Medical Trivia of Grey's Anatomy

Contents

Season 1

Season 2

Season 3

1 Season 4

1.1 A Deer in the Headlights: Holly the Deer Comes to Seattle Grace

In the season premiere, A Change is Gonna Come, Izzie Stevens treats a patient whose anatomy she never studied, a black-tailed deer played by Hollywood deer sensation Holly Berry.

Holly was hit by a car. That initial collision sets off a chain reaction of victims, including a pregnant woman whose arm is severed in the accident, our doe[23] is presumed dead and loaded into the back of a pick-up truck. When the driver finds the severed arm and brings it to Seattle Grace, it's his son, Joey whose heart-felt pleas convince Izzie to save the life before her, the life of a deer.

Last year approximately 3000 deer were killed in the State of Washington by automobiles. But sometimes, they survive the collision and are cared for by one of the large animal veterinarians[74] we spoke to when researching this story.

When a deer is hit by a car, and survives, the first thing that happens is that the deer goes into shock, and to an untrained person, could appear to be dead as was the case in our episode.

When a deer goes into shock, it lays perfectly still with what our vets described as an incredibly intense, wide-eyed look (yes, the "deer in the headlights" description is accurate) and has short shallow breaths. Though it doesn't usually make a sound, the deer is in immediate need of medical assistance.

Deer are ruminants[61], which mean that they have a digestive system that is similar to a cow or a horse. Their stomach is divided into four sections and they regurgitate[58] their cud[17]. Deer have to be careful, because if they lay on their side for too long they can choke to death. This happens when the green partially digested food travels up the throat. Another life threatening complication in the treatment of deer is the main stomach swelling. It fills with gas, compromising the deer's ability to breathe. Vets expel the air by stabbing two really, really big needles (16-gauge needles) into the abdomen, which lets gas out of the stomach.

If a deer is in severe shock, or if the pressure of the collapsed lung builds to a critical point, the deer could go into v-fib, or a fatal heart rhythm. By using the same defibrillators[19] used on humans, a vet can shock the heart back into a regular rhythm.

Deer have a highly developed adrenal[2] response to stress. This is called the "fight or flight" response. When they come out of shock, they kick off the exam tables and try to get out of whatever enclosed space they are in. Whenever possible, vets administer Valium or another sedative[63] to try to diminish this reaction, which is potentially dangerous for the deer and the vet.

Though our deer at Seattle Grace came out of shock peacefully, don't try this at home! (Or at the side of the road.) Deer are very strong and have incredibly sharp hooves. And there are cases of well- meaning animal lovers who loaded injured deer into their car only to have a full sized buck kicking out the windshield en route to a veterinary hospital.

All of the vets we spoke to had heartwarming stories of deer they had rescued. Sometimes a female deer may leave a fawn[28] behind. There are a number of rehabilitation centers that can raise a fawn to maturity and work with it to reintroduce it to the wild.

Holly Berry, our actress-deer was rescued as a fawn herself. She went from wandering in the woods without a mother to her glamorous life of being the most sought after deer in tinsel town.

1.2 No Title

Maybe you've looked in the mirror and thought; I could use a haircut. For someone with Body Integrity Identity Disorder, their thoughts run all the way to, I really need to loose one of my arms.

In Episode 405, Haunt You Everyday, James Miller, suffering from BIID, wants his left foot amputated[4]. Bailey says no way! So, James steals a power saw and goes for it himself. Ouch!

Why would anyone want to get rid of a perfectly healthy foot? Because they believe, to the depths of their heart, that their true self only has one foot. Or no feet at all! BIID sufferers are obsessed with the idea that there given body is wrong and the body they see in their head, the one missing a foot is the right body. And they will go to great lengths to force an amputation. It's not just feet - arms, legs, even hands. There have been reports of people laying their arms on a railroad tracks, burning their legs with dry ice and crushing their own hands.

BIID folk claim that they are not suffering a mental illness at all. It's like waking up with a third arm they just want something they don't think is right, removed. They claim that their condition is just like gender identity disorder (when someone is born a girl and believes they are really a boy or vise versa). If someone can change their gender with surgery, why can't they become an amputee?

Well, to have elective amputation, you have to find a doctor who is willing to do it. Putting someone through dangerous surgery to lose a healthy limb puts the most revered medical principle, first, do no harm, to the test. Enraging the medical community worldwide, one doctor in Scotland performed a double amputation on a BIID patient because he thought not amputating was doing harm! His reasoning was that the pain and suffering of living in body you don't want to be in is worse that going through major surgery to live the rest of your life in a disabled state. Yeah, RIGHT!

There have been some attempts at treatment. Under the care of a psychiatrist, anti-depressants and cognitive[13] therapy can help take away the obsessive thinking part of this baffling disorder. BIID shares characteristics with Obsessive Compulsive Disorder and Body Dismorphia. There are even theories that this is a neurological problem in the cerebral[12] cortex[16]. Damage in this area could mean the brain fails to recognize the limb as part of the body. Either way, the condition is a big challenge for doctors and patients.

So, the next time you look in the mirror and you get a flood of thoughts about losing a few pounds, be thankful it's not a few limbs!

2 Season 5

2.1 Dream a Little Dream of Me

— Hypothermia

Being cold really sucks, but sometimes, it's just the thing to save your life.

How can hypothermia[33] save lives? Everyone's heard stories of people trapped on mountain tops or snow storms or at the South Pole who tragically die from the cold conditions. Hypothermia causes shivering, blue lips, frostbite and eventually death.

But, sometimes people didn't die from being too cold. So, scientists began to study hypothermia because every once in a while people (like Meredith) who have been trapped under cold water and deprived of oxygen for up to twenty minutes miraculously survive. Scientists wanted to find out what causes these unbelievable survivals. Could they recreate this on purpose to save a patient? They experimented with therapeutic[69] temperature management and found that cooling a patient's core temperature can help reduce organ damage and prevent paralysis[52] or even death. Therapeutic hypothermia is becoming a treatment option for heart attacks, strokes and traumatic spinal cord and brain injuries.

One of the ways therapeutic temperature management works is by reducing inflammation[35]. Like when you ice a sprained ankle. But, there's one important difference. The spinal[66] cord is housed in rigid bone - the spine - which can't expand to accommodate the swelling nerves. As the spinal cord become larger than the bone it is incased in it's crushed and damaged even more. In fact, the inflammation can cause more trouble than the initial injury, so preventing swelling significantly increases recovery. Hypothermia also slows down metabolism[47]. For every degree the body temperature is lowered, metabolism slows 6%. This slows down cell death and halts the release of toxic-chemicals that follow a spinal cord injury.

Doctors cool patients by rushing cold saline[62] into the blood supply through the femoral artery in the thigh. They drape the patients' head, neck, chest and groin area with special core cooling blankets. Body temperature is closely monitored, because even though hypothermia has many potential

beneficial effects, it is also dangerous for the patient. So, it's a delicate balance between cooling the body enough to reap[57] the benefits, but not so much that the patient's heart stops.

Callie makes the argument to cool the patient down before taking him in to surgery to decompress his spine. When the patient wiggles[75] his toes at the end of the episode, they know that the cooling was indeed a success. Though scientists don't yet understand all the nuances[51] of therapeutic hypothermia, doctors are becoming more and more open to cooling their spinal cord trauma[71] patients. Thankfully, in this case, Callie's experiment was worth the risk.

2.2 What Is The Worst Pain You'll Ever Experience?

In Episode 503, "Here Comes The Flood", Meredith feels the pain of being torn between her boyfriend who wants her to kick out all her other roommates and her friends, who need a place to live. Retaking the intern exam is George's pain. And nothing says pain to Cristina like NOT being on the cardiothoracic surgery rotation. But, none of these compare to Derek's patient, Phillip Patmore's pain. He has been living with an intense unrelenting headache for seven years!

When it was clear that a simple aspirin wasn't going to stop the Phillip's pain, doctors prescribed narcotics[48], anti-seizure medications, antidepressants, anti-psychotics. None of these worked. Phillip's tried everything except having part of his brain surgically removed and that is exactly what Dr. McDreamy, pain specialist and neurosurgeon extraordinaire is about to do.

The procedure is called a bilateral cingulotomy. Derek opens into Phillip's skull, targets part of his frontal lobe[43] and removes two small pieces of his brain. It's so radical that it is only done in cases of extreme and unmanageable pain or OCD. The risks are serious: seizures, cognitive[13] defects and behavioral changes and no one knows exactly why this technique works

But, right before the surgery, Lexie Grey, Meredith's younger sister with a photographic memory, remembers an obscure condition of a pinched sinus[64] nerve which is described as the worst pain you'll ever know. Lexie makes a connection. What if Phillip's headache is actually caused by a pinched sinus nerve?

Inside the nasal[49] passages there are turbinates, which regulate the flow of air through the nose. They filter out harmful particles and add moisture to the air and warm it before it travels to the lungs. Sometimes a previous infection or a trauma causes a glitch and a nerve in Phillip's case the ethmodial nerve gets trapped between one of these turbinates and the nasal septum. It's called a "contact point" or "trigger". Because this condition is so rare, the most difficult part of the diagnosis is thinking of it. Usually sinus headaches involve inflammation and swelling of the sinuses. But in Phillips case he had no current sinus infection or swollen sinus tissue, so doctors had not considered this as a possibility. Once it is suspected, there are two easy ways to rule out or confirm the diagnosis. The first, while the pain is in evidence, put anesthetic[5] on it. If the headache goes away, then a trapped ethmodial nerve is indeed the problem. The second way is to push on the trigger and if the patient screams in pain. Either way a simple surgery to clear out the blockage that is putting pressure on the nerve will fix the problem permanently.

While Lexie is sometimes the cause of Mereidth's pain, for Phillip Patmore, little Lexipedia saved the day!

2.3 How to Spice Up A Boring Day in the Clinic

In Episode 504,"Brave New World," Cristina is confronted with her least favorite thing in the world - a non-surgical, loud-mouthed, patient from Cristina's least favorite place in the world - the clinic. Mrs. Borsokowski arrives complaining of a rash. Then she turns feverish, itchy[40], uncomfortable and unhappy to see Dr. Yang - whom she calls,"the mean one". Cristina, desperate to get into the OR, makes the one diagnosis that could land her a surgery: necrotizing fasciitis. This is the deadly infection that rapidly consumes flesh. The only treatment is to surgically removed the infected flesh and pray that you remain ahead of the infection. This means, limb amputation or death! All of which makes it the perfect diagnosis to spice up a boring day in the clinic for Cristina. Unfortunately, it only takes Mark Sloan one peek at the rash to know, this isn't flesh eating bacteria. He prescribes a topical cream.

But Mrs. Borsokowski doesn't have just a rash. She has something far worse– and just as dangerous as necrotizing fasciitis - toxic[70] epidermal[24] necrolysis[50] (or TEN syndrome). Cristina goes to dermatology[21] to get rash

cream, while Lexie watches as Mrs. Borsokowski's condition goes from annoying to life threatening!

TEN syndrome is most typically an extreme allergic reaction to taking sulfa[68] drugs, anticonvulsants[15], NSAIDs, antiretroviral[60] medications or corticosteroids. Those drugs can set off a series of reactions, fever, coughing, malaise[44], rash[56] on the trunk of the body. Painful lesions[41] erupt on the mucosal membrane[46], like the inside of your mouth. These are very painful and often cause their victim to stop eating. If the reaction isn't halted, as in Mrs. Borsokowski's case, the patient will go into respiratory[59] distress as the epidermis[25] (the top layer of skin) separates from the derma[20] (the underlying layer of skin). This is referred to as Nikolsky's sign – the skin can literally peel off with the slightest touch. It's like a worst sunburn you have ever had times 100! The patient suffers from skin loss like burn victims do, even though they have never been burned. Doctors believe this is from a biochemical progression set off by the drug which causes cells to change and then die. Mrs. Borsokowski lost 60% of all of the skin on her body and will go to the burn unit where they will debride[18] her (remove the dead and sloughing skin) and wash it to keep infection at bay.

Looks like Cristina's day at the clinic wasn't boring at all! Good thing she was looking for something deadly serious because that day– she found it!

2.4 There's No "I" in Team

— Domino Kidney Transplant

One of the questions I'm often asked is,"How has your job as Medical Researcher of *Grey's Anatomy* changed your attitudes toward medicine." The answer is, when I renewed my driver's license this time, I signed up to be an organ donor. One thing *Grey's Anatomy* (and Denny Duquette) has taught me is there just aren't enough organs from deceased donors to go around. In 1954, doctors began performing living organ transplants when a living person donates a kidney or part of their liver to a loved one who is in need of an organ. While living organ donation hasn't solved the organ shortage, it has definitely helped close the gap. It's also created an additional problem, what if someone in your life is generous enough to give you a kidney but their kidney doesn't match? In episode 505, There's No"I" in Team, Dr. Miranda Bailey creates an innovative program that provides an answer to that···The Domino Kidney Transplant.

You know how when you stand up dominos in a pattern and knock one over all of the dominoes fall over in quick succession? That's just what Bailey did with the domino kidney transplants. She found someone who needs a kidney and had someone in his or her life who was not a match, but was willing to give up a kidney to help. Bailey found five other donor/recipient pairs in this same situation and she paired them up one by one, until there were five recipients and six donors who matched and are ready to go. What happened to the sixth kidney?

The United Network for Organ Sharing (UNOS) has developed a system of organ allocation that is fair. Well, as fair as it can be when dealing with something as fundamentally unfair as life-threatening illness. In cases of directed donation (like if your sister gives you a kidney) the ethic[27]s is straightforward. The donor has the right to decide who she gifts her organ to. But, as soon as a licensed transplant center gets involved with the pairing process, the ethics becomes more difficult. The rules say the person at the top of the list gets the next kidney. Doctors don't allocate organs. UNOS does. Yet, Bailey knows six people who are willing to donate organs in order for their loved ones to receive the organs. With such a grave[30] organ shortage it seems a shame not to take them up on their generosity[29]. So, this problem is solved when one of the kidneys is given to the person at the top of the list. They become the sixth recipient.

Who is the sixth donor? Where did they come from? Typically the sixth donor is what is called an altruistic[3] donor. Someone who wants to donate an organ just to be generous. This altruistic donor is actually the first domino that trips the chain reaction, because without the unpaired kidney there would be no kidney to pair with the person at the top of UNOS's list.

Now for the question that everyone wants answered: Would the kidney that Meredith dropped really be used? I'll answer that question with a question. Now that you know how rare a good kidney is and how much work goes into pairing kidneys and recipients what do you think?

For more information on Kidney Transplants or becoming an organ donor go to: www.donatelife.net

2.5 Life During Wartime

— Tumors

Bailey has a big problem. Richard told her to remove Tori Begler's abdominal tumor. Seems easy enough. After all, that's one of the things surgeons are really good at, removing tumors. Only, it's a little more complicated than that. Tori's tumor is deep down within her abdominal cavity[11]. So her stomach, intestines[37], spleen[67], kidneys and liver are on top of the tumor and it's impossible to get at it. Meredith, who is looking at her Anatomy Jane Doll, has an idea. What if you took out all of the organs one by one and removed the tumor and then put all of the organs back in the body? The answer is that won't work. By the time you took the last organ out of the body, the first one you took out would be dead from lack of blood. However, Meredith's idea inspires the Chief. What if you left the organs attached to their blood sources and took all of the abdominal organs out in one big chunk? Seems easy enough – on the plastic doll.

While it seems like an obvious solution it isn't. Typically, surgeons put their hands into the body cavity to remove tumor, so the organs remain in place. You know how sometimes when you take one of those 3D puzzles apart, it's hard to put back together again? Well, this is a living 3D puzzle, which means, the pieces change size as you go. It also means that they are connected together by an intricate[39] system of arteries and veins, which supply life giving oxygen rich blood to the organs. If one of these is disconnected incorrectly, Tori could bleed out. Conversely, if any of the organs are disconnected from its source of blood for too long, it will die. To keep everything in tact and in relation to everything else, they lift all of the organs out at the same time, sort of like they are removing an engine from under the hood[31] of a car. Only in this instance, the engine is still connected to the body by two blood vessels: the aorta[7] and the vena[73] cava and two digestive organs: the esophagus[26] and the large bowel[9]. This part goes well, now all they have to do is remove the tumor.

Tumors are little vampires[72]. They create veins and arteries and siphon[65] off blood for themselves. The bigger the tumor, the more blood supply. This tumor is lemon sized, which for a tumor, is enormous for a tumor in this location. Which means they have to figure out what to do with all of the disconnected blood vessels once they remove the tumor. Since the tumor itself is surrounded by blood vessels, once the tumor is removed all of the vessels will have to be repaired. For this, Erica is using a kind of surgical mesh called gortex.

Meredith's inspiration and Richard's ingenuity[36] combined with Erica Hahn's surgical skills and Baily's preserverence save Tori. This ground breaking

surgery will draw positive attention to Seattle Grace and improve their standing in the eyes of their peers. Tori is in good hands and is well on her way to recovery. In the end, both Anatomy Jane and Tori have all their organs back where they belong and are expected to make a full recovery.

For more information about cancer please go to: http://www.cancer.gov/

2.6 Rise Up

— Alcohol Septal Ablation[1]

Michael Norris has been and Dr. Hahn's patient a long, long time. He has a congenital[14] heart condition, hypertrophic[32] cardiomyopathy[10] that makes him a candidate to receive a heart transplant. In fact, he's been near the top of the heart transplant list since Season 2 of Grey's Anatomy. The heart Denny received before he died would have been Mike's heart if the machine that was pumping Denny's heart (the LVAD) had not mysteriously failed. Now, Mike Norris has yet to receive a match. Time is running out. His heart is too weak to withstand open-heart surgery, if Dr. Hahn does nothing, Mike won't live long enough to get a new one. Lucky for Mike, Erica knows just the thing to do, a cutting edge procedure called an alcohol septal ablation.

During alcohol ablation Erica will inject portions of Mike's heart with 100% absolute alcohol, a substance that is lethal[42] to heart cells. Once the cells die, they shrink. As the heart muscle expires, the thickened muscle becomes thinner scar tissue. Mike's blood will be able to flow more freely, his heart will pump more efficiently and his lungs will be able to receive more oxygen. In short, his quality of life will greatly improve.

There are four stages to this procedure. First, Erica threads a tiny temporary pacemaker into Mike's heart. If the procedure goes well, they'll take it out the next day, but until then, it will ensure that Mike's heart beats rhythmically. Secondly, Erica injects a contrast die into the vessels. This illuminates them in x-rays and allows Erica to see exactly where she will inject the alcohol. Then, Dr. Hahn inserts a balloon-tipped catheter into a branch of the targeted artery. When inflated, it blocks off the blood flow and limits the exposure of the alcohol so that it can safely be injected. As, the alcohol is injected into the heart, Erica is causing a heart attach. Though Mike is

sedated and has sufficient amounts of pain medication, he feels discomfort during the procedure. Finally, Erica performs another angiogram to check her work. It takes two tries and an appearance from Denny, but Mike is better off for having come to Seattle Grace.

For more information about cardiomyopathy please go to:

http://www.nhlbi.nih.gov

2.7 These Ties That Bind

— Autism[8] Spectrum Disorders

Bailey agrees with Alex that the new heart surgeon, Dr. Virginia Dixon, is a bit off. She makes eye contact a little too intensely, her speech pattern is strangely formal and she can't seem to bend the rules, any rule, even a little bit. When Bailey and Dixon disagree about a patient's care, Bailey undermines Dixon's authority as an Attending Physician rather than dealing with her strange behavior. It turns out, Dr. Dixon has a neurological condition called Asperger's syndrome. Dr. Dixon may seem like she doesn't have emotions, but it isn't the case. Dixon stands up for herself in the end, and is a brave advocate for herself and her condition.

Asperger's is one of a group of developmental disorders known as autism spectrum disorders (ASD). People with Asperger's have trouble fitting in to "normal" social interactions. They have difficulty interpreting and sending social cues. They tend to take things literally. They often stare a little too intensely, talk too loudly, have monotone intonations[38] or use an antiquated speech patterns. They adopt repetitive routines and rituals. They'll often become fixated on one thing and study it intensely. For Dixon, her one passion is hearts.

No one knows what causes any of the autism spectrum disorders. They range in severity from disabled to perhaps a little "off" by normal conventions, but truly gifted. Though an ASD may be diagnosed as early as three years old, the eventual manifestation[45] of the disorder can change dramatically throughout a person's life. Early intervention, changes in diet and nutrition, some medications and theraputic socialization can all assist a child with ASD to connect to others and gain life skills. Specialist intervention to help with at an early age significantly improves a child with ASD's social

and behavioral development, so if a child you know exhibits symptoms, it's good to have a pediatrician do an exam.

During the course of working on this episode the research department stumbled upon the story of Dr. Temple Grandin. She's an autism expert (which is how Moira found her) and lectures all over the globe. She's also one of the world's foremost animal behavior specialists. Her journey to understand her own condition made her uniquely qualified to connect to animals and she has used her gift to improve the conditions of livestock worldwide. She's a fascinating free thinker who makes me strive to be a better smarter person. If you want a special treat, catch out some of her lectures online. Oh, and here's a link in case you'd like more information about autism.

For more information on Autism Spectrum Disorders:

http://www.cdc.gov/ncbddd/autism/overview.htm

2.8 In the Midnight Hour

— Hypochondria

Alex's patient, MRS. HAMMER, has a pain in her stomach. The pain is so bad she thinks it must be stomach cancer. Her husband thinks it's diarrhea[22]. Turns out, she's a hypochondriac who took antibiotics[6] she ordered online to cure a self-diagnosed staph infection that was actually a pimple[54]. Unfortunately, the antibiotics killed all of the bacteria in her body, including the good bacteria in her digestive tract that's necessary for digestion. So, hypochondria ended up making her very sick.

To my knowledge there is no scientific study to determine the percentage of writers who are also hypochondriacs. My guess is the percentage is somewhere around one hundred. At least, that's the statistic in the Grey's Anatomy's writer's room. We're always asking Zoanne Clack, the resident writer/physician, if some random obscure symptom we've imagined could possibly mean immanent[34] death. Like, last week I had a lump on my finger. I was sure it was flesh eating bacteria and I was probably going to die if she wouldn't amputate[4] my finger. The symptoms where present, my skin was warm to the touch. Zoanne said my skin was warm to the touch because I was just holding a cup of steaming coffee. She wrote me a note

excusing me from doing dermatology[21] research for the rest of the day, but refused to do the amputation.

I'm not alone. Millions of people suffer from hypochondria. According to some studies, around 3% of the US population is convinced they're sick. With the Internet, hypochondriacs are able to google their symptoms and diagnose themselves. This is great for us, but doctors don't like it so much. The largest complaint I hear from physicians is they spend a lot of time educating patients about drugs on television commercials, telling their patients why they don't have some rare thing they saw on a medical drama or explaining why they aren't ordering the new diagnostic test that was on the news last night. Physicians have limited amounts of time with patients and prefer to educate them on conditions, medications, diseases, etc. that actually have direct relevance to their patient's health. I'm sympathetic to the plight[55] of the doctors but let's face it, cyberchondriacs are here to stay and even before the easy access to medical information, hypochondriacs have been self obsessing.

My favorite thing about hypochondria is the irony of our condition. We investigate every detail of imagined disease and vague symptoms, but our true plight – the hypochondria itself – is a mere afterthought or truth or dare confession for us. But, hypochonadrisis (the formal name) is a psychiatric disorder and is defined in the DSM IV, the bible of psychology. It's considered a somatoform disorder (having to do with complaints that result in a prescription) and is defined as, "[a] preoccupation with fears of having, or the idea that one has, a serious disease based on a misinterpretation of one or more bodily signs or symptoms." It goes on to say, even when doctors assure us we're fine, we're still convinced. It's often accompanied by other psychological disorders such as clinical depression, OCD & other phobias[53] or anxiety disorders.

No one is sure what causes hypochondria. There are some schools of thought that link it to a specific trauma or a traumatic illness in one's life. I can't think of anything in my life that would qualify as such. But, my finger is hurting again, so I'm going to go and see if Zoanne has changed her mind about performing that amputation.

For more information about hypochondria please go to:

References

1: ablation. [æb'leiʃən]. *noun*. surgical removal, excision; reduction of the mass of a glacier through the melting and evaporation of snow and ice; burning away of a spacecraft's protective covering during atmospheric reentry. 切除.

2: adrenal. [ə'dri:nl]. *noun*. on or near the kidneys. 肾上腺.

3: altruistic. [æltru'istik]. *adj*. generous, unselfish, devoted to others. 利他的, 利他主义的.

4: amputate. ['æmpjuṭeit]. *vt*. cut off a limb; remove an organ. 截肢.

5: anesthetic. [ænis'θetik]. *noun*. substance which reduces sensitivity to pain (i.e. ether or halothane). 麻醉剂.

6: antibiotic. [æntibai'ɔtik]. *noun*. kills bacteria, working against infectious diseases. 抗生素.

7: aorta. [ei'ɔ:tə]. *noun*. main artery of the body. 主动脉.

8: autism. ['ɔ:tizəm]. *noun*. abnormal self-absorption, usually affecting children, characterized bylack of response to people and actions and limited ability to communicate. 【心理】孤独性; 孤独症[癖]; 自我中心主义.

9: bowel. ['bauəl]. *noun*. part of the intestine; pity, compassion. 肠.

10: cardiomyopathy. [kɑ:diəumai'ɔpəθi]. *noun*. heart disease (Medicine). 心肌病.

11: cavity. ['kævəti]. *noun*. an unfilled space within a mass especially : a hollowed-out space; an area of decay in a tooth. 洞; 腔; 空穴.

12: cerebral. ['seribrəl]. *adj*. a : of or relating to the brain or the intellect b : of, relating to, affecting, or being the cerebrum ; a : appealing to intellectual appreciation <cerebral drama> b : primarily intellectual in nature. 大脑的.

13: cognitive. ['kɔgnitiv]. *adj*. of, relating to, being, or involving conscious intellectual activity (as thinking, reasoning, or remembering); based on or capable of being reduced to empirical factual knowledge. 认识的; 有认识力的.

14: congenital. [kən'dʒenitəl]. *adj*. existing from birth, innate, inborn. 先天的.

15: convulsant. [kən'vʌlsənt]. *n adj*. producing convulsions. 惊厥剂,发厥药.引起痉挛的.

16: cortex. ['kɔ:teks]. *noun*. (Anatomy) outer layer or region (of the brain, etc.); outer layer of tissue (Botany). 皮层.

17: cud. [kʌd]. *noun*. food brought up into the mouth by a ruminating animal from its first stomach to be chewed again. 反刍的食物.

18: debride. [dei'bri:d]. *vt*. the usually surgical removal of lacerated, devitalized, or contaminated tissue. 清除.

19: defibrillator. [di'fibrileit, -'faibri-]. *noun*. an apparatus for stopping fibrillation of theheart by application of an electric current to the chest wall or directly to the heart. 除纤维颤动器.

20: derma. ['də:mə]. *noun*. beef or fowl intestine used as a casing for certaindishes, esp kishke. 真皮,(一般的)皮肤,烤牛香肠.

21: dermatology. [də:mə'tɔlədʒi]. *noun*. branch of medicine which deals with the study and treatment of skin and skin disorders. 皮肤病学.

22: diarrhea. [daiə'riə]. *noun*. abnormally frequent and fluid bowel movements. 痢疾,腹泻.

23: doe. [dəu]. *noun*. the female of the deer, hare, rabbit, and certain other animals. 母鹿, 母山羊, 羚羊, 雌兔.

24: epidermal. [epi'də:mə l]. *adj*. of or pertaining to the the epidermis, of or pertaining to the outermost layer of the skin. 表皮的,外皮的.

25: epidermis. [epi'də:mis]. *noun*. Also called: cuticle the thinprotective outer layer of the skin, composed of stratified epithelial tissue. 表皮.

26: esophagus. [i(:)'sɔfəgəs]. *noun*. tube connecting the mouth to the stomach (Anatomy). 食管.

27: ethic. ['eθik]. *noun*. a moral principle or set of moral values held by an individual or group. 道德规范,伦理.

28: fawn. [fɔ:n]. *noun*. 1 : to show affection — used especially of a dog 2 : to court favor by a cringing or flattering manner. 小鹿; 小山羊; 小动物(未满一岁者).

29: generosity. [dʒenə'rɔsiti]. *noun*. willingness and liberality in giving-away one's money, time, etc; magnanimity. 宽宏大量; 慷慨大方.

30: grave. [greiv]. *adj*. a placefor the burial of a corpse, esp beneath the ground and usually marked by a tombstone. 重大的; 严重的.

31: hood. [hud]. *noun*. covering worn over the head and neck; something which resembles such a covering; metal covering that leads to a vent that eliminates smoke or fumes (such as a hood over a stove); covering that covers the eyes and head of a hawk; movable part which covers the engine of an automobile; folding roof of a convertible car, folding roof of a carriage; (Zoology) mark or crest on the head of an animal; neighborhood (African American Slang); hoodlum, hooligan (Slang). 头巾; 兜帽; 车盖;车篷; 帽状物(烟囱帽,灯罩等) ; 头罩; (汽车的)引擎罩; (机)罩; 【建】帽盖, 出檐;【航海】天窗盖, 舱口盖;【动】羽冠; (雷达荧光屏的)遮光板; [美俚](=hoodlum)流氓, 地痞; 学位服(如学士, 硕士袍)上的后垂布(用以表示学位的高低) ; 马的遮眼; 水面上的一层泡沫; 盔状花瓣;外颚叶;整流罩;(机身)成形架.

32: hypertrophic. [haipə'trɔfik]. *adj*. of or pertaining to hypertrophy, affected by hypertrophy (abnormal enlargement of a part or organ; excessive growth). 肥大,肥厚.

33: hypothermia. [haipəu'θə:miə]. *noun*. an abnormallylow body temperature, as induced in the elderly by exposure to coldweather. 降低体温.

34: immanent. ['imənənt]. *adj*. existing, operating, or remaining within; inherent. 内在的.

35: inflammation. [inflə'meiʃən]. *noun*. the reaction of living tissue to injury orinfection, characterized by heat, redness, swelling, and pain. 红肿,炎症.

36: ingenuity. [indʒi'nju:iti]. *noun*. inventive talent; cleverness. 善发明的天才, 智巧, 独创性.

37: intestine. [in'testin]. *noun*. one of two canals in the lower abdomen in which food is digested. 肠.

38: intonation. [intə'neiʃən]. *noun*. the sound pattern of phrases and sentencesproduced by pitch variation in the voice. 语调, 声调.

39: intricate. ['intrikit]. *adj*. difficult to understand; obscure; complex; puzzling. 错综复杂的.

40: itchy. ['itʃi]. *adj*. having a tingling or itching sensation, affected with the need to scratch. 发痒.

41: lesions. ['li:ʒən]. *noun*. any structural change in a bodily part resulting frominjury or disease. 损害, 损伤.

42: lethal. ['li:θəl]. *adj*. fatal, deadly, causing death; very harmful, dangerous. 致命的.

43: lobe. [ləub]. *noun*. any rounded projection forming part of a larger structure. 耳垂.(器官的)叶; 肺叶, 脑叶.

44: malaise. [mæ'leiz]. *noun*. a feeling of unease or depression. 不适, 不舒服.

45: manifestation. [mænifes'teiʃən]. *noun*. the act of demonstrating; display. 表明, 表现形式.

46: membrane. ['membrein]. *noun*. any thin pliable sheet of material.(. 动物或植物体内的)薄膜, 隔膜.

47: metabolism. [mə'tæbəlizəm]. *noun*. the sum total of the chemical processes that occur inliving organisms, resulting in growth, production of energy, elimination of waste material, etc. 新陈代谢.

48: narcotics. [nɑ:'kɔtik]. *n adj*. any of a group of drugs, such as heroin, morphine, and pethidine, that produce numbness and stupor. They are used medicinally to relieve pain but are sometimes also taken for their pleasant effects; prolonged use may cause addiction. 麻醉药.麻醉的.

49: nasal. ['neizəl]. *adj*. of or relating to the nose. 鼻的, 护鼻的, 鼻声的.

50: necrolysis. [ne'krəusis]. *noun*. the localized death of living cells (as from infection or theinterruption of blood supply). 坏疽, 骨疽.

51: nuance. [nu:'ɑns/nju:'ɑ:ns]. *noun*. slight difference, subtle distinction, nicety. 细微差别.

52: paralysis. [pə'rælisis]. *noun*. palsy, condition in which one or more parts of the body become immobile (due to nerve or brain damage, etc.). 麻痹, 瘫痪, 停顿.

53: phobia. ['fəubjə]. *noun*. an abnormal intense and irrational fear of a given situation, organism, orobject. (. 病态的)恐惧, 憎恶.

54: pimple. ['pimpl]. *noun*. small inflamed spot on skin; pustule, small infection of the skin. 粉刺.

55: plight. [plait]. *noun*. misfortune, trouble; complication, entanglement. 境况.

56: rash. [ræʃ]. *noun*. any skineruption. 发疹, 疹子.

57: reap. [ri:p]. *vi vt*. to cut or harvest (a crop), esp corn, from (a field or tract of land). 收获.

58: regurgitate. [ri(:)'gə:dʒ iteit]. *vi*. draw back cud from the stomach into the mouth (in ruminant animals); vomit, throw up. 反胃; (婴儿)吐(奶);【动】反刍.

59: respiratory. [ris'paiərətəri]. *adj*. of, relating to, or affecting respiration or theorgans used in respiration. 呼吸的, 呼吸用的.

60: retrovirus. [retrəu'vaiərəs]. *noun*. any of several viruses whose genet-icspecification is encoded in RNA rather than DNA and that are able to reverse the normal flow ofgenetic information from DNA to RNA by transcribing RNA into DNA: many retroviruses are known tocause cancer in animals. 反转录病毒.

61: ruminant. ['ru:minənt]. *noun*. any artiodactyl mammal of the suborder Ruminantia,the members of which chew the cud and have a stomach of four compartments, one of which is therumen. The group includes deer, antelopes, cattle, sheep, and goats. 反刍动物.

62: saline. ['seilain]. *adj,n*. of, concerned with, consisting of, or containing common salt. 盐水.

63: sedative. ['sedətiv]. *noun*. drug which causes calmness and relaxation, drug that reduces tension and anxiety. 镇静剂; 能使安静的东西.

64: sinus. ['sainəs]. *noun*. (Anatomy) any of several hollow cavities or passages in the body; one of the hollow cavities in the skull that connects to the nasal passages. 窦, 湾, 穴.

65: siphon. ['saifən]. *vi*. convey liquid through a siphon, transfer a liquid from one container to another using a long tube and the force of atmospheric pressure; take money fraudulently from an association or

organized body and use it for something for which it was not designated (also syphon). 用虹吸管吸.外流, 消耗; 吮吸.

66: spinal. ['spainl]. *adj*. of or relating to the spine or the spinal cord. 脊髓的.

67: spleen. [spli:n]. *noun*. organ which is located near the stomach and which filters and stores blood and produces white blood cells and destroys old red blood cells; bad temper, peevishness, spite; melancholy (Archaic). 脾.

68: sulfa. ['sʌlfə]. *n adj*. similar in chemical structure to sulfanilamide; of or pertaining to a sulfa drug. 磺胺类.

69: therapeutic. [θerə'pju:tik]. *adj*. of or relating to the treatment of disease; curative. 治疗的, 治疗学的.

70: toxic. ['tɔksik]. *adj*. of, relating to, or caused by a toxin or poison;poisonous. 有毒的, 中毒的.

71: trauma. ['trɔ:mə]. *noun*. a powerful shock that may have long-lastingeffects. 损伤, 外伤.

72: vampire. ['væmpaiə]. *noun*. (in European folklore) a corpse that rises nightly from its grave todrink the blood of the living. 吸血鬼.

73: vena. ['vi:nə]. *noun*. vein. 静脉.

74: veterinary. ['vetərinəri]. *adj*. of or relating to veterinary medicine. 兽医(学)的.

75: wiggles. ['wigl]. *vi vt*. to move or cause to move with jerky movements, esp from side to side. 扭动, 摆动.