Utilization of the International Classification of Diseases as a Means to Reduce Drug Resistance and Drug Dispensing Error

Tag Words: “Drug Resistance” “ICD” “International Classification of Diseases”

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Summary

Resistance to antibiotics is due in part to the over prescription and misuse of antibiotics. Currently there are limited regulatory practices that would limit the over prescription of antibiotics. We discuss how the International Classification of Disease codes could be implemented that would allow for drugs to be double-checked by a pharmacist, or doctor of medicine, before being dispensed to a patient. This critical double check step would likely reduce inappropriate prescribing of antibiotics (and other drugs). A letter outlining the health issue and possible solution was submitted to state level government officials as well as sent to the Board of Drug Safety and Regulatory affairs at the FDA

Video Link: http://youtu.be/FS_Arbg2rM0

Resistance to Allopathic Antibiotic Use

In recent years there has been serious concern about the misuse and over-prescribing of medications such as antibiotics. A look at recent studies shows that medications are commonly improperly prescribed and this has resulted in a significant increase in the populations’ resistance to many medications. Over time the human body will build resistance to almost all medications, which is why it is important to only use medications when necessary and when the benefits outweigh the risks. Medication resistance is a very daunting problem in the United States. According to one study, some sexually transmitted diseases such as syphilis and gonorrhea are becoming increasingly difficult to treat due to the increase in resistance to the antibiotics currently used in the population in the United States.

Currently, not many methods are being explored in terms of how to combat this pressing issue. The most popular method currently being used to combat this calamity is drug discovery; discovering new antibiotics that will replace the old antibiotics. However, what happens here too, resistance to these new antibiotics eventually occurs. We have developed a “best practice” that would help prevent the improper prescribing of drugs. Some students, myself, and our professor, Dr. Fagan of the ethics department, here at Rutgers University, have been exploring options for combatting drug resistance in our country outside of just replacing the old drugs. While this method will not eliminate drug resistance in the population it will seriously hinder it.

We believe a double check is necessary to help prevent medications from being improperly prescribed. With the current doctor-pharmacist relationship in place there is
no way for a pharmacist to double check the validity of a prescription written by a doctor unless he or she was to call every doctor for every prescription they fill. However, we are proposing in a bill to our legislative officials that on every prescription sent to the pharmacy an International Classification of Disease code be included and mandated on the script so that a pharmacist may easily check the code and make sure that the medication being prescribed is appropriate for what the doctor says he or she is treating. This double check would significantly reduce the number of inappropriate prescribing that is done, which in turn will reduce the number of people taking medications they may not need and building resistance to those medications.

What Do Antibiotics Do? (JP)

Mankind has made leaps and bounds in the field of medicine over the last 100 years that has dramatically changed the course of human and pathogen evolution. The development of antibiotics and vaccines against microorganisms has led to healthier, longer lives for people in areas all over the world. Simply put, an antibiotic is a drug designed for the sole purpose of inhibiting growth, reproduction and killing microorganisms foreign to the body. When the body recognizes a foreign, ‘nonself’ organism, it reacts against it, triggering an immunological response. Sometimes the immune system is not strong enough or fails to recognize a pathogen and needs help fighting it off. A doctor diagnoses the symptoms and prescribes an appropriate antibiotic that will aid in eliminating the organism responsible. Depending on the level of infection, most patients will be back to full health going about their daily routine in no time.

An antibiotic can successfully kill off a majority of the microorganisms that make people sick. Unfortunately not all of them are killed because some possess a certain advantageous trait allowing them to survive. Bacteria are facultative parasites in that they can survive and reproduce outside of their host. The reproductive cycle of bacteria is extraordinarily fast, some capable of producing millions of genetic clones in just a 24-hour period. Antibiotics are a force of natural selection on infectious bacteria because when such a drug is used, the few bacteria that are genetically resistant to it (because of a trait they possess) survive and produce more offspring than the bacteria that were killed. We are left with genetically superior organisms capable of surviving an attack by the antibiotic that shaped their evolution. As time progresses, the genetically resistant organisms become more prevalent, making the antibiotic used to treat them useless. Genetic resistance has become a major concern amongst the major health organizations of the world.

Antibiotics Can be Harmful (JP)

Doctors are taught to prescribe antibiotics when they suspect medical conditions are due to an infection caused by a bacterial pathogen. Because many viral infections display similar symptoms to those caused by bacteria, doctors unnecessarily prescribe antibiotics. When a patient has a viral infection, antibiotics do nothing to help eliminate it from the body. A virus is not a living, reproducing organism like bacteria. It is simply DNA or
RNA that is injected into a living cell, where it duplicates and passes from one cell to another. Only time and a healthy immune system can rid the body of a virus.

When an antibiotic is introduced into the body, it helps the immune system in the short term. The immune system does not get any stronger in the presence of an antibiotic. It simply replaces a function that already exists naturally: killing harmful bacteria. In the long term, the antibiotic suppresses the immune system because it no longer has to execute the normal functions it was designed to do. The body is being provided aid before it can fully evoke a complete natural counter. The adaptive response is suppressed and not used as often as it should be. It functions just like an organ or muscle in that if it is not put to use, it atrophies. The saying, “if you don’t use it, you lose it” is especially true in this regard. Your body becomes more susceptible to disease and infection in the future because it now relies too heavily on drugs and medicines to complete an immunological response.

Antibiotics, and in particular the abuse of antibiotics, can lead to super strains of bacteria that a normal, healthy immune system is unprepared to fight. Throughout biological history, infectious bacteria and the human immune system evolved with each other. If a particular strain of bacteria slowly got stronger, so did the immune system. The introduction of antibiotics has disrupted the harmonious coevolution of pathogens and the human immune system. Infectious bacteria are evolving at a much faster rate than the human immune system because we are forcibly introducing artificial natural selection upon them. The human immune system is a collection of mechanisms that work together to create a disease fighting system stronger and more powerful than any drug or medicine. Our modern medicine is shifting the power dramatically in favor of infection and disease.

**The System (MM)**

A system of checks and balances can keep one entity from gaining complete power over others. This is a system that needs to be implemented into the field of medicine. Let’s take the FDA, Doctors, and the Pharmaceutical Companies and place each into one of the branches of Government. First, we will place the FDA into the judicial branch of Government. The FDA is responsible for “protecting and promoting public health through the regulation and supervision of…prescriptions and over-the-counter pharmaceutical drugs.” This is essentially what the judicial branch does. It determines how laws should be interpreted. In the case of the FDA, they determine which drugs are approved and the appropriate uses for them.

Secondly, we can equate the Pharmaceutical Companies role to that of Congress. Pharmaceutical companies have the sole power to distribute prescription and over-the-counter drugs as well as the ability to promote certain drugs more often than others. These “powers” are similar to Congress’ ability to pass bills and their sole power to regulate the military.
Finally, we have doctors as a whole in the Executive branch. Doctors are the face of this “Government”. Much like we see Barack Obama when we think of our Government, doctors are the face of medicine. Doctors prescribe drugs that are created by pharmaceutical companies, have the ability to make their own decisions regarding which drug should be prescribed, and can refuse to use certain drugs from the pharmaceutical companies. Most of what doctors do in medicine equates to what the Executive branch does in Government. The President executes the instructions of Congress (Pharmaceutical Companies), makes executive decisions that do not require ratification, and can veto bills passed by congress. As we can see, there is a way to keep all three “branches” of the medical “government” from being in complete control.

**Why We Need A System of Checks and Balances (MM)**

The FDA regulates and supervises the drugs that Pharmaceutical companies produce. These companies then promote and distribute these drugs to doctors and pharmacies. Finally, doctors prescribe these drugs to patients. For the most part, this system has worked well, but there have been some practices that have abused the system.

In a recent lawsuit, the Pharmaceutical giant, Pfizer, was forced to pay a record 2.3 billion dollars. The lawsuit was filed against the corporation because of promotion “of off-label uses for its drugs and for ‘certain payments to healthcare providers’”\(^6\). What this means is that sales representatives for Pfizer were promoting uses for drugs that were not FDA approved and providing doctors with resort trips and other financial benefits to encourage them to prescribe these drugs. One of the drugs that Pfizer was marketing illegally was Bextra, a painkiller.

> “Bextra was approved in 2001 by the Food and Drug Administration to treat arthritis and menstrual cramps. The drug was not approved for the treatment of acute pain, nor was it shown to be any more powerful than ibuprofen. But Pfizer instructed its sales representatives to tell doctors that the drug could be used to treat acute and surgical pain and at doses well above those approved, even though the drug’s dangers — which included kidney, skin and heart risks — increased with the dose, the government charged.”\(^7\)

Of the 2.3 billion that Pfizer had to pay, 1.3 billion of it was for Bextra alone. The other 1 billion dollars was paid in civil fines of which $48 million was paid for kickbacks provided to doctors.

Pfizer had to pay out $6 million in a previous lawsuit regarding the sales of Zithromax, an antibiotic. Zithromax, also called a Z-Pak, gained popularity because of its use to treat ear infections in small children. Pfizer marketed the drug as being “a better antibiotic for children suffering from ear infections because the treatment period was significantly shorter than other common antibiotics on the market.”\(^9\) The reason why this lawsuit was filed was because Pfizer left out many details regarding why the drug was better than most antibiotics. They left out the fact that doctors determine a number of factors
regarding the illness and treatment required before prescribing a drug and that "antibiotic resistance is a consideration that may affect your Doctor's choice of treatment for your child's ear infection." Pfizer ended up having to pay $2 million dollars to fund public service announcements and $4 million in total costs. “The whole culture of Pfizer is driven by sales, and if you didn’t sell drugs illegally, you were not seen as a team player,” John Kopchinski, a former Pfizer sales representative.

Pfizer currently holds the record for one of the largest sums of money paid in a lawsuit by a pharmaceutical company, but it is not the only one that has been filed against. In 2010, Allergan, the maker of Botox, pleaded guilty to charges regarding the misbranding of its product. They allegedly awarded their “top injectors” by paying them $1,500 to listen to presentations about the product in an oceanfront resort in California. Forest Laboratories paid doctors $1,000 each to allow employees of the company to observe them. However, instead of observing, the sales reps were actually inducing the doctors to “prescribe Cefalex and Lexapro.” The company paid $313 million in fines. And finally, Cephalon was accused of paying not only good speakers, but poor speakers that “heavily prescribed its narcotic lollipop Actiq and other drugs.” Some doctors were even paid if no one showed up to hear them speak. “Even good public speakers have been dropped by Cephalon,” the lawsuit said, “if experience later showed that they did not themselves write substantial off-label prescriptions.” Cephalon went on to pay $425 million in fines. A system like requiring the ICD label on drug prescriptions would limit the capability for companies like those previously listed to provide doctors with kickbacks.

The Problem with Fighting Drug Resistance (JB)

With drug resistance, if the exact mechanism of resistance is not known, then a counter for the mechanism cannot be formed. While the general concepts regarding this mechanism are known, the human body is very specific, and attempting to make a general counter to this general mechanism will prove futile in efforts due to the specificity required for the action to take effect. Currently, research is being conducted to determine the exact mechanism of drug resistance pathways in the human body and how these pathways can be turned off. However, the vast amount of drugs and pathways that exist is a problem in itself.

Every drug and/or class of drugs has a mechanism and pathway that are specific to it. Finding every mechanism and pathway for drug resistance in the body itself is a tedious time consuming task and finding ways to combat these mechanism is equally as time consuming and tedious. Unfortunately, with drug resistance, there is no time to wait to find each and every mechanism and a solution to the mechanism presented. The most popular way to combat drug resistance currently is to create a new antibiotic to which no organisms have resistance built up.

Although it seems as though it would be a lot more difficult to discover new antibiotics, it is faster than trying to discover all the pathways and overcome them. This is because most times new antibiotics are simply old antibiotics that have had one or two changes in the chemical structure to allow it to function in a new way which would allow it to attack
the bacteria in a new way that the bacteria has not encountered. However, over time, the cycle repeats and again the bacteria will also build up resistance to this antibiotic. This results in a new antibiotic having to be found. Over time, of course, it will become increasingly difficult to manipulate old antibiotics into new ones and to discover new antibiotics. It has reached a point where there are actually a few very difficult to treat, almost incurable strains of certain bacteria and this is due to the resistance that the bacteria has built up as it was exposed to each drug compound. So while temporarily effective, new drug discovery is a temporary fix to a permanent problem. Antibiotics are necessary in this world in order to combat diseases so they cannot be taken out of the general population. However, right now the focus is on attempting to contain and limit the increase of resistance acquisition by bacteria.

Methods Used to Limit Drug Resistance Acquisition (JB)

Alternative therapies for bacterial infections are used such as natural remedies or holistic medicine. However, this method has not been nearly as effective in ridding the body of the bacterial infection in a timely manner. Holistic medicine is usually almost ineffective and typically works best in a younger population who have a healthy developed immune system. This does not describe the majority of the population however. Usage of holistic medicine typically fails and requires that the patients go to a doctor and obtain antibiotics anyway and at that point the infection has usually worsened, which results in a longer treatment time and a greater opportunity for antibiotic resistance to build up.

Another method used is to inform consumers of the problem and how they can help to combat it. There have been many public service announcements regarding the importance of taking your medication as prescribed to prevent adverse effects as well as there have been some regulatory measures taken. For example it is now required that pharmacies when dispensing medications affix warning labels to medications bottles advising when it is imperative that the medication be completed. This action has allowed for consumer awareness of the issue and how they can take action against it. However, it is not always known to the consumer the importance of the directions they are given.

Involving Pharmacists in Limiting the Over Prescription of Antibiotics (JB)

More can be done to combat drug resistance. As of right now there is very little regulation for what a doctor can prescribe. Currently, the only limitation on what a doctor can prescribe is that the doctor must prescribe medications within their scope of expertise (meaning that a dentist should not be prescribing heart medication nor should an OB-GYN be prescribing cholesterol medication). However, this does not prevent doctors from inappropriately prescribing antibiotics to patients. A pharmacist, who has been trained to recognize which/and how medications should be used, can provide the last “check” in a needed system of checks and balances. This is also the last healthcare professional that the consumer sees before beginning usage of any medication prescribed by a doctor that is not available over the counter. However, currently this system of checks and balances fails because there is no way for a pharmacist to know why a medication is being prescribed to an individual. If a pharmacist is able to determine why
a medication is being prescribed then they, being experts in the field of medications, would be able to know if the medication being prescribed was appropriate and would now be able to advise the prescribing doctor of an appropriate alternative if there is one.

In 1893, a French physician named Jacques Bertillon created and introduced his classification system called the Bertillon Classification of Causes of Death. His system was used to differentiate between general diseases and those located in specific areas in the human body. Throughout the 20th Century this classification was updated and adopted by more countries such as the United States, Canada, and Mexico in addition to the European nations already using it. To date there have been 10 versions of the International Classification of Diseases released to the public with the ICD-11 revision planning to be done in 2015. The ICD is a world wide standard tabular list of disease codes that are commonly used for morbidity data and reimbursement in healthcare. The codes indicate and classify diseases by similarities. The codes are up to six characters long. It is currently being used by the United Nations World Health Organization for the purpose of numerically categorizing diseases, which is used on death certificates to place the reason of death, along with in healthcare institutions as a short hand ailment. It is also currently used in the healthcare reimbursement system, or insurance companies, as a determination for medication coverage.

The ICD, if used in conjunction with the requirement of having a written order for medication, could be used to indicate on a prescription in short hand what the medication is being used for. This would enable a pharmacist to be able to quickly look up why the doctor is prescribing a certain medication and then using the pharmacists expertise, determine whether the medication is appropriate or not. This would reduce antibiotic resistance because the double check of the prescribing of antibiotics would significantly cut down on the amount of people taking antibiotics that they don’t need and exposing the antibiotics to different microorganisms and developing the resistance. The usage of the codes will allow both doctors and pharmacists to double check whether appropriate medication has been prescribed. This will also help prevent any inappropriate prescribing due to kickbacks because the pharmacist will be able to detect if the medication was wrongly prescribed and will be able to inform the patient and doctor of the mistake that was made which will cause the doctor to reconsider the prescription.

**Community Action:** Informing health organizations and senators our idea for using the ICD-9-CM (and future revisions) disease codes a federal requirement of a prescription for a controlled substance. (JP)

The current ICD system being used is the 9th revision. There are different versions of the ICD made available to the public and medical field. The ICD-9-CM is the clinical modification of the ICD-9, and is used primarily to code and classify morbidity data from inpatient and outpatient records in hospitals of the United States. The National Center for Health Statistics (NCHS) and the Centers for Medicare and Medicaid Services are the government agencies responsible for all changes and modifications made to the clinical modification. This version of the ICD contains disease codes for diagnosing patients as well as procedures being done on patients in hospitals. Because hospitals can be
extremely chaotic at times, the ICD-9-CM code helps keep hospital staff informed and aware of a patient’s illness and needs. It’s an effective preventative measure that can be used outside of hospitals to fight the ever-growing problem of antibiotic resistance.

Current Federal law 21 CFR 1306.05[a] states a prescription for a controlled substance must have the following: date of issue, patient’s name and address, practitioner’s name, address and DEA registration number, drug name, drug strength, form of dosage, quantity prescribed, directions for use, number of refills authorized (if any), and the manual signature of the prescriber.

Doctors strictly follow these rules when writing a prescription and the pharmacists check to make sure all requirements are met. Because no one really checks to make sure a doctor is properly prescribing an antibiotic, inappropriate, and sometimes unnecessary antibiotics are prescribed to patients. The pharmacist knows what the designated antibiotic is supposed to treat however they are unaware of the patient’s medical condition. Without knowing the prescribed purpose of the antibiotic, the pharmacist cannot check and confirm that it will be used appropriately. If however, the ICD-9-CM disease code were to be written on a patient’s prescription, a pharmacist could now check the appropriateness of the drug.

Pharmacists are especially trained in the field of medication and have knowledge and understanding of antibiotics and how they should be used. Pharmacists could potentially catch unnecessary and improper prescriptions. Many antibiotics are broad-spectrum, meaning they act on many families of bacteria. The use of narrow-spectrum drugs and the avoidance of broad-spectrum ones need to be done in order to limit the overexposure of bacteria. Pharmacists will be able to use the ICD-9-CM code to suggest antibiotics of a narrower-spectrum for treatment. We need doctors of medicine and doctors of pharmacy to work together to better treat a patient and prevent future unnecessary resistance.

A proposed Rx Validation Bill may read as follows: (JP)

We propose that current Federal law 21 CFR 1306.05[a] be amended, or a new bill written and acted on that would require the ICD number to be included on all prescriptions.

Preamble: Whereas genetic resistance to antibiotics in infectious bacteria is a global problem consisting of numerous elements, and overexposure due to broad-spectrum antibiotics and unnecessary prescriptions is a major concern, and since doctors of medicine diagnose and prescribe medications to patients without having to consult with doctors of pharmacy who specialize in the field of medication, and federal law 21 CFR 1306.05[a] states a prescription for a controlled substance must include the date of issue, the patient’s name and address, the practitioner’s name, address, and DEA registration number, the drug name, the drug strength, the form of dosage, the quantity prescribed, directions for use, the number of refills (if any) authorized, and a manual signature of the prescriber, but not the disease causing the illness, and since the International
Classification of Diseases 10 Clinical Modification (ICD-10-CM) is the official system for assigning codes to diagnoses and procedures associated with hospital utilization in the United States and is compiled and regulated by the National Center for Health Statistics (NCHS) and Centers for Medicare and Medicaid Services government agencies.

SECTION 1: Let the definition of ICD-10-CM be any form, whether electronic or physical, of the database of numerical codes that catalogue diseases and disease state internationally.

SECTION 2: Let the ICD-10-CM (and all future revised versions i.e. ICD-11-CM etc.) disease state code be a federal requirement of a prescription for a controlled substance in addition to the requirements stated under federal law 21 CFR 1306.05[a].

SECTION 3: This act may be cited as, “RX Validation Bill.”

SECTION 4: This bill shall go into effect after the official release of the ICD-10 on October 1, 2014, validating all ICD-10-CM codes.

Letter to Inform Health Organizations of our Solution (JP)

Besides proposing that Congress enact legislation, we felt it was necessary to inform the major health organizations of the world about our solution to the problem of antibiotic resistance. Below is a list of the health organizations and senators we reached out to followed by our letter.

1. The World Health Organization (WHO)
2. The Center for Disease Control and Prevention (CDC)
3. The Drug Enforcement Agency (DEA)
4. The Food and Drug Administration (FDA)
5. The National Center for Health Statistics (NCHS)
6. The Centers for Medicare and Medicaid Services
7. The Alliance for the Prudent Use of Antibiotics (APUA)
8. Frank R. Lautenberg, NJ State Senator
9. Robert Menendez, NJ State Senator

To Whom It May Concern:

We are writing this letter to request that you consider supporting legislation that will combat the growing ineffectiveness of allopathic antibiotic use due to resistant bacteria. We are faced with a global crisis where bacteria are rapidly becoming resistant to the antibiotics we use to kill them. Resistance is increasing at a rate that is too fast for our drugs to keep up with. Antibiotics have been around for a mere three human generations and we are already facing strains of bacteria completely resistant to all available drugs. Even if we do develop more powerful and effective antibiotics in the near future,
eventually bacteria will more than likely become resistant. With proper legislation and regulatory measures, we can effectively monitor and control the rate at which bacterial organisms become resistant.

Doctors are faced with little to no regulations regarding the antibiotics they prescribe other than remaining within their scope of medicine. Without a system of checks and balances, doctors are free to prescribe medications as they see fit. Doctors do not work with pharmacists, who specialize in the field of medication, when determining a course of treatment for a patient. Although improper prescriptions are a small aspect of resistance, it is a part of the problem nonetheless and it will continue to contribute to it.

A way to limit and potentially cease improper prescriptions can be done by letting the pharmacist know what disease the medication is being used for. Federal law 21 CFR 1306.05[a] provides the manner in which a prescription for a controlled substance must be written. It requires information such as the drug’s name, strength, form of dosage and directions on how to use it. A pharmacist uses this information to properly dispense the medication, and is usually the last person a patient sees before beginning their antibiotic treatment. A pharmacist should be able to check and confirm the prescribed antibiotic is the best and most appropriate form of treatment available before they dispense it.

The International Classification of Diseases (ICD) is a worldwide standard tabular list of disease codes used by the World Health Organization primarily to code and classify morbidity from death certificates. The WHO currently uses the 9th revision of the ICD, the ICD-9, to code and classify morbidity, with the ICD-10 to replace it on October 1, 2014. There is a clinical modification of the ICD-9, the ICD-9-CM that is used in hospitals around the United States primarily to code inpatient and outpatient morbidity. This version of the ICD contains codes for diagnostic purposes and medical procedures, giving hospital personnel necessary and vital information regarding an individual’s health.

By making the ICD-9-CM disease code, and future revisions, a requirement of a prescription for a controlled substance under federal law 21 CFR 1306.05[a], a pharmacist will now be provided important information necessary to make sure the best medication is being prescribed. This legislation will allow doctors of pharmacy to better work with doctors of medicine, and greatly reduce the number of improperly prescribed medications.

This is a relatively simple solution to a major problem. This is a fiscally responsible proposal that uses a resource already made available to us. Resistance will never be stopped; but it can be managed and maintained better. Our future generations and the future of modern medicine depend on the decisions we make today. We have a small window of opportunity, and the time to act is now. Together with your support, we will be able to take an intelligent step forward against drug resistance.

Please feel free to contact us anytime and provide feedback. We would love to know what you think!
With anticipation,

Joseph Palazzola
Jonelle Benjamin
Mike McGee
Julie M. Fagan, Ph.D, fagan@rci.rutgers.edu

References:


http://www.topclassactions.com/lawsuit-settlements/prescription/3520-pfizer-agrees-to-6m-zithromax-settlement-over-deceptive-ads
Letter to the Editor (JP)

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Dear Editor of the Bergen Record,

I am a senior at Rutgers University and I would like to address an issue that is very important to me and propose a solution that will help alleviate parts of this problem on a global scale. I would like to share a plan that will slow down the escalating problem of genetic resistance to antibiotics in infectious bacteria. Every year we see stories on the news and in the papers about a new “superbug” infecting its way through the public. We are told to be wary and practice proper hygienic techniques to ensure we do not contract whatever infection is going around. The problem with this is that people are ultimately unaware of how, why, and where this “superbug” came from. The reality of the situation is that we, and the antibiotics we use to kill bacteria, create these new and powerful strains of bacteria. Due to a lack of knowledge and the widespread use of antibiotics, we are presently faced with a worldwide problem that will only get worse with time.

Doctors prescribe antibiotics to patients when they believe symptoms are due to a bacterial infection rather than a viral one. Unfortunately we live in a world where caution presides over certainty leading to unnecessary and improper prescriptions. Most antibiotics actively combat and kill numerous strains of bacteria. When improperly prescribed, you expose bacteria to the drug and facilitate the breeding of genetically resistant organisms. Overexposure due to off-base prescriptions is one of the leading problems creating resistance and must be dealt with swiftly and practically.

Doctors are faced with little to no regulations regarding the antibiotics they prescribe other than remaining within their scope of medicine. The International Classification of Diseases (ICD) is a world wide standard tabular list of disease codes that is used by the United Nations World Health Organization, and is made available to the public. Each disease has its own designated code making it easy to identify and classify. This index is the standard used around the world making it practical and extremely effective for classifying disease. Fellow students, professor Fagan, and myself believe the ICD index should be used in conjunction with written prescriptions to regulate what doctors are prescribing and limit bacterial exposure.
Pharmacists are doctors of pharmacy and experts in the specialized field of medication. With the ICD index code written on a prescription, the pharmacist will know why a certain drug is being prescribed and whether or not it is being used appropriately. Unnecessary and off-base prescriptions will be more easily prevented leading to decreased bacterial exposure and a healthier public. Together, a doctor of medicine and a doctor of pharmacy can work together to make sure you are being treated with the most capable drug.

The goal here is to slow down the rapid evolution of bacteria. We live in a world where antibiotics are now a necessity. Resistance is a global problem and the ICD index is accepted and used by countries all over the world. Implementing the use of the ICD index in conjunction with written prescriptions will slow down the development of resistance and shift the power from infection back towards antibiotics.

For more information about the ICD and its uses, log onto: http://www.who.int/classifications/icd/en/

Please consider publishing my letter above (as well as the attached document). A lack of knowledge about the issue is in my opinion the primary cause of the pandemic at hand. This letter is a welcomed addition to your Sunday edition of the paper!

Regards,

Joe Palazzola
Currently, not many methods are being explored in terms of how to combat this pressing issue. The most popular method currently being used to combat this calamity is drug discovery. People are working very hard to discover new antibiotics that will replace the old antibiotics. However, what happens when the population begins to resist these new antibiotics also? Some students, myself, and our professor, Dr. Fagan of the ethics department, here at Rutgers University, have been exploring options for combatting drug resistance in our country outside of just replacing the old drugs. While this method will not eliminate drug resistance in the population it will seriously hinder it.

We believe a double check is necessary to help prevent medications from being improperly prescribed. With the current doctor-pharmacist relationship in place there is no way for a pharmacist to double check the validity of a prescription written by a doctor unless he or she was to call every doctor for every prescription they fill. However, we are proposing in a bill to our legislative officials that on every prescription sent to the pharmacy an International Classification of Disease code be included and mandated on the script so that a pharmacist may easily check the code and make sure that the medication being prescribed is appropriate for what the doctor says he or she is treating. This double check would significantly reduce the number of inappropriate prescribing that is done, which in turn will reduce the number of people taking medications they may not need and building resistance to those medications.

Thank you for your time. I hope that this letter has been an informative and insightful and that you and the readers benefit from the knowledge and will support our endeavor with the creation of this law.

Sincerely,

Jonelle Benjamin, CPht

**Letter to the Editor (MM)**

Dear Editor of the Washington Post,

Please consider publishing our letter to the editor below

I am currently a senior studying Sport Management at Rutgers University, New Brunswick. I am taking an ethics in science class with Dr. Julie Fagan where we are given the opportunity to come up with a solution to a problem of our choice. I am concerned with drug resistance and the illegal marketing of drugs by pharmaceutical companies.

In 2009, pharmaceutical giant Pfizer agreed to pay a record $2.3 billion dollars due to illegal promotion of its products. One product, Bextra, was marketed for doses and uses that the FDA did not approve because it was unsafe. Now how do you market a drug for uses and doses that aren’t approved by the FDA? You provide doctors with kickbacks in
return for them prescribing the drug for those uses. That is exactly what Pfizer, and a number of other companies, did.

A possible solution to this crisis may be enacting legislature to require doctors to put an ICD label on all prescriptions. The ICD is the International Classification of Diseases. It is a tool used by physicians to look up exactly what the drug is being prescribed for and why. This labeling system is not required right now, which allows doctors to just write off a prescription without anyone really taking notice. The system we want to be implemented will require doctors to apply the ICD label on all prescriptions. This allows the pharmacist to look up why the patient is receiving this drug and if it is the necessary drug for that reason.

As part of coming up with a solution, we are currently working on proposing this solution to a number of legislators. We hope that they will see the importance of this situation and will act on it. It is our goal to get legislature passed to prevent companies like Pfizer and the doctors who receive kickbacks from taking advantage of patients again.

Thank you,
Michael McGee