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## THE CUTTING EDGE—NEW DEVELOPMENTS

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### UPCOMING NEW CANCER DRUG "KEYTRUDA" AND NEW HEART-FAILURE TREATMENT LCZ696 WILL BRING NEW HOPE TO MILLIONS

U.S. regulators approved a new kind of cancer drug from Merck that is designed to unleash the body's immune system against tumors. The drug "Keytruda" is part of a long anticipated wave of medicines that could transform cancer treatment and forge a large new market for pharmaceutical companies.

The FDA cleared the drug, pembrolizumab (brand name Keytruda) for the treatment of metastatic melanomas that do not respond to Yervoy, an immunotherapy that works in a different fashion, and certain other drugs. (Yervoy costs \$120,000 a patient for a standard complete course of therapy.) The cost will be \$12,500 monthly for the average patient, or \$150,000 for a year's worth of treatment.

Keytruda is the first so-called PD-1 (programmed death receptor 1), which acts as a brake on certain immune-system cells to prevent them from attacking healthy tissue.

Cancer cells can escape destruction by latching onto PD-1. PD-1 inhibitors lock this interaction at the site of the tumor, allowing the immune system to destroy the cancer. Yervoy also lifts a brake on the immune system, but does so earlier in the process, which researchers say may cause more collateral destruction of normal tissue.

Researchers say the side effects associated with the drug are manageable and the drug appears to be successful against other tumors besides melanoma, such as bladder, renal and lung cancers.

A competing PD-1 inhibitor, nivolumab, hit the market in Japan at a price of \$143,000 for a year's worth of treatment for the average Japanese patient. The drug is a joint venture of Bristol-Myers Squibb and Ono Pharmaceuticals; prices for drugs in Japan are typically at least 18% lower than in the U.S. The drug, known as Opdivo is expected to be reviewed by U.S. regulators in coming months.

About 76,000 Americans are diagnosed with melanoma each year and about 9,700 die of the disease annually. This summer researcher's said about 69% of advanced melanoma patients receiving Keytruda were still alive after one year of treatment and 62% were alive at 18 months. Overall, about 34% of patients experienced tumor shrinkage of 30% or more. About 12% of patients experienced a significant adverse event such as fatigue, while 4% discontinued treatment due to an adverse event.

Meanwhile at the European Society of Cardiology Congress in Barcelona, Novartis revealed results of a phase three trial of pa-



#### DID YOU MISS GRAND ROUNDS?

If you did, you can listen on  
<http://www.reliastream.com/cast/start/tkeister>  
& notify [warren.brown7@aol.com](mailto:warren.brown7@aol.com) for Cat. II CME credit.

#### LATE BREAKING NEWS

**2015 Annual Meeting** Friday, March 20 through Saturday March 21st. Attendees should arrive the day prior and depart on Sunday March 22nd. A block of rooms has been reserved at the Crowne Plaza Redondo Beach Hotel. Price, \$169/night. The hotel is located a short cab ride 7 miles south of L.A. International and is adjacent to the King Harbor Marina and Torrance Beach, a scenic location with a number of easily accessible restaurants and delightful beach walkways, The Strand. Hotel address is 300 N. Harbor Dr., Redondo Beach, CA 90277.

For reservations, go to Marco Annual Meeting. Enter check-in-out dates...then on room rates and the room block should come up. For phone reservations, call 310 318 8888 or 800 368 9760 and ask for the Marco rate or give the code "MA9."

The business meeting will be held on Friday morning. Friday afternoon will be free time and a list of activities will be provided in your goodie bag upon arrival. On Saturday, all attendees are invited to a guided tour of the Nethercuff Museum, a spectacular facility displaying a collection of vintage automobiles, antique musical instruments and other valuable items. Should be FUN TIME!

**ATTENTION: Members outside the USA should make dues payments in U.S. Currency**

**WRITE TO US!**  
 We welcome your comments.  
 Mail to Marco, P.O. Box 127,  
 Indian Rocks, FL,  
 33785. Email to  
 Warren.brown7@aol.com  
 Letters may be edited for  
 brevity & clarity.

**MARCO NET SCHEDULE**

<u>DAY</u>	<u>EASTERN</u>	<u>FREQ.</u>	<u>NET CONTROLS</u>
Any Day	On the Hour	14.342	Hailing Frequency
Sunday	10:30 a.m. Eastern	14.140	CW Net, Chip, N5RTF
Sunday	11 a.m. Eastern	14.342	Warren, KD4GUA

(Alternate *confidential* Grand Rounds frequency—  
 on or about 14.344 or as announced on the air.)

**MARCO'S CW  
 NET IS NOW  
 CALLED THE  
 "Bob Morgan  
 Memorial  
 Net"**  
 Sundays, 10:30 am,  
 14.140 MHz

**Page 2**

MARCO Grand Rounds is held Sunday at 11 a.m. Eastern Time; 10 a.m. Central; 9 a.m. Mountain, and 8 a.m. Pacific Coast time on 14.342. You qualify for one hour Category II CME credit with your check-in.

tients suffering heart failure with reduced ejection fractions of less than 40 with a drug known as **LCZ696**.

Some patients took the standard ACE inhibitor enalapril and others took **LCZ696** (a combination drug consisting of two antihypertensive drugs, valsartan & sacubitril in a 1:1 mixture. The combination is described as a dual-acting angiotensin receptor-nepriylisin inhibitor or *ARNI*).

Mechanism of action is the Valsartan blocks the angiotensin II receptor type 1 causing vasodilatation and increases excretion of sodium and water via the kidneys by reducing aldosterone production. This leads to reduction in blood volume. Sacubitril is a prodrug that inhibits the enzyme neprilysin which is responsible for the degradation of atrial and brain natriuretic peptide, two blood pressure lowering peptides that work mainly by reducing blood volume.

The heart-failure related deaths were cut by 20% and HF related hospitalizations by 21%. The overall death rate for the **LCZ696** group was 16% lower than that of the enalapril group. The action of this new drug is unlike existing drugs. Cost of therapy would be about \$2,500/year.

Key opinion leaders were actively suggesting that colleagues switch patients from ACE/ARBs to **LCZ696** on availability and reimbursement.

Patients with reduced ejection fraction are half of the 26 million heart-failure patients in the U.S. and Europe. The other half have preserved ejection fractions, for which there is no approved therapy. Use of **LCZ696** in the latter group showed only a modest benefit.

Meanwhile, more details of the new drug **PCSK9** (alirocumab) inhibitor designed to lower LDL cholesterol (*PCSK9 regulates cholesterol in blood*) shows that twice monthly injections kept patients' cholesterol down after a year. The doctors in the survey said that 21% of their patients on statins still had too-high LDLs. An additional 11% were statin-intolerant.

Besides **PCSK9** (alirocumab), Amgen company's *evolocumab*, another similar PCSK9 class drug will hit the market shortly at about the same time. **BIG THINGS ARE COMING!**

Meanwhile, *Sovaldi* (Gilead Sciences Inc.) that will "cure" hepatitis C, in three months is now available at a cost of \$84,000/month.

Meanwhile, the drug *Truvada* (Gilead Sciences Inc.) is NOW available for those indulging in promiscuous sex to help prevent transmission of the HIV virus. "It's an opportunity for uninfected people to proactively protect themselves." Results from a 2012 trial showed that when participants took the pill daily, their risk of developing HIV was cut by 92%. A weekly pill or monthly injection could minimize the hassle and perhaps the stigma also.

Meanwhile, a new way to treat Alzheimer's...Among the emerging methods to treat the age-related disease that causes memory loss, stimulating the brain may open a new field of treatment. Northwestern researchers stimulated the brain's hippocampus region with magnetic pulses, a process called "*transcranial magnetic stimulation*." The researchers said that the procedure is noninvasive, requires no drugs or surgery, and was effective in tests. It has potential for treating mental disorders such as schizophrenia, which also impairs memory.

**WHAT IS  
 "PERSONALIZED MEDICINE?"**

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Personalized medicine or PM is the customization of healthcare using molecular analysis—with medical decisions, practices, and/or products being tailored to the individual patient. Diagnostic testing is often employed for selecting appropriate and optimal therapies based on the context of patient's genetic content.

Every person has their own unique variation of the human genome. Although most of the variation between individuals has no effect on health, our state of health stems from this variation in combination with influences from our environment.

Modern advances in Personalized Medicine rely on technology that confirms a patient's fundamental biology, DNA, RNA, or protein, which ultimately leads to confirming disease. For example, PM techniques such as genome sequencing can reveal mutations in the DNA code that lead to disease ranging from cystic fibrosis to cancer. Another method, called RNA-se, can show which RNA's are involved with specific diseases. **Unlike DNA, levels of RNA change in response to the environment.** Therefore, sequencing RNA can reveal a broader understanding of a person's state of health.

Obtaining your genome sequence is vital to any personalization of medicine. Any variation of the genome will be highlighted and doctors can see if a specific mutation is related to a disease.

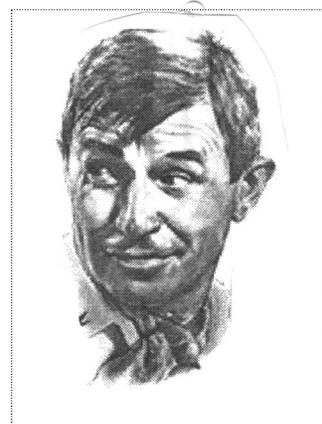
Multiple genes collectively influence the likelihood of developing many common and complex diseases. PM can also be used to predict a person's risk for a particular disease, based on one or even several genes.

**There are endless advantages that PM offers, and as it develops, will change the way that medicine is practiced.**

By having a detailed account of an individual's DNA sequence, their genome can then be compared to a reference genome, like that of the Human Genome Project, to assess the existing genetic variations that can account for possible diseases. A number of private companies, such as 23andMe, Navigenics, and Illumina, have created Direct-to-Consumer genome sequencing accessible to the public. Having this information from individuals can then be applied to effectively treat them. An individual's genetic make-up also plays a large role in how well they respond to a certain treatment, and therefore, knowing their genetic content can change the type of treatment they receive.

In addition to preventive treatment, PM can greatly aid the advancement of preventive care. For instance, many women are already being genotyped for certain mutations in the BRCA1 and BRCA2 gene if they are predisposed because of a family history of breast or ovarian cancer. As more causes of disease are mapped out according to mutations that exist within a genome, the easier they can be identified in an individual. Measures can then be taken to prevent a disease from developing.

**PM is on the move.**



## ACE INHIBITORS—CONFUSING BUT ESSENTIAL!

An **ACE inhibitor** (or **angiotensin-converting-enzyme inhibitor**) is a drug used primarily for the treatment of high blood pressure and congestive heart failure. This group of drugs causes relaxation of blood vessels, as well as a decreased blood volume, which leads to lower blood pressure and decreased oxygen demand from the heart. They inhibit the angiotensin-converting enzyme, an important component of the renin-angiotensin-aldosterone system. Frequently prescribed ACE inhibitors include perindopril, captopril, enalapril, lisinopril and ramipril.

**Medical use:** ACE inhibitors are used to reduce blood pressure, to reduce left ventricular systolic dysfunction in congestive heart failure and in the renal complications of diabetes mellitus.

**Mechanism of action:** Angiotensin-converting enzyme inhibitors reduce the activity of the renin-angiotensin-aldosterone system as the primary etiologic causal event in the development of hypertension in people with diabetes mellitus, as part of the insulin-resistance syndrome.

**Renin-angiotensin-aldosterone system:** One mechanism for maintaining the blood pressure is the release of a protein called **RENIN** from cells in the kidney (juxtaglomerular apparatus). This produces another protein, **angiotensin**, which signals the adrenal gland to produce a hormone called **Aldosterone**.

This system is activated in response to a fall in blood pressure and markers of problems with the salt-water balance of the body, such as decreased sodium concentration in the distal tubule of the kidney, decreased blood volume and stimulation of the kidney by the sympathetic nervous system.

In such *situations, the kidneys release renin, which acts as an enzyme and cuts off all but the first 10 amino acid residues of angiotensinogen (a protein made in the liver, and which circulates in the blood)*. These 10 residues are then known as **angiotensin I**. **Angiotensin converting enzyme (ACE)** then removes a further two residues, converting **angiotensin I** into **angiotensin II**. (**Angiotensin II** is found in the pulmonary circulation and in the endothelium of many blood vessels.) The system increases blood pressure by increasing the amount of salt and water the body retains, although **angiotensin** is also very good at causing the blood vessels to tighten (a potent vasoconstrictor).

**Effects:** ACE inhibitors block the conversion of **angiotensin I** to **angiotensin II**. They thereby: lower arteriolar resistance and increase venous capacity; decrease cardiac output, cardiac index, stroke work, and volume; lower resistance in blood vessels in the kidneys; and lead to increased natriuresis (excretion of sodium in the urine). Renin will increase in concentration in the blood as a result of negative feedback of conversion of **A I** to **A II**. **Angiotensin I** will increase for the same reason. **Angiotensin II** and **aldosterone** will decrease. Bradykinin will increase because of less inactivation that is done by ACE.

Under normal conditions **angiotensin II** will have the following effects: **vasoconstriction & vascular smooth muscle enlargement** which may lead to increased blood pressure and increased perfusion in the kidney's glomeruli. It contributes to ventricular remodeling and ventricular hypertrophy of the heart. Stimulation by **Angio II** of the adrenal cortex to release **aldosterone**, that acts on kidney tubules, causing sodium and chloride ions retention and potassium excretion. Sodium is a "water-holding ion, so water is also retained, which lead to increased blood volume, hence an increase in blood pressure. Stimulation of the posterior pituitary to release **vasopressin** (antidiuretic hormone, **ADH**) also acts on the kidneys to increase water retention. If ADH production is excessive in heart failure,  $\text{Na}^+$  level in the plasma may fall (hyponatremia) and this is a sign of increased risk of death in heart failure patients

With ACE inhibitor use, the production of angiotensin II is decreased, leading to decreased blood pressure.

Studies have shown ACE inhibitors reduce the progress of diabetic nephropathy independently from their blood pressure-lowering effect. This action of ACE inhibitors is used in the prevention of diabetic renal failure.

Ace inhibitors have been shown to be effective for indications other than hypertension even in patients with normal blood pressure. The use of a maximum dose of ACE inhibitors in such patients (including for prevention of diabetic nephropathy, congestive heart failure, and prophylaxis of CV events) is justified because it improves clinical outcomes

independently of the blood pressure lowering effect. Such therapy of course, requires careful and gradual titration of the dose to prevent the effects of rapidly decreasing blood pressure (dizziness, fainting, etc.).

ACE inhibitors have also been shown to cause a central enhancement of parasympathetic nervous system activity in healthy volunteers and patients with heart failure. This action may reduce the prevalence of malignant cardiac arrhythmias and the reduction in sudden deaths reported. ACE inhibitors also reduce plasma norepinephrine levels, and its resulting vasoconstriction effects, in heart failure patients, thus breaking the vicious circle of sympathetic and renin angiotensin system activation, which sustains the downward spiral in cardiac function in heart failure.

The ACE inhibitor enalapril has also been shown to reduce cardiac cachexia in patients with chronic heart failure. Cachexia is a poor prognostic sign in patients with chronic heart failure. ACE inhibitors are under early investigation for the treatment of frailty and muscle wasting (sarcopenia) in elderly patients without heart failure.

**Adverse effects:** Hypotension, cough, hyperkalemia, headache, dizziness, fatigue, nausea and renal impairment. Renal impairment is a significant potential adverse effect of all ACE inhibitors, but that reason is still unknown.

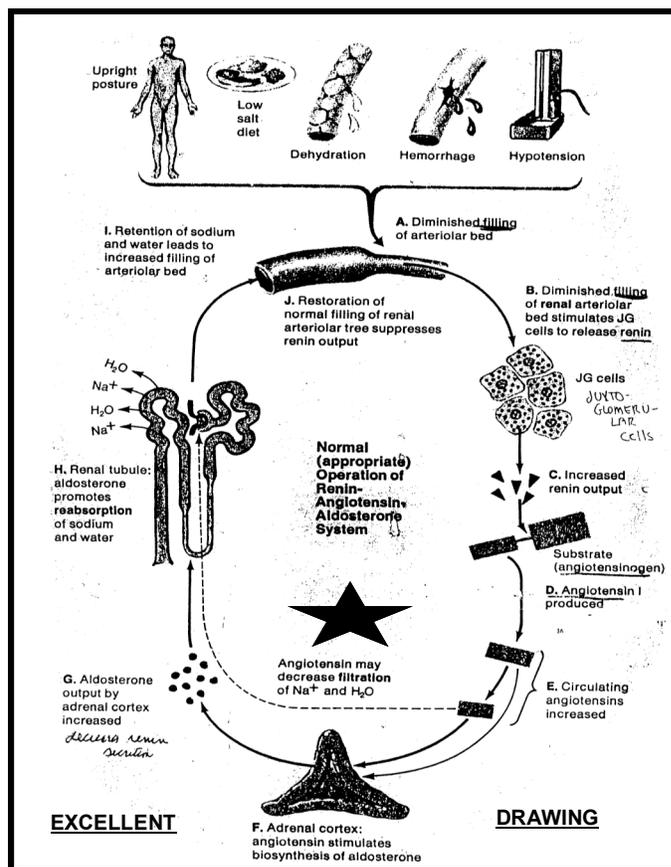
**Contraindications and precautions:** Renal stenosis, impaired renal function, aortic valve stenosis or cardiac outflow obstruction, hypovolemia or dehydration, hemodialysis with high-flux polyacrylonitrile membranes, pregnancy.

**Examples: Sulphydryl-containing agents:** Captopril (Capoten), Zofenopril.

**Dicarboxylate-containing agents:** Enalapril (Vasotec/Renitec); Ramipril (Altace/Prilace/Ramace/Ramiwin/Triatec/Tritace); Quinapril (Accupril); Perindopril (Coverisyl/aceon/Perindo); Lisinopril (Listril/Lopril/Norvatec/prinivil/Zestril); Benazepril (Lotensin) Imidapril (Tanatril); Trandolapril (Mavik/Odrik? Gopten); Cilazapril (Inhibace).

**Phosphonate-containing agents:** Fosinopril (Fositen/Monopril)

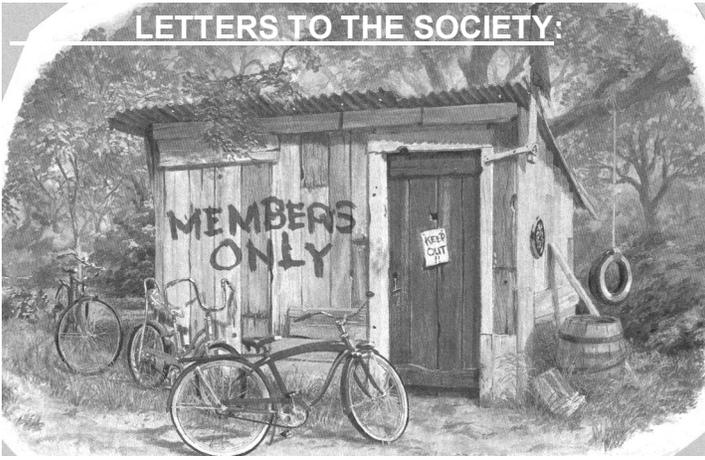
ACE INHIBITORS Possess many common characteristics with another class of CV drugs, **angiotensin II receptor antagonists**, which are often used when patients are intolerant of the adverse effects produced by ACE inhibitors. ACE inhibitors do not completely prevent the formation of angiotensin II, as blockage



is dose-dependent, so angiotensin II receptor antagonists may be useful because they act to prevent the action of angiotensin II at the AT1 receptor, leaving AT2 receptor unblocked; the latter may have consequences needing further study.

**Angiotensinogen (from liver)—RENIN (from kidney)—Angio I—ACE—Angio II—Adosterone—decreased RENIN.**

**LETTERS TO THE SOCIETY:**



Kudos from: **No kudos this issue**

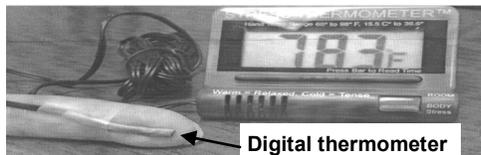
**Malin Dollinger KO6MD, Palos Verdes, CA** states his call sign has a double meaning...he is not a boxer, as some people might assume! (Note the "K.O.")

**David Justis KNOS/4 Virginia** writes: I was able to hear Grand Rounds between seeing patients and do not know if you covered "**White Finger Syndrome**" associated with use of vibratory tools. In years past, I used to do a national talk for the Arbor Society entitled, "**Chainsaws, Falls and Ambulance Calls.**" Spending many years in cold Minnesota, gave me ample opportunity to witness first hand in the E.R. this phenomena associated with the lumber and tree service industry. Logging and tree surgery is generally done during the cold winter months when the trees are dormant. As a consequence, the participants are forced to work in extreme cold-leading potentially to the dreaded Frost Bite or White finger Syndrome. Some of the higher end chainsaw companies such as Stihl with its electrically heated, vibration dampened handles and Husqvarna came out with heated bars covered with vibration deadening foam. Others shunted part of the hot exhaust through the bar to heat it. WFS is often encountered in urgent care and industrial medicine associated with the many vibration tools available.

**Under the article "re-certification exams"** The American Board of Emergency Medicine started Life Long Learning programs more than 10 years ago. Each year one had to take an exam over the review of a large number of peer-reviewed articles and every 10 years another complete exam that was proctored. The yearly exams could be taken on line in group and many of the state ACEP chapters offer these as part of a CME course. I was first boarded in 1978 after surgery and ER fellowship and sat for the boards. In 2008, tired of doing the annual reviews, I decided to stop and asked to retire from the boards and they granted me Emeritus status which currently allows me to practice in semi-retirement as long as I maintain my annual CME requirements.

**Bob Conder, K4RLC, Raleigh, NC** in response to our talk on Reynaud's phenomenon: I've attached a photo, a digital thermometer used for thermal biofeedback. This one is from a medical supply house and costs \$18. You can get cheaper ones at Ace Hardware for \$12 that are just as good. We use these for home programs for migraineurs. My training at Menninger said migraines were a vascular phenomena...vasoconstriction, followed by vasodilatation. This pooling of blood in the brain and internal organs due to a sympathetic nervous system response, produces cold extremities. Teach the patient to warm their peripheries and migraine pain would be reduced. Current thinking is that migraines are a neurovascular phenomena, involving 5-HT dips. This is presumably how the triptans work. There is still a good role for thermal biofeedback, treatment in migraines and Reynauds. I've attached a photo of my wife's hand showing her really cold distal phalange temp...and, yes, she does have migraines...much better now...with just the temp training Alanna was able to raise her temp to the mid-80s.

**Using the skin temperature to relieve migraine & Reynauds**



Digital thermometer

**Chip Keister N5RTF, New Orleans** reported 5 check-ins to the CW net on Nov. 9th. They were: Bobbie, W1BEW; Grand Canyon N7NLN; Arnold WB6OJB; Bernie KD5QHV and Chip N5RTF. The CW net is held each Sunday at 10:30 EST on 14.140.

Scanning audio of Grand Rounds was by way of Bobbie W1BEW on this date and is available at <http://www.reliastream.com/cast/start/tkeister>

**EDITOR'S NOTE:** Walter Winchell began broadcasting in 1933 to an audience of 25 million people. The Winchell style was unmistakable. He talked rapidly at 197 words per minute...the voice was high-pitched and not pleasant to the ear; but it was distinctive. The staccato quality made every item compelling. He claimed he talked so fast because if he talked more slowly people would find out what he was saying...he began his radio program with a series of dots and dashes operating the key himself. Telegraphers throughout the country complained that what Winchell tapped out made no sense. He realized he hadn't the faintest knowledge of Morse code but he refused to have an experienced telegrapher provide the sound effects for him. He wrote like a man honking in a traffic jam.



**Artificial sweeteners can change the makeup of intestinal bacteria**, which can in turn prompt bacteria, which can in turn prompt glucose intolerance and lead to major health issues such as diabetes and obesity, found Weizmann Institutes researchers whose study results drew from experiments on mice and humans.

**Gadget spots drivers texting...**Distracted driving accidents have been on a sharp uptake in recent years as texting while driving becomes a common bad habit. But ComSonics is building a device that recognizes the radio wave-lengths used to send text messages. The gadget's final design could look like one of the radar guns that the police use. The texting spotting device will be able to tell text-message signals and phone calls apart, but it's unclear how the device will recognize texting drivers vs. texting passengers.

**New Hope for Cirrhosis patients...** Cedars-Sinai researchers are testing a human-cell based, bio-artificial liver support system for patients with acute liver failure, often a fatal diagnosis. Tests in 49 institutions are evaluating the safety and effectiveness of the ELAD bioartificial liver, which was designed by Vital Therapies. If successful, a bioartificial liver could also allow time for, and promote, regeneration of a patient's damaged liver.

**Sleep deprivation** disrupts a person's life, but the prototype "*Sleep Shepherd*" sleep hat may help. It monitors brain waves and uses sensor biofeedback to guide the brain into sleep. The hat emits low-decibel tones alternately to the left and right ears; this process simulates a soothing rocking sensation. The firm is seeking manufacturing funding.

**Vision improves in Stem-Cell trial...**Researchers have used stem cells from human embryos to treat patients suffering from severe vision loss, the first time the technique has been shown to be both safe and potentially effective in a sustained way. The cells were injected into the eyes of people with dry macular degeneration & Stargardt's disease (a form of juvenile blindness). 10 of the 18 showed improved vision.

**New drug for Crohn's disease...**Celgene is set to present phase-two data on GED-0301, a treatment for Crohn's disease, an inflammatory disease of the GI tract. Presently available **Humira** and **Remicade** do not work in approximately 1/3 of patients and thus opening the way for GED-0301 expected to be available in 2017. Another immunology drug for psoriasis by Celgene is already in use.

**IBM's super-computer "Watson" to be used in medicine....**The doctor simply talks to the super-computer entering symptoms and Watson suggests diagnoses and treatment, the goal being to exceed the diagnostic success rate of mere mortals. It has been mentioned that about 1 in 5 diagnoses are presently incomplete!?

**The U.S. today...Generation "Z",** those under 15, 61 million strong; **Millennials,** those 15-34, 85 million strong; **Generation "X",** those 35-49, 64 million strong; **Boomers,** those 50-69, 72 million strong; the **Silent Generation,** those 23 million strong and the **Greatest Generation,** those 85+, 6 million weak, make up America today.

Millennials are the most highly educated with 34% having a bachelor's degree but the ones having the toughest time getting ahead financially. The average retirement age has risen from 57 in 1991 to 62 in 2014 and expected to be 73 in 2064.

# AMA URGES OVERHAUL OF ELECTRONIC RECORDS

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It's no secret that many doctors hate the electronic-medical-records systems they use, saying they are cumbersome, poorly designed and detract from patient care.

Amplifying those concerns, the AMA is calling for a major overhaul of EMR systems to make usability and high-quality patient care a higher priority.

The depth of doctors' disgruntlement is evident in many surveys. Some 85% of physicians use EMRs but only 24% said they increased efficiency and 47% say they detract from patient care, according to a survey released Sept. 16th by the nonprofit Physicians Foundation.

An AMA/RAND survey last year found that while doctors had no desire to return to paper-record keeping, 43% said EMRS slowed them down, requiring them to spend too much time on data-entry, leaving less time for patients.

In an interview, the AMA's physician blamed the government's Meaningful Use program for requiring EMR systems to serve too many functions and forcing the fledgling EMR industry to develop too quickly to respond to users' concerns. The program, which offers hospitals and doctors some \$35 billion in incentive payments if they met ambitious time tables, has spurred rapid adoption of EMRs. As of Jan. 1, 2014, more than \$19 billion in incentive payments have been distributed to 347,000 eligible hospitals and healthcare professionals.

But only about 10% of eligible providers have qualified for the next, stricter round of Meaningful Use requirements to date. Doctors and hospitals that haven't adopted EMR systems will face cuts in Medicare reimbursements starting next year.

**Doctors hopeful...**Doctors are overextended, skeptical of changes wrought by the federal health law, but more optimistic about the future of medicine than they were two years ago, according to a new survey of 20,000 U.S. physicians.

Despite many specific complaints, 71% of those polled said they would choose to become doctors again if they were making the choice today, up from 66% two years ago, and 50% would recommend it to their children, compared with 42% in 2012 and 40% in 2008.

**Respondents to the survey were younger**, more likely to be *female* and more likely to be *employed by a hospital or health system* than in past years, reflecting trends.

*"The ground has been shaking under physicians feet,"* said the nonprofit Physicians Foundation's VP. *"These conditions are all the younger physicians have ever known, while older physicians remember better years."*

The survey suggests that the shortage of doctors in some areas is likely to worsen: 81% said their practices are at full capacity or were overextended, and 44% said they plan to retire, work part-time or see fewer patients. About 24% either don't see Medicare patients or limit the number they see: 38% don't see or limit the number of Medicaid patients they see.

Doctors also have many specific complaints. Only 25% gave the Affordable Care Act an A or B grade; while 46% gave it a D or E.

Some 85% have adopted electronic medical records for patient care, but only 24% said EMRs have improved their efficiency and 46% said they detract from patient care.

More than 1/4 of responding doctors participated in Accountable Care Organizations, but only 13% said they believe ACOs will enhance quality and decrease costs.

**This subject was discussed on MARCO Grand Rounds, Sept. 21st and the feelings expressed go along with the above findings.**

5

# HOW TO READ BAR CODES...

Many of today's products no longer show where a product was made, only give where the distributor is located. Reading bar codes is a great way of telling whether the product was made in the U.S.A., Canada, or elsewhere.



Can you differentiate which one is made in Taiwan or China ?

If the first 3 digits of the barcode are 690 691 or 692, the product is **MADE IN CHINA**. 471 is Made in Taiwan . This is our right to know, but the government and related departments never educate the public, therefore we have to **RESCUE** ourselves.

Nowadays, Chinese businessmen know that consumers do not prefer products "MADE IN CHINA", so they don't show from which country it is made.

However, you may now refer to the barcode - remember if the first 3 digits are:

- 690-692 ... then it is **MADE IN CHINA**
- 00 - 09 ... **USA & CANADA**
- 30 - 37 **FRANCE**
- 40 - 44 **GERMANY**
- 471 ... **Taiwan**
- 49 ... **JAPAN**
- 50 ... **UK**



**BUY USA & CANADIAN MADE** by watching for "0" at the beginning of the number. We need every boost we can get! Pass this on to everybody on your E-Mail Contact List!!

**GOT A WIDE FACE?** English researchers have found a correlation with a wide face and aggression. Those with narrow faces are more restrained.

A **TRIPLE TAP OF THE HEELS** could deliver you safely home using iStrategyLabs "Dorothy" wearable technology. Users can clip a small Bluetooth-enabled device to their shoes and activate it by clicking their heels together thrice sending an alert to their smart phones. The alert can be used to do anything from hailing a taxi to sending a text message.

**BEST TIME TO BUY AIRLINE TICKETS** is on a Sunday 57 days prior to domestic departure. Most expensive days are Monday and Friday. For overseas travelers, cheapest is to buy 171 days prior.

**THE NOSE KNOWS?** A Bulgarian man who was paralyzed after a knife attack in 2010, can walk after doctors in Poland transplanted nerve cells from his nose into his severed spinal cord. The successful operation was the first of its kind for regenerative medicine and he is the first man to walk again after having a completely severed spinal cord.

Prof. Geoffrey Raisman, whose team at the University College London performed the technique, hopes to similarly treat three more in Poland.



## WHY NOT SEND A HAM FRIEND

### A MEMBERSHIP IN MARCO

NOT RESTRICTED TO MEDICS. ANY HAM WHO IS A POTENTIAL PATIENT IS ELIGIBLE.

Keep MARCO vibrating!



# **GUILLAIN-BARRE' SYNDROME**

**Excerpts from Marco Grand Rounds of Oct. 19, 2014**

It's flu season! Remember the swine flu epidemic of 1976-77 when many cases of Guillain-Barre' syndrome (GBS) arose following influenza immunizations? It could happen again!

Guillain-Barre', sometimes called "*Landry's paralysis*", is an acute polyneuropathy, a disorder affecting the *peripheral nervous system*. Ascending paralysis, weakness beginning in the feet and hands and migrating towards the trunk, is the most typical symptom, and some subtypes cause change in sensation or pain, as well as dysfunction of the autonomic nervous system. It can cause life-threatening complications, in particular if the respiratory muscles are affected or if the autonomic nervous system is involved. The disease is usually triggered by an infection like the flu.

The diagnosis is usually made by nerve conduction studies, clinical findings of ascending muscle weakness, loss of tendon reflexes and findings of protein in the spinal fluid but no white cells. With prompt treatment by intravenous immunoglobulins or plasmapheresis (*not both*), along with supportive care, the majority will recover completely. Glucocorticoids have NOT been found to be effective in GBS. Guillain-Barre' syndrome is rare, at one to two cases per 100,000 people annually, but is the most common cause of acute non-trauma-related paralysis. The syndrome is named after the French physicians Georges Guillain and Jean Alexandre Barre', who described it in 1916.

All forms of Guillain-Barre' are autoimmune diseases, due to an immune response to foreign antigens (*such as an infectious agent*) that mistargets host nerve tissues through a mechanism known as "*molecular mimicry*." The targets of such immune attack are thought to be gangliosides, compounds naturally present in large quantities in human peripheral nerve tissues. The most well-described antecedent infection is the bacterium *Campylobacter jejuni*. In addition, cytomegalovirus has a known association with GBS. Chances of developing GBS by influenza vaccine is one million to one.

About 80% of patients have a complete recovery within a few months to a year. About 5-10% recover with severe disability, with most such cases involving severe proximal motor and sensory axonal damage with inability of axonal regeneration. The death rate is about 2-3% usually from respiratory paralysis. Men are more likely to be affected than women and the incidence increases with age, about 4X more common in those older than 75 years of age.

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## **THE HIPPOCRATIC OATH**

**The Hippocratic Oath is an oath demanded of physicians who are entering practice, which can be traced back to the Greek physician and teacher Hippocrates. The oath reads as follows:**

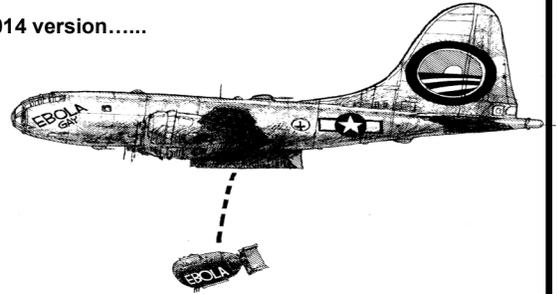
**I swear by Apollo the physician, by Aesculapius, Hygeia, and Panacea, and I take to witness all the gods, all the goddesses, to keep according to my ability and my judgment the following oath:**

To consider dear to me as my parents him who taught me this art; to live in common with him and if necessary to share my goods with him; to look upon his children as my own brothers, to teach them this art if they so desire without fee or written promise; to impart to my sons and the sons of the master who taught me and the disciples who have enrolled themselves and have agreed to rules of the profession, but to these alone, the precepts and the instruction. I will prescribe regimen for the good of my patients according to my ability and my judgment and never to harm anyone. To please no one will I prescribe a deadly drug, nor give advice which may cause his death. Nor will I give a woman a pessary to procure abortion. But I will preserve the purity of my life and my art. I will not cut for stone, even for patients in whom the



diseases is manifest; I will leave this operation to be performed by practitioners (*specialist in this art*). In every house where I come I will enter only for the good of my patients, keeping myself far from all intentional ill-doing and all seduction, and especially from the pleasures of love with women or with men, be they free or slaves. All that may come to my knowledge in the exercise of my profession or outside of my profession or in daily commerce with men, which ought not to be spread abroad, I will keep secret and will never reveal. If I keep this oath faithfully, may I enjoy life and practice my art, respected by all men and in all times; but if I swerve from it or violate it, may the reverse be my lot.

The 2014 version.....



## **VETERANS**

**Veteran's Day originated as "Armistice Day" on Nov. 11, 1919, the first anniversary marking the end of WW I. Congress passed a resolution in 1926 for an annual observance, and Nov. 11 became a national holiday beginning in 1938. President Eisenhower signed legislation in 1954 to change the name to "Veterans Day" as a way to honor those who served in all American wars.**

There were 19.6 million veterans in the U.S. in 2013. 1.6 million were women. 11.3% were black; 6% were Hispanic and 9.3 million were 65 years and older. 7 million served in Vietnam; 5.2 million who served during the Gulf War Era (*August 1990 to present*); 1.3 million who served in WW II (out of 17 million); 2.1 million who served in the Korean War and 4.7 million who served in peacetime only.

The number who served during WW II, Korea and Vietnam numbered 39,890. 1,006,501 served during Gulf War (*August 1990 to August 2001*) and Gulf War (*Sept. 2001 or later*). 294,251 served during Gulf War (*August 1990 to August 2001*) and the Vietnam Era; 175,676 served during the Korean War and the Vietnam Era; 92,670 served during WW II and the Korean War.

California is the home to 1.7 million vets; Texas & Florida to 1.5 million.

Percentage of veterans with bachelors degrees 26.8% compared to non-vets with 30%.

The average income of a veteran in 2013 was \$36,381 compared to \$25,820 for non-vets.

3.6 million veterans had service-connected disabilities and 70% voted in the 2012 election.

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## **PLANNING TO GO TO DAYTON NEXT YEAR?**

If you are planning to go to the Dayton Hamvention next year please let our Secretary Marcia know so she can give the hotel an idea what number of rooms to be reserved. Her email address is: [lochner.marcia5@gmail.com](mailto:lochner.marcia5@gmail.com)

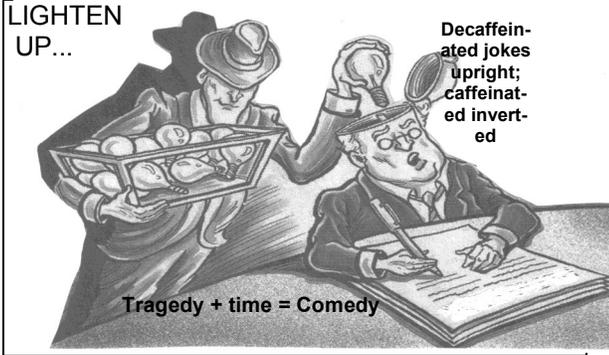
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**IAN KELLMAN, K3IK, REPORTS: Concerning the Grand Rounds discussion of Prostate disease:** "If one needs to pee all the time, they have lost control over a basic function of life which will lead them to believe they have lost control over other areas of their life. If they are preoccupied with finding and running to the bathrooms, they are right, their life is hell.

There is a prayer observant orthodox Jews recite after going to the bathroom. It is called the "*Asher Yatzar*." Ask one of your Jewish friends for a copy of the Orthodox prayer book...it talks about the wonder and miracle of control.

Folks with irritable bowel, or other chronic unpredictable conditions of health tend to believe they have lost control of their lives. Ask an orthodox Jew and you will get a different answer, in many instances.

The prayer book starts off with a litany which includes prayers to recognize the master of all who feeds the hungry, lets the lame walk the deaf hear, the blind see, etc. If you realize the possible infirmities and limitations of life, and how you may not be able to control them, you become thankful you do not suffer these problems. You have a more positive attitude for the troubles of life. Just recite a list of diseases and you begin to be thankful you do not suffer from them. (*I felt sorry for a man without shoes until I met a man without feet!*)



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The Cutting Edge... Tired of driving through salt-laden winter highways? Solar highways has taken steps to creating the world's largest solar panel.. The new highways will have built-in heating elements for deicing



Boy Scout Jokes... What devices do prisoners use to talk to each other? Cell phones. How can you tell when someone is lying? When they are on the floor! What is a king's favorite outdoor activity? Hi-king. What's worse than raining cats and dogs? Hailing taxicabs.

A New Zealander walks into the bedroom with a sheep on a leach and says, "Honey, this is the cow I make love to when you have a headache." The wife, lying in the bed reading a book, looks up and says, "If you weren't such an idiot, you'd know that's a sheep not a cow." The guy replies, "If you weren't such a presumptuous witch, you'd realize I was talking to the sheep."

Rain was pouring and there was a large puddle in front of the pub just outside the Marine base. A ragged old Marine pilot, wearing his winged ball cap, was standing near the edge of the base with a fishing rod, his line in the puddle. A curious young Marine fighter pilot stopped and asked what he was doing. "Fishing," the old guy simply said. "Poor old fool," the Marine officer thought and he invited the ragged old guy into the pub for a drink. Feeling that he should start some conversation while they were sipping their whiskey, the haughty fighter pilot asked, "And how many fish have you caught!" "You're the eighth," the old Marine answered.

Q. How did you know my tooth brush was made in "(Hill-Billy State, you name it!)? A. Because if it were made in any other state it would be called "teethbrush."

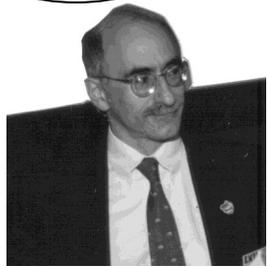
SO SO SIMPLE...I've taken out my alarm system & unregistered from the "Neighborhood Watch." I've got two Pakistani flags raised in my front yard, one at each corner and the black flag if ISIS in the center. The local police, ATF, FBI, US Military and neighbors are all watching my house 24/7. I've never felt safer!

Went to the Pub with my girlfriend last night. Locals were shouting "pedophile" and other names at me, just because my girlfriend is 21 and I'm 50. It completely spoiled our 10th anniversary!

Cabbie picks up a Nun. She gets into the cab and notices that the handsome cab driver won't stop staring at her. She asks him why he is staring. He replies: "I have a question to ask, but I don't want to offend you." She answers "You cannot offend me. I'm sure that there's nothing you could say or ask that I would find offensive." "Well, I've always had a fantasy to have a nun kiss me." She responds, "Well, let's see what we can do about that: #1, you have to be single and #2, you must be Catholic." The cab driver is very excited and says, "Yes, I'm single and Catholic." "OK" the nun says, "Pull into the next alley." The nun fulfills his fantasy with a kiss that would make a hooker blush. But when they get back on the road, the cab driver starts crying. "My dear child," said the nun, "Why are you crying?" "Forgive me but I've sinned. I lied and I must confess; I'm married and I'm Jewish" says the cabbie. The nun says, "That's OK" says the nun, my name is Kevin and I'm going to a Halloween party"

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Hello, I'm Bruce



**MEMORIES OF YEARS AGO**

**IN MARCO**

*Our History Book*

**Bruce Small, KM2L**

**Marco Webmaster**

**25 YEARS AGO IN MARCO**

Earl Weston W8BXO reported in the November 1989 MARCO Newsletter that he was keeping busy running phone patches (651 through the first ten months of the year) and answering over the air medical queries. He planned to see everyone at Dayton in the spring.

Ira Wexler W3HEF organized the second annual Eastern Seaboard MARCO Reunion. This took place at a restaurant in Newtown, PA. Attendees included Ira/Karen Wexler, Ed WA3TVG/Ruby Briner, Robin NN3L/Sally Staebler, Doug N9IGB/Jan Baddell, Dick WB3AJC/Jeanne KA3CEO Doncaster, Ed K2UK/Arlene Ludin, Ian K3IK/Bryna Kellman, Gene WB3FTJ/Judy Hoenig, Barry W2UP/Holly Kutner, John K3QVX/Joanne N3CCM Bowman, Bud KC2ZA/June Talbott, Steve Cohen W3SD and girlfriend Barbara, Paul Hyman WB8QKM and John Bartholomew WB3ELA.

President Newsletter Editor Ed WA3TVG reported that MARCO members in the San Francisco area came through the recent earthquake in good shape.

This issue also contained a description of the Beverage Antenna by John Haerle WB5IIR. He had originally presented it to the MARCO 40-meter net on March 13, 1983.

**TWENTY YEARS AGO IN MARCO**

The Oct.-Nov. 1994 MARCO Newsletter reported that registrations for the annual meeting in Charleston, SC were lagging.

We profiled new members Herb KK6YR, Bill KB5VUS, Steven KQ4WB, Fred WB8ITB, Richard K8NKB, Florian N9MDM, John W7KPB/4, Chuck WB9U, Richard K1MD, Roy N3IRY and Conrad W5YAW. Several of the calls listed above have subsequently been changed to protect the innocent.

Bud Clarke KE22DT described MediShare's efforts in Kenya, while Smitty Smithwick W6JZU outlined the organization's accomplishment in Rwanda and Robin Staebler NN3L told of MediShare's assistance to a medical mission in Haiti.

**FIFTEEN YEARS AGO IN MARCO**

President Bob Currier WB5D, writing in the November 1999 MARCO Newsletter, estimated that only half of the potential members had actually joined Marco. He asked for suggestions for a slogan or motto. He also described Warren KD4GUA as the "Mouth of the South." Speaking of KD4GUA, the Newsletter reprinted his June 13, 1999 Grand Rounds lecture on bypass surgery and stents.

A fascinating article capture the Listserv discussion that had followed Smitty's request for nominations for the greatest advance of the 20th Century. Responses included KD4GUA: Running water. KI5NG: Agreed with 'GUA. Added TV. WB5D gave a Neurologist's answer: MRI scans. KM2L: Air conditioning; the Flexner Report. N5RTF, from a Psychiatrist's perspective: Safe antidepressants; the computer. WB2YBA: antibiotics.

**TEN YEARS AGO IN MARCO**

The December 2004 MARCO Newsletter carried an extensive and informative discussion of gout, taken from one of Warren KD4GUA's Grand Rounds talks.

A second Grand Rounds was also excerpted. This one dealt with the question, "What are Antioxidants? What Are Free Radicals?"

Arnold WB6OJB presented a brief report of medical conditions in Zambia, where he had recently visited. MediShare Director Bill Stenberg N5QF was conducting a 20 meter net on Monday evenings.

**BOB CURRIER MARCO GRAND ROUNDS OF THE AIR**

*14.342, Sundays, 11 a.m. Eastern, One Hour Cat. II CME*

**CALL HRS NAME QTH**  
*Because of poor propagation we may have missed you—please correct by sending to wahrenbrown@aol.com*

KD4GUA	41	Warren	Largo, FL
KD9CS	40	Bill	Largo, FL
NU4DO	39	Norm	Largo, FL
N5RTF	38	Chip	New Orleans, LA
N6DMV	38	Paul	Torrance, CA
W1BEW	38	Bobbie	Tennessee
KM2L	37	Bruce	Clarence, NY
WB6OJB	37	Arnold	Pac.Pal. CA
W5BHB	36	John	Vancleave, MS
N4TSC	36	Jerry	Boca Raton, FL
WB1FFI	36	Barry	Syracuse, NY
KNOS	35	Dave	Virginia
N2JBA	34	Ed	Amenia, NY
KK1Y	33	Art	Seminole, FL
N4MKT	32	Larry	Villages, FL
KD8IPW	31	Mary	W. Virginia
K4JW	31	Jim	W. Virginia
K9CIV	31	Rick	Knox, Indiana
WA9HIR	28	Bill	Berwyn, IL
N5AN	28	Bud	Lafayette, LA
KD5QHV	28	Bernie	El Paso, TX
W4DAN	26	Danny	Cleveland, TN
WA1EXE	26	Mark	Cape Cod, MA
N9YZM	25	Mike	Crystal Lake, IL
K6JW	25	Jeff	Palos Verdes, CA
KE5SZA	25	John	Marietta, OK
W2PAT	24	Marv	S. Carolina
W4MEA	23	Max	Hixson, TN
KG6DQF	23	Glen	Palo Alto, CA
K3IK	22	Ian	Shavertown, PA
W6NYJ	22	Art	Beverly Hills, CA
K4RLC	21	Bob	Raleigh, NC
KE5BQK	21	Linda	El Paso, TX
N4DOV	19	David	Ft.Lauderdale, FL
N9GJ	18	Greg	Cleveland, TN
KB5FLA	18	Rich	Arkansas
W2MXJ	18	Joe	Maitre. LA
K0FS	18	Fred	St. Louis, MO
W0RPH	17	Tom	Denver, CO
WA3QWA	17	Mark	Chesapeake, MD
N9RIV	17	Bill	Danville, IL
W8LJZ	16	Jim	Detroit, MI
N2OJD	14	Mark	Sidney, Ohio
W9JPN	13	Wally	Champagne, IL
AE4BX	12	Mary	Myrtle Beach, SC
WB9EDP	11	Harry	Chicago, IL
W4TX	10	Elbert "Doc"	Mississippi
N7LNN	10	Mort	Grand Canyon, AZ
N9GOC	10	Pat	Champagne, IL

YEAR	TOTAL CHECK-INS	AVERAGE PER SUNDAY
1998	694	14.46
1999	766	15.95
2000	1,035	20.29
2001	1153	22.60
2002	1383	26.15
2003	1489	28.63
2004	1534	29.50
2005	1517	29.17
2006	1531 (one extra Sunday)	28.89
2007	1591 (one extra Sunday)	30.02
2008	1524 (Only 46 nets)	33.14
2009	1533 (46 nets)	33.32
2010	1591 (44 nets)	36.22
2011	1514 (44 nets)	34.41
2012	1602 (44 nets)	36.41
2013*	1400 (44 nets) (New Freq)	31.82 (Year of Terrorist)
2014	1345 (36 nets)	37.36

Record number of stations checked-in was 51, on Feb. 24, 2013

\*This was the year we had to change frequency due to the terrorist, thus losing a lot of stations in the freq. shift.

## THE RUSSIAN “WOODPECKER” & SECRET TRANSMISSIONS

The “Russian Woodpecker” is a mysterious noise sometimes heard on frequencies ranging from 3.261 to 17,540 KHz. It is variously described as like a woodpecker or buzz saw. It was first heard in late 1976 or early 1977, seems to be coming from the former Soviet Union, and is so powerful that it drowns out all other signals on its band. The usual hypothesis is that it is an experimental over-the-horizon radar system. Similarly, some think that 388.0 MHz—a frequency between VHF and UHF television carrier frequencies—is a resonant frequency of the human body being used in secret “death ray experiments.”

**Other Secret Radio Frequencies...** Sandwiched into the gap between the AM and FM dials are hundreds of secret communications frequencies—some so secret that no one owns up to them. The usual consumer gear—AM/FM radios, TVs, CB radios—brings in only a small portion of the electromagnetic spectrum. To pick up the secret signals, you need a shortwave receiver—and you need to know the unlisted frequencies.

Allocation of radio frequencies is quirky. When you flip the TV dial from channel 6 to channel 7, you unknowingly jump over the entire FM radio band as well as such exotica as Secret Service communications and a special frequency designated for emergency use during prison riots. The U.S. government will provide information on unclassified allocations (*those for the Coast Guard, Forestry Service, weather reports, etc.*) but it is quiet about secret government frequencies and those of mysterious illegal broadcasters here and abroad.

The CIA and other government agencies with clandestine operations are believed to have dozens of authorized frequencies, which may be rotated as needed to throw eavesdroppers off the track. Call letters are rarely used, and several government agencies may share the same frequencies. A further, rather thin veneer of security comes from the use of code words. Government surveillance operations use a common code: “Our Friend” or “our boy” is the person being followed. “O” is his office; “R” is his residence. A “boat” is a car. Once apprehended, a suspect is a “package” and may be taken to the “kennel,” the agents’ headquarters. Does this fool anyone? Probably not.

Well over a hundred “numbers” or “spy” stations have been reported, all rather closely following a pattern. On the typical numbers station, the announcer is—or seems to be—a woman. No one knows who the woman is or where she is broadcasting from. She speaks in Spanish, German, or Korean. Save for a few words at the beginning and end of the transmission, the message consists of random numbers, announced in groups of five, four, or rarely three digits. The numbers stations are all on unauthorized frequencies. No government organization owns up to the broadcasts, officially, at least, the FCC claims no knowledge of them.

Many of those who have listened to the broadcasts carefully are convinced that the woman is in fact a robot. The voice has a mechanical ring, sometimes with a click between each digit. It seems to be the same sort of device used by the telephone company to give the time or forwarding phone numbers. Broadcasts are during the night hours and seem to start shortly after the hour. After the “*final, final,*” the transmission stops. It is claimed that a given transmission is repeated a few minutes later on a slightly different frequency.

Try listening to 3,060, 3,090, 3,365, 4,640, 4,642,4670,4,740, 4,770, 4,792 MHz for number stations.

Harry L. Helms’ book “*How to Tune the Secret Shortwave Spectrum*” is an interesting book of radio secret stations. Several Hams swear the Spanish-language stations are located in Cuba. One listener was receiving a five-digit numbers broadcast in a female voice in Spanish. At the end of the transmission, the station accidentally stayed on the air, and faint female voices were heard reading numbers in English and German. If the report is accurate then the number stations could be the work of one worldwide operation. Choice of languages could be arbitrary.

The most secret of transmissions are not even recognizable as transmissions. These are tape-recorded messages speeded up or scrambled in such a way that they sound like radio interference. Only the intended recipient with a variable speed recorder can recover the messages.

9

## THE PREZ SAYS:

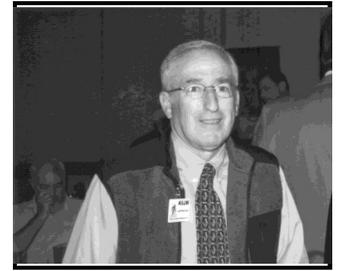
By Dr. Jeff Wolf K6JW, new President of Marco

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Please notify me if you are coming to Los Angeles in March for the annual Marco meeting. K6JW@arrl.net

### SECRETARY Marcia Lochner

Would like to know if you are planning on attending the 2015 Dayton HamVenture. “Let me know so I can reserve a block of rooms.”  
Lochner.marcia5@gmail.com



Mary Favaro, AE4BX

## THE TREASURER SAYS:

Dr. Mary Favaro AE4BX

I just got back from an RV trip and since I was using public wireless I waited until I was home to print out the past two bank statements for the MARCO and MEDISHARE accounts. What was off were two Canadian checks for \$15 and \$45 which were subtracted from the deposit and they charged a \$5 charge for doing it. The

Canadian money is not accepted by the bank and the checks were sent to some “dumping station.” I asked why they were not returned to me, or why I was not notified, the banker said I could “*maybe*” request that service. ....so maybe we should change our policy for accepting Canadian currency. Could the Canadians change their money into US money orders or something?

The other aggravating issue is that last month each account was charged a \$14 service charge. The banker puzzled over this, then finally said it’s because a business checking account should be transferring \$150 per month in and out of the SAVINGS account or there’s a service charge. This was never mentioned to me.

Several comments came over the Marco ListServe, such as “*get another bank!*”

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## FIST BUMPS TO REPLACE HANDSHAKES?

Infections transmitted in health facilities kill at least 80,000 Americans each year. **One common culprit is the germ-spreading handshake.** According to a study published in the American Journal of Infection Control, a less formal **fist bump** might make a safer greeting between doctors and patients. “We found that the handshake transferred 10 to 20 times more bacteria than a **fist bump**,” said a biochemical lecturer at Aberystwyth University in Wales. (*This goes along with the tieless physician carrying a disposable stethoscope not wearing a white coat*) *Popular Science, Dec. 2014.*

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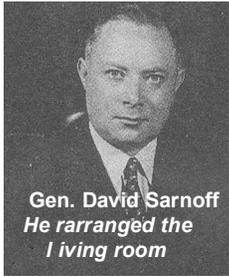
## HOW HABITABLE IS THAT EXOPLANET?

Here on Earth, water, oxygen, and an atmosphere provided just the right conditions for single-celled organisms to evolve into walking, calculating creatures like us.

Still the planet’s uniqueness is up for debate. Since 2009, the Kepler mission has tallied 989 confirmed exoplanets in the Milky Way. Once the James Webb telescope launches in 2018, that number should rise. To make a ballpark assessment, a team led by the University of Texas devised the Biological Complexity Index. It scores exoplanets on how amenable they’d be to living things.

“The conditions for the evolution of complex life are quite rare and so far, only a few exoplanets have made the cut. But the galaxy has an estimated 100 billion left to analyze. It is estimated that the Milky Way could contain 100 million super habitable exoplanets—a measly .1% of the galaxy’s total, which means we, on Earth, might not be alone after all.

(Information for above was taken from Popular Science, Dec. 2014)



Gen. David Sarnoff  
He rearranged the  
living room

*"All our facilities and personnel are ready and at your instant service. We await your commands,"* wrote David Sarnoff in an RCA radiogram to President Franklin Delano Roosevelt at 4:50 p.m., Dec. 7, 1941, less than three hours after radio announcers told startled listeners that the Japanese had attacked Pearl Harbor. Signing his cable with the title **PRESIDENT OF THE RADIO CORPORATION OF AMERICA**, Sarnoff was asserting what all tacitly understood; that radio communications as well as

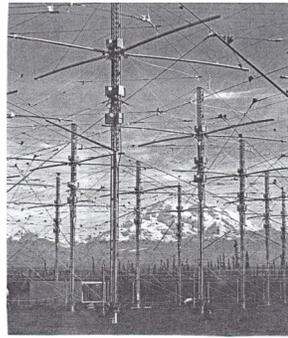
broadcasting would be essential to the prosecution of the new war. And with 30,000 workers and manufacturing plants in Camden and Harrison, New Jersey, Bloomington and Indianapolis and Hollywood, RCA stood as the most powerful communication enterprise in the world, prepared to grow even bigger producing military equipment.

Much had changed since the last great war in 1918, when Winston Churchill had declared radio unreliable. Then naval captains had to keep their battle cruisers within sight of one another at all times, communicating "by searchlight flashes," and semaphore flags. Now, as Churchill knew better than anyone, the present conflict was a chilling "wizard war," waged with ever more sophisticated scientific instruments of destruction. Many involved the use of radio. In the Battle of Britain, from July to September 1940, the English had relied on ear and sight stations along the coast to warn of German planes crossing the channel for an attack on London. Ear trumpets resembling gargantuan cornucopia and carried on the backs of trucks listened for the approaching enemy. But soon electronics began to take over. The Germans began navigating their planes through fog and cloud by fixing them on radio signals transmitted from stations on the continent. The British responded by deflecting the signals with transmissions of their own and sending the German planes off course. The British acknowledged one of the greatest advances in the wizard war in June 1941, when they announced they had developed "**radiolocation**," a way of using radio waves to detect the approach of enemy planes. It was the first practical radar.

Radio brought this war into American homes with a vividness and speed never known before. As Sarnoff said just before Christmas 1941, Americans were now able to "*hear history before it is written.*" Instantaneous reports came from the Pacific, Europe, and Asia as engineers switched from circuit to circuit. At 12:30 on the afternoon of December 8, 1941, when President Roosevelt proclaimed that the "*the American people, in their righteous might, will win through to absolute victory,*" he spoke to the largest daytime audience ever assembled to hear a broadcast. The next night when he called on Americans to unite "*in the most tremendous undertaking in our national history,*" 80% of the country's 56 million radios were turned on.

Radio went across the oceans, too, delivering reports from home to U.S. troops around the world. Col. Thomas H. Lewis organized the Armed Forces Radio Service "*for information, education, and entertainment.*" By the war's end, it had grown to more than 800 stations, each playing American music and drama and delivering American news on "V-discs," special phonograph records made in the U.S. and shipped around the world. Through his connections and marriage to the screen actress Loretta Young, Lewis arranged for Hollywood stars like Bing Crosby, Dinah Shore, Bob Hope, Jimmy Durante and Frank Sinatra to take part.

Actually, RCA, along with other communication companies, had been preparing for the U.S. entry into the war for many months. Over the past year, government defense contracts had increased steadily to approximately \$36.5 million, stretching the corporation's ability to produce equipment for both military and domestic use. When the FCC authorized commercial television broadcasting at the beginning of May 1941 (*with a 525-line picture and FM sound*), Sarnoff knew his company was not able to fill its defense orders and make TV sets. This did not bother Sarnoff, as sales of television sets had been disappointing since he had introduced the new medium at the 1939 World's Fair. The country still suffered from the lingering effects of the depression. No, military preparation must come first. Television development would continue, but under the mantle of military research. Increasingly, Vladimir Zworykin, head of television development at RCA, would turn his attention to the medium's military applica-



tions. Good patriotic inclinations made for good business too; government orders would carry the company.

For many months, Sarnoff had been preparing RCA for war and generating publicity about his activities through RCA's Office of Information. In July 1941, RCA introduced the "*alert receiver*," a device that would turn on a radio automatically and ring a bell to summon listeners to hear announcements of an attack. It was the "*modern Paul Revere*," RCA publicity agents proclaimed and they arranged for Sarnoff and New York Mayor LaGuardia to give a public demonstration before newspaper reporters. That September, from his office in the RCA building, Sarnoff had launched his "*hear the promise*" campaign with lots of fanfare. After tapping out the title on the telegraph key at his desk, Sarnoff spoke over special transmission lines to his workers at the RCA plant in Camden. "*Defense has had and will continue to have the right of way in all our plants,*" he declared, repeating the promise every employee had signed a few days earlier: "*I pledge myself to put forth my best efforts not only to fulfill the obligations which we have undertaken to meet the requirement of our national preparedness program, but, wherever possible, to beat that promise.*"

In this "*promise*" and his general war preparations, Sarnoff saw an opportunity to stress efficient and sensible management to his employees, the same as he had always practiced himself. "*Time is vital, materials are vital*" he wrote to RCA workers in a characteristically brief memo in January 1942, imploring them to conduct all operations "*with the utmost efficiency.*" The policy he adopted for RCA was similar to the one he had always followed himself: "*Keep your desk stripped for action...Eliminate dead wood from files...eliminate unnecessary interruptions of others...Be concise and definite in letters and memoranda.*"

In 1939, the U.S. government was trying to revive a fighting force that had lain dormant for twenty years. Typical of the inadequacy of the military was the U.S. Army Signal Corps. Fewer than 4,000 men served the corps in care of all wire and radio communications, photography, and training films, even the army's flocks of carrier pigeons. For communication, the corps preferred wire over wireless, and relied chiefly on the dots and dashes of the Morse code. Voice radio was not yet common. Though engineers had made wire lightweight—as light as thirty pounds per mile—laying it from the back of a horse-drawn cart was not unusual.

Disturbing proof of the crude state of communications appeared at Fort Knox, KY., in late October 1939, where Gen. Roger Colton, director of the Signal Corps Laboratory, had ordered all radio equipment brought for demonstration and evaluation. It was a huge and primitive display, particularly the "*mobile*" radios. Most units had manual rather than crystal tuning, which meant the sets required an expert to operate them and they still drifted from their frequency. Usually they were huge "*portables*," requiring two men to transport, or better, a horse or truck. Typical of the antiquated gear was the army's behemoth SCR 197, a mobile communication unit the size of a house trailer, pulled behind an underpowered truck. Inside the trailer, equipment was crowded floor to roof—transmitters, receivers and an inadequate power supply. Even more disturbing, the unit was not truly mobile as it could not operate while the truck was moving. Officers testing the equipment wondered how it would perform in a large-scale war, the sort that was taking place in Europe at that moment.

Even more disheartening to Gen. Colton, was the fact that few seemed really worried about the situation. Indeed, many observers were more interested in a novel water heater than an officer of the quartermaster corps happened to be demonstrating concurrently. "*Ample hot water was something all could appreciate,*" said one colonel: **radio was still a mystery**

The war had lifted America from the depression, put money in the pockets of many soldiers who would soon be civilians ready to spend. And RCA, and others, would be ready to sell, for television was just around the corner.

**BACKGROUND:** At the recent Marco meeting in Myrtle Beach, SC., Wayne Rosenfield, K1WDR came to the Aether News Editor with a wonderful story of the heroism by a ham operator named Capt. Kurt Carlsen W2ZZM of the “*Flying Enterprise*,” a ship caught in a hurricane in the North Atlantic in 1951. Ironically, the News Editor, at the time, was a Navy medical officer aboard the USNS General Leroy Eltinge that stood by to possibly rescue passengers aboard that very ship. On top of that, the News Editor’s “Elmer” was a South African ham, Olliver Pierce WU4i, who at that time was corresponding by radio with Carlsen. Below, is this wonderful story, “*Simple Courage*,” written by Frank Delaney, ISBN 1-4000-6524-0, available at Amazon.com

In late December 1951, Capt. Kurt Carlsen, 37, had run into a hurricane off the South English coast aboard his cargo vessel *Flying Enterprise*. The Captain ordered “abandon ship” and a line was passed from a rescue lifeboat and passengers and crew were ordered to jump into the raging waters with lifelines attached, but the Captain remained on board. Prior, by the time she was ready to return to New York from Hamburg, *Flying Enterprise* was loaded with consignments of which have contributed to the half century of questions hanging over her—just why did *Flying Enterprise* become a mystery ship and why did her Captain refuse to leave his ship. The ship left Hamburg on Dec. 21, 1951 for New York and the unexpected. A storm soon arose and in the midst of the storm the *Flying Enterprise* snapped open amidships and was quickly strapped and cemented back in place. Meanwhile the storm raged....a huge wave finally sent the ship listing 25 degrees on the left side....

A ship, especially a working seafarer such as a freighter, is made of various metals—steel, iron, myriad alloys—because she must prove relentlessly functional. Doorways and hatches do not open and close with a gentle click—they hammer and clang, with metal wheels and levers to lock them shut. Ladders and companionways also ring to the boots; all fittings and fixtures have been fashioned for the heavy duty of survival.

The space used by the sailors resembles a house no more than a tin can resembles a glove—a cargo ship must be hard and unyielding. Even if she contains the more benign onboard material of timber, this shipwrights will have used hardwood; teak, oak, mahogany, lacquered to bullet hardness.

On deck, the accouterments, kept to a minimum, haven’t an ounce of give. The iron bits, the steel hatches, beneath which the holds yawn like mine shafts; the tough machinery for hauling, winching and reeling—this is a rigid world designed to defend itself rigidly while fulfilling its rigid purpose.

But when a hurricane throws a ship around the sea, what makes it strong also makes it dangerous. The ship’s very being becomes, in part, an enemy. Her iron substance becomes the sailor’s foe as well as his friend. The walls and floors bruise, and bones break against them. Blood flows from the cuts and abrasions they deliver. The cabin or corridor, secure and iron hard, changes into a doubtful ally who fights on both sides. And it gets worse. At sea in a Force 12, the hurricane will turn a ship and her fittings into an armory—even to the point of ripping a chain from its moorings and swinging it like a hoodlum in a gang fight.

When a sailing vessel is attacked by the weather, her master is her guardian—that requirement lies at the core of his job. He must try to save his ship. Only one requirement supersedes that maxim; he must first save any human life aboard. What he fears, however, is that his ship will somehow let him down, that when the test comes she will be found wanting. No seaman ever imagines sinking—but those who have known life in such a gale never forget the havoc stemming from those iron protections upon which they had depended.

Meanwhile, the captain’s getting drenched to the skin by the freezing water that’s washing like a tide all over the decks. He can’t see through the blinding spray to defend his ship or to protect himself. He can’t breathe without gasping. He can’t stand upright. He can’t watch where he’s going. All he can do is grab for any fixed handhold aboard and then hope that the iron unyieldingness of the ship will stave off the water and the wind until he can get things back to some semblance of how they should be.

And finally a master mariner understands his lot: women and children first; the captain will be the last man to leave his ship; and he may have

to go down with his ship.

Carlsen had already heard the metals cracking. Did he now hear the huge groan of his cargo shifting as his ship listed to an angle of between 25 and 30 degrees. Others did; and not only was the black freighter not righting herself from that angle—she was slipping farther down. Every movable article on board, every person and unfastened thing had tipped violently down to the left, and then down again and again.



Matias Lopes Moraes, from Brooklyn and in his twenties, stood the eight-to-twelve watch on that Friday morning. He had charge of the wheel when the second rogue wave struck. The sudden sharp list sent him spinning; green waves shattered the wheelhouse windows and sent him flying. He crashed into a metal fitting and sprawled on the floor, damaging his arm, flints of glass cut his hand.

From outside, on the wing of the bridge, Seaman George Bulhak, though blinded by the wind-blown spray, dashed into the wheelhouse and grabbed the wheel, giving Moraes, with his damaged arm, time to get up from the floor and its slopping waters.

Carlsen, also in the wheelhouse, sent Bulhak off to get a life jacket and fetched one from his own quarters for Moraes.

Few men on board this vessel had the experience, presence of mind, or resourcefulness to deal with these violent circumstances. Carlsen had, and he led accordingly. He needed to achieve two things at once; correct the severe tilting to port and change his course again to avoid the brunt of the seas in the wake of the wave.

Then the engines quit. The seas continued to hammer. Water formed pools on floors, it swirled in tides along the decks and down the stairways, it ran freely through shattered portholes. His freighter was barely coming back up from her sudden listing and was not staying up—worse, she was rolling a little deeper with each heave.

At the radar mast, Carlsen took one more look and judged that if the engines did not revive, he must abandon ship.

From the shipboard term “engine room,” dismiss the word *room*. On *Flying Enterprise* and all freighters of her size, what they called the engine “room” was longer and wider than most people’s houses and almost twice as high. This chunky cathedral of machinery resembled the underground workings deep in the mountains where, in all the best boyhood books and movies, the mad scientist lived.

Endless pipes, some thick as a thigh, some thin as a pen, snaked around the interior, making the walls look like a huge, fat, subway map. Those who worked an engine room’s around-the-clock shifts had long been called the “*Black Gang*,” because in the early days of steam, these men had coal dust on their faces; nowadays, they glistened with the lighter tan of oil.

After the first rogue wave, George Brown, the 35-year old Chief Engineer, ascertained that the machinery had risen easily to the challenge of the fractured decks and had pumped the holds dry. He had also established that Carlsen need have no worries regarding ongoing water problems at that time, the repairs had worked. When the second freak wave struck, Brown registered that the ship “took one roll, one pretty bad roll and didn’t come back again like it should have.”

In the engine room, everything depended upon everything else—the boilers, the generators, and crucially, the pumps: pumps to feed oil, pumps to feed water, pumps to maintain lubrication, pumps to clear the bilges. All had been fitted to work more or less vertically and in dry conditions.

The critical problem was in the steam lube oil pump. The tanks operated on gravity feeds, and because of the angle to which the ship lurched, no lubricating oil could get to the generators. From noon *Flying Enterprise* had little chance of recovery, a fact that was not lost on George Brown. He never stopped trying to solve the problems.

As the engine room darkened into shadows, steam was escaping ominously, the temperature was rising, and oil was pouring from the machinery down the steps of the different levels. All hands needed to hold on to anything that would keep them on their feet while water slapped and their ankles.

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 Lochner, Marcia\*  
 Lochner, Rich, K9CIV  
 Lorenzen, David, VE3CZL  
 Meltzer, Gerald, VE3WBE  
 Nates, Joseph, K1MRC  
 Rosenfield, K1WDR  
 Smith, Larry, N4FD  
 Webb, Ron,



**STATIONS SHOWING INTEREST:**  
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 Benslimane, Nabil, CN8BNM  
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