’t perform Pap tests for females younger than 21 or after a non-cancerous hysterectomy unless symptoms dictate.

There are many more that you should be aware of, so that you can be educated about these problems and work with your doctor if these issues occur. For all the recommendations in 61 specialty societies including the red flags that would alert you and your physician to override these recommendations, log on:

www.choosingwiselycampaign.org

It will be through these attempts that our healthcare might survive. Of course, it would be nice to see the legal profession to do their share in reducing unnecessary lawsuits. It is estimated that the legal profession is responsible for 15% of the healthcare dollar. Healthcare accounts for 17% of the GDP. There are some recent trends that fewer dollars are being spent.

7. Headaches—Migraines part 2
I. There are primary and secondary headaches. Migraines are a very common type of headache, and I described the types. When a physician listens to your symptoms, he or she will have a classification of headaches in mind. I described the symptoms of these headaches. You need to review the March Medical News Report www.themedicalnewsreport.com

Migraines and tension headaches are the most common type, and in many, these two can not be separated.

Classic migraines have 4 phases: (common migraines do not have an aura-80% of migraines)

1. **Prodrome**-hours to days before the headache (fatigue, diarrhea, sensitivity to smell, sound, or light, stiff neck, cravings, irritability, depression).

2. **Aura**-ONLY 20% HAVE AURAS-vasoconstrictive phase-usually less than 60 minutes-visual changes(most patients), sensation changes-numbness, tingling, speech and language alterations, dizziness, weakness of a part of the body, etc.

3. **Headache pain**-vasodilation phase-usually one-sided, throbbing, moderately severe, comes on gradually, 40% have neck pain, nausea, vomiting lasting hours to a few days, associated with sweating, pallor, and frequent urination. (Some do not have pain, but have all the other symptoms—migraine equivalents.

4. **Postdrome**-can last for days, weak, soreness where the headache occurred, impaired thinking, “hung over”, “washed out”.

II. There are 7 subclasses of migraine headache:

1) **Migraine with aura**—Classic-20%

2) **Migraine without aura**—Common-80%
   a) Familial hemiplegic (temporary paralysis of one side of one side of the body
   b) Sporadic hemiplegic
   c) Basilar type-this occurs from spasm of the basilar artery at the base of the brain resulting in difficulty speaking, sudden dizziness, ringing in the ears (tinnitus)
3) **Childhood periodic syndrome** - cyclic vomiting, abdominal pain described as abdominal migraines, or intermittent dizziness. This can be considered a migraine equivalent.

4) **Retinal blindness** - blindness temporarily in one eye associated with a headache. Tunnel vision can occur.

5) **Ocular migraine** (migraine equivalent) - associated with bolts of lightning starting in the middle of the vision and gradually moving to the outside of the visual field without headache. (I happen to suffer from these)

6) **Complications from a brain tumor or vascular abnormality**

7) **Chronic migraine** - greater than 15 days per month for longer than 3 months.

### III. Roughly 30 million or 15% of the population suffers from one kind of migraine or another. Most of these headaches last 4-72 hours and are characterized by throbbing pain with nausea and vomiting, and extreme sensitivity to light or sound.

### IV. There are 2 mechanisms (CENTRAL VS. PERIPHERAL) that may cause migraine headaches.

**Older thinking** centered around a focus of electrical activity in the brain that spread to the vessels causing spasm and then dilation. The *spasm phase* creates symptoms of numbness in the temple, visual changes, and many of the symptoms described above in the subclasses.

**The newer thinking** is a “peripheral” cause in which there are nerves outside the brain mainly the craniofacial nerves that generate migraines. Even changes in mood may precede the migraines by a few days. **These symptoms are grouped into auras!** This distinguishes between **Common and Classic migraines**.

When the *spasm* stops there is a **reflex dilation** of the vessels in the lining of the brains (meningeal covering) spreading to vessels in the scalp. Some patients experience the migraine without pain, and those are the hardest to diagnose, such as dizziness, ocular symptoms, weakness of the parts of the body, etc.
V. TRIGGERS FOR MIGRAINES include stress, strong smells, weather changes, hair accessories that put traction on the scalp such as hair accessories, exercise, sex, poor posture, certain cheeses (tyramine is the culprit), red wine (tannins, sulfites) primarily cabernets, processes meats (tyramines, nitrites, hypoglycemia, nicotine, caffeine withdrawal to mention a few. A diary when the headaches occur is very helpful to the doctor.

VI. There are as many as 22 genes involved in migraines, mostly those with the aura.

VII. The workup of migraines can be very exhaustive. EEG, brain scans, brainstem audiometry, spinal tap, blood tests can be used to rule out other disorders.

VIII. Treatment has expanded greatly over the past few years.

A. Prevention is always important. Looking at the triggers obviously will help the frequency and sometimes the severity of migraines.

B. All migraine patients will be started on basic chemicals that have been around a long time. The ERGOTS are a class of meds that essentially counter the dilation phase of a migraine. Dr. Stephen Silberstein professor of Neurology in Philadelphia recommends Topamax, an anti-seizure med, Epilum, sodium valproate, Depakote (divalproex), and beta blockers such as Metoprolol, Inderal, and Istralol (these are blood pressure meds), and if associated with menstrual periods, Frova. They are combined with tranquilizers in suppository form, since nausea and vomiting can prevent a patient from taking a pill.
C. **Non-steroidal anti-inflammatory drugs (NSAIDS)** may help. **Herbals**-Butterbur and feverfew (MIG-99) has shown to be effective in prevention.

D. **Supplements and vitamins**-There is some evidence that taking magnesium supplements, Vit B2-riboflavin help prevent migraines. The safety of these supplements has not been proven.

E. There are **interactions** with other medications.

F. **Antidepressants** are frequently prescribed. Trial and error is part of the treatment.

G. **Botox injections** have proven quite helpful.

H. **Surgery**- I have performed many forehead lifts and when that procedure is done the muscles between the eyebrows are cut along with small branches of the trigeminal nerves. Cosmesis was the reason I performed these lifts, but patients frequently reported I cured their headaches.

I. A new procedure implanting fine wires between the eyebrows for electrical stimulation is showing promise.

Most of this information came from new guidelines published by the American Academy of Neurology

[www.aan.com/guidelines](http://www.aan.com/guidelines)

8. **The Sunscreens recommended by Consumer Report**

The bottom line is to use at least SPF 15 (most of us need 30), use a broad spectrum screen (blocks UVA and UVB), apply 30 minutes before sun exposure, reapply every 2 hours, after swimming and significant sweating, apply over a moisturizer, do not apply over bug spray, and know that clouds do not block ultraviolet light.
The seven sunscreens that earned recommendations are:

- Banana Boat’s Ultra Defense Max Skin Protect SPF 110 spray, at $1.75 an ounce.
- BullFrog Water Armor Sport InstaCool SPF 50+ spray, at $1.67 an ounce. This was one of the two screens that lived up to its SPF claim.
- Coppertone Water Babies SPF 50, at $1.38 an ounce.
- Neutrogena Ultimate Sport SPF 70+ lotion, at $2.75 an ounce.
- Target’s Up & Up Spray Sport SPF 50 spray, at $0.80 an ounce.
- Walgreens’ Well Sport SPF 50 spray, at $1.58 an ounce
- Walmart’s Equite Ultra Protection SPF 50, at $0.56 an ounce.

Reference—Consumer Report

Thus ends another report. Enjoy your summer!! Be safe!! Stay healthy and well, my friends, Dr. Sam