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Village Medicine

[By popular demand, I am running this entire essay in its entirety.]

I am a family physician in Canada with an interest in what the future of medicine in Western societies might look like. I don’t subscribe to the mainstream narrative of ever more technically exotic and complex medicine, such as nanosurgery, individualized genetic medicine and growing replacement body parts in the lab. I think it is more likely that as we move past peak energy production to a world in which energy and resources are scarcer, society will de-complexify and medicine will follow the same overall trajectory.

I chose the title of this essay with some care. Initially I was going to call it “post-collapse medicine” but that brings to mind images of biker gangs roaming a post-nuclear wasteland and that wasn’t really the tone I wanted to set. Then I thought about “kitchen table medicine,” but this essay goes into the subject in rather more depth than that. So finally I settled on “village medicine” because I wanted to describe how a village healer in a post-collapse community of a few hundred people, with some basic knowledge and simple tools, might make a positive difference to health, illness and suffering in that community.

Health warning: you should seek the best available medical care at all times. This means that, generally speaking, where allopathic (conventional) medicine is available, you should use it. The tools and techniques described in this essay are only to be used in scenarios where conventional Western medicine is unavailable.

I can’t cover the whole of village medicine in this short chapter, so I’m going to refer to a some texts which are freely available for download from the Internet, and comment on the following areas which are likely to be particularly important or useful:

•Keeping healthy

 •Stockpiling medications

 •Insulin-dependent diabetics

 •Immunization

 •Psychological medicine

 •Herbal medicines (legal and illegal)

 •Surgery

 •Making difficult choices

Keeping healthy

The way many Westerners believe they can keep healthy is by visiting their physician once a year for an annual physical, during which the physician examines them from head to toe, orders for bloodwork and other tests, prescribes medication to keep them healthy and generally tunes them up like a car engine. This model of healthcare is promoted by medical boards and colleges, medical associations, guideline writers, medical advocacy groups such as diabetes associations and pharmaceutical companies. But it is very expensive and inefficient, and of questionable value in keeping people healthy. From my personal observations as a family physician, the patients who show up at my office regularly tend to be the least healthy, while the patients who remain healthy well into their 80s and 90s are seen rarely, if at all, and are usually on minimal or no medication.

The main problem with the “doctor knows best” narrative is that it places the responsibility for staying healthy on the physician rather than the patient. This type of health care is a luxury we can barely afford even in today’s affluent, technologically advanced society, and it will not be available in a post-peak village community. Maintaining your health in the future will probably come down to just this:

Look in the mirror. Are you obese? Are you undernourished? Do you smoke? Do you drink to excess? Do you engage in risky behavior?

People know these things for themselves without needing a physician or expensive tests to tell them. Nor should they need expert help in providing themselves with clean drinking water, sanitary human waste disposal, adequate shelter and warmth, and in avoiding preventable accidents (for example, gun, fire/stove and horse/animal safety). These are probably all the preventive health care arrangements which are will be needed and, coincidentally, the only ones likely to be available.

There are numerous books available on keeping healthy—so many that it is impossible to list them all—but most of what they have to say is common sense. Eat fresh food, not too much, mostly vegetables, take regular physical exercise and don't spend too much time worrying about your health.

Stockpiling medications

Like beans, rice and ammunition, it makes sense to stockpile important medications during good times for use during bad times. This section is intended to give you some guidance on shelf lives of medications and on what you can stockpile and what you can't.

Most medications have an expiration date stamped on them. The first and most important thing to understand is that this expiration date bears little if any relationship to the length of the medication's effectiveness. It has more to do with limiting the manufacturer's liability and with maintaining stock turnover and profits by unnecessarily replacing older medications with newer ones. I am going to explain expiration dates in more detail below, but here are some important general principles:

Dry solid medications in pill, capsule or powder form have a very long life if stored in a cool, dark, dry place (like rice and beans). Many of them will outlive you.

 Wet medications (solutions or suspensions) decay much more rapidly, and in this case the manufacturer's expiration date really is a useful guide.

 If you need to store children's medications which are usually in syrup or suspension form, ask the pharmacist to give you the dry powder and say that you will add the water yourself (normally, the pharmacist adds the water just before dispensing).

 Old medications do not decay into something dangerous: they just decay into something less effective.

 For several reasons, there is little point in diabetics trying to store insulin.

These are the basics. Here are the details:

The Shelf Life Extension Program (SLEP) is a secretive US Government program which was set up to conduct research into whether pharmaceuticals which have passed their expiration date are safe and/or effective to use. Conspiracy theories aside, here is an example of an actual, non-theoretical conspiracy by certain self-interested parties to keep important information from the general public. The secrecy surrounding this program is illustrated by the following notice about SLEP which is posted on the US Army Medical Department website:

As a reminder, all testing and extension data provided to the Shelf Life Extension Program (SLEP) by the Food and Drug Administration is considered For Official Use Only and cannot be shared with anyone outside the user's organization. SLEP Administrators have fielded several calls recently from individuals wanting to share this information with local, civilian counterparts. That is not permissible, as it is not only a violation of the terms agreed to by the FDA but also a violation of the Memorandum of Agreement each participant organization signs prior to entering the SLEP program. SLEP website accounts of violators will immediately be terminated and inventories may be eliminated from the program, pending notification of the parent organization. Additionally, non-SLEP organizations that use SLEP information are in violation of Federal law that governs misbranded pharmaceuticals. Questions on this topic may be addressed to SLEP Administrators through the website.

 SLEP Admin

When I discovered this I became curious about it. Why would the government apply such draconian penalties to disseminating what appears to be harmless information? After all, national defence and security are not threatened, government revenue is not affected, and if the research shows that certain pharmaceuticals are safe past their official expiration dates, why should this information not be allowed to enter the public domain? So I did a little reading around it and came up with the following explanation, which is part evidence and part hypothesis.

In 1985 the US government became concerned about the cost of replacing expired pharmaceuticals which had been stockpiled for civilian emergency and/or military purposes. The replacement costs in 1986 totalled $2.5 million (a large sum of money 26 years ago). Discussions took place as to how these costs might be reduced, and one suggestion was to test the products to see if they were still safe and effective to use, and if they were, to keep them instead of replacing them. Accordingly, in 1985-1986 the SLEP program was born.

However, savings and loss of profits are opposite sides of the same coin. The government was happy to save $2.5 million, but the pharmaceutical industry was no doubt unhappy to be losing the same amount in sales. The government needed the cooperation of the pharmaceutical industry to conduct the testing on the expired pharmaceuticals, and the pharmaceutical industry needed the cooperation of the government to ensure that the resulting information was restricted to as few organizations as possible, preferably only the medical procurement part of military. The last thing the pharmaceutical industry wanted was for the information to be released to, for example, civilian hospitals and pharmacies, and for them not to replace their pharmaceutical stockpiles, because not throwing away perfectly good medications would hurt their profits.

Almost certainly, there then followed several weeks or months of backroom horse-trading and saber-rattling between the government and the pharmaceutical industry, until the following deal was hammered out. The pharmaceutical industry would cooperate with the SLEP program provided the data was restricted to pharmaceutical companies and government departments. The government would enforce the restrictions by making it an offence under Federal law to disclose SLEP data to any unauthorized organization. That is the situation as it exists today.

Currently, the SLEP data exists as a database which is continually updated as new information becomes available. Access is restricted as per above, but occasionally small amounts of it leak out in the form of research papers published in scientific journals. Overall, the available evidence suggests, as stated at the start of this chapter, that most solid pharmaceuticals (capsules and tablets) are safe and effective to use long after their official expiration date provided they have been stored in cool, dark and dry conditions. The same cannot necessarily be said of liquids or of pharmaceuticals which have been stored in sub-optimal conditions. The maximum length of time for which pharmaceuticals can be kept is uncertain, but I understand that some pharmaceuticals which have been kept from the start of the SLEP program in 1986 may still be effective.

In terms of SLEP access restrictions, I have not heard of Federal law being used to enforce them, and think that it is unlikely to be used except in case of very gross violations. The US Government doesn’t really care who has access to the SLEP data, and the pharmaceutical companies probably don’t really care either as long as it doesn’t hurt their profits.

Insulin-dependent diabetics

This brings me to the special case of insulin, which Type 1 (insulin-dependent) diabetics need in order to stay alive. Without it, they will slip into a coma and die within days or weeks. Insulin, like vaccines (see below), can only be manufactured in a specialized laboratory backed by the resources of a complex technological society. If the complex technological society goes away, so will the insulin.

Should diabetics therefore stockpile insulin in the event of a societal collapse? There are several problems with this. First, the vast majority of insulin is sold in liquid form. Liquids, as explained above, decay relatively quickly even under optimal storage conditions. Second, it has to be kept refrigerated. In the refrigerator, a bottle of insulin may last for up to 18 months depending on its expiration date; at room temperature it will decay much more quickly. Third, there are practical limits to the amount of insulin that can be stockpiled. Even if it were possible to store insulin for long periods (see below) it would not be practical to accumulate and store a lifetime's worth of insulin. If you are a 20-year-old Type 1 diabetic you might need enough insulin to keep you alive for the next 60 years.

It is possible to get insulin in dry form, although I have never encountered it in my medical practice. It is used as a reagent in some laboratory processes and can be used by diabetics as a dry powder inhaler as an alternative to insulin injections. If you find a way to obtain it, it might be possible to store it for longer periods in dry powder form than in the more usual aqueous solution or suspension form. However, this still would not overcome the other difficulties mentioned above.

Regrettably, therefore, I have come to the conclusion that it not worthwhile for insulin dependent diabetics to attempt to prepare for a societal collapse. It is prudent to have extra insulin in stock for short term emergencies such as floods, hurricanes, fuel shortages, heavy snowfalls or localized civil disorder, when you might be cut off from your normal sources of supply for a few days or weeks. But long term, we have to accept that in a societal collapse, not everyone can be saved, and the default position for most of humanity's existence has been that Type 1 diabetics do not survive.

Immunization

Every schoolchild knows how immunization started, but in case you’ve forgotten I’ll remind you. In the 1790s in England, Edward Jenner observed that milkmaids often caught cowpox from the cows they milked, but rarely caught smallpox. Working on the theory that catching cowpox protected against smallpox, he inoculated many patients with the cowpox virus with good results. The two viruses are similar, so once the body has come into contact with the cowpox virus, it produces antibodies which are also effective against the smallpox virus. Cowpox is a mild disease, while smallpox is a much more serious disease with a high fatality rate, so it is worth while catching cowpox in order to be protected against smallpox. Inoculation with cowpox was simple: Jenner just took pus from cowpox blisters and scraped them onto the skin of uninfected patients.

Fast forward to the 21st century. Here is how a modern vaccine like the polio vaccine is made. Three wild virulent strains of polio are grown on monkey kidney tissue culture and then inactivated with formalin. Very careful quality control has to be maintained during all the steps of this process to ensure that no unwanted viruses or bacteria are grown on the tissue culture, that all the virus particles are then inactivated to avoid accidentally spreading the real disease while vaccinating, and that the vaccines are highly purified remove all unwanted chemicals and virus components to avoid causing reactions. There must be an unbroken chain of refrigerated transport and storage every step of the way from the manufacturing facility to the end user. Sterile syringes and needles are needed to administer the vaccine.

These processes can only be undertaken in the context of an advanced technological society with access to highly specialized tools and reagents and highly trained and specialized personnel. You cannot replicate any of this in your kitchen or workshop, just like you can’t make a microchip. Jenner was lucky to stumble across a “Goldilocks” virus: cowpox is not too mild, not too virulent and closely related to the target disease. His method cannot be replicated for any other disease because there isn’t an equivalent “cow-polio” or “cow-measles” virus which would produce the desired antibodies.

The bottom line is that if advanced technological society goes away, vaccines will go away too. They are all made by similar high-tech processes. Many more people will die of preventable diseases than do at present. The reason why I’ve gone into this in some detail is not because I wish to be pessimistic or defeatist, but because I feel it is important to make a realistic assessment of what can and can’t be done, and to act accordingly. The best that can be done is to pay attention to infection control and hygiene, and to get everyone vaccinated while the stocks last.

Psychological medicine

The factors which are likely to cause the most serious and widespread illness and mortality going forward are not physical but psychological. We had a sneak preview of what to expect during the Soviet collapse of the late 1980s and early 1990s. Following the breakup of the Soviet Union in 1990 Russia, along with some other former Soviet republics, experienced a sharp spike in many causes mortality and a decline in the birth rate which, coupled with mass emigration, resulted in an overall decline of the population. It went on for several years. The reasons for it are not entirely clear, but many of the deaths appear to have been alcohol-related or suicides, pointing to the important role played by psychological stress caused by social disruption, high unemployment and the “shock therapy” of widespread and often criminal privatization.

A large proportion of the population of North America (probably around 15-25%, although precise figures are unavailable) takes antidepressants, anti-anxiety and/or sleeping medications—and this is during the supposed “good times”! We can expect to see this figure increase in the coming years as more people become subjected to acute psychological stress. What causes the psychological stress? There isn’t a simple correlation between psychological stress and living standards. For example, people in present-day “poor but happy” countries such as Costa Rica, with a much lower material standard of living than we do, enjoy happy, fulfilling, purposeful lives. It’s difficult to tell whether people today are generally happier than people in the past, but judging by our antidepressant and tranquillizer intake, this seems unlikely. The main factor seems to be the direction of change in living standards rather than the absolute level. People don’t seem to like change, especially change for the worse, and especially when they are unprepared for it. If this is the case, then if we are psychologically prepared for a fall in living standards, we may respond better if and when it comes.

Right now, we are not even remotely prepared for it. We don’t even have a dialogue about it in our political or academic institutions or in the media. The mainstream narrative is that every day, in every way, things will continue to get better and better, and economic growth will continue forever. If those things do not appear to be happening any more, we either manipulate the statistics so that we can continue to tell ourselves that they are happening, or we tell ourselves that we are experiencing a temporary setback, a mere speed bump on the road to ever greater prosperity.

The village healer’s toolkit is therefore going to need some tools to relieve psychological pain, whether through counselling (perhaps working alongside a full-time counsellor) or by using herbal medicines.

Herbal medicines

My heart sinks when I open a herbal medicine textbook and read the words “Herb X was believed by aboriginal people to be a cure for illnesses A, B, C, D, E, F, G, H, I and J.” I know immediately that the author of the book has made no attempt to fact-check his material—he has just copied it from another source—and it is very unlikely to be true because, generally speaking, one drug (whether herbal or conventional) doesn’t cure multiple diseases. Please don’t interpret this as disrespect for aboriginal traditional knowledge. I believe we have a lot to learn from First Nations peoples. I just think that traditional knowledge, including traditional knowledge of herbal medicines, should be a starting point rather than an end point. We should certainly ask “What did aboriginal peoples use to treat this condition?” but we should then also ask “Does it actually work?”

Modern pharmaceuticals are produced using complex processes which cannot be replicated outside a specialized laboratory (see Immunization, above). If modern technological society goes away, then modern pharmaceuticals will probably also go away, and we will be forced to rely on herbal medicines as in times past. I have looked into peer reviewed research papers into the effectiveness of herbal medicines which have been published in mainstream scientific journals and have come up with the following three short lists, which are not intended to be exhaustive:

•Herbal medicines which probably work

 •Herbal medicines which probably don’t work

 •Herbal medicines which definitely work but are illegal to produce without a government license

A few general words about herbal medicines: they are plant extracts which may contain tens to hundreds of active and inactive substances. Their potency is generally milder and more variable than pharmaceuticals because much depends on the genetic makeup of the plant, the way the plant was grown and the way the extract was obtained. In addition, there may be genetic, environmental and psychological factors in the patient which make some patients more responsive than others to some herbal medicines—but this is also the case with pharmaceuticals. Because there is less funding for research into herbal medicines than pharmaceuticals, the research tends to involve smaller numbers of patients, be less rigorously conducted and the results are less reliable. With those caveats out of the way, here are the lists:

Herbal medicines which probably work

Harpagophytum Procumbens (Devil's Claw) for pain relief

 Salix Alba (White Willow Bark) for pain relief

 Capsicum Frutescens (Cayenne) for pain relief

 Berberine for Type 2 diabetes

 Ipomoea batatas for Type 2 diabetes

 Silybum marianum for Type 2 diabetes

Trigonella foenum-graecum for Type 2 diabetes

 Kava for anxiety

 St. John's wort for depression

 Valerian for insomnia

 Echinacea for common cold symptoms

 Black cohosh for menopausal vasomotor symptoms

 Ginseng for angina pectoris and erectile dysfunction

 Garlic for hypertension

 Tea tree oil for acne

Herbal medicines which probably don’t work

Colloidal silver for ulcers and wound dressings

 Glucosamine for osteoarthritis

 Cinnamomum cassia for Type 2 diabetes

 Saw palmetto for benign prostatic hyperplasia

Herbal medicines which definitely work but are illegal to produce without a Government licence

I have devoted extra space to this category of herbal medicines because they are the most potent and effective herbal medicines and are therefore the most restricted. After all, there would be no point in restricting a placebo. Nothing in this chapter is intended to encourage people to break the law or to use herbal medicines for recreational purposes. (On the other hand, all evidence points to the fact that nothing will stop them either.) These herbal medicines which have been used for thousands of years, and have only been made illegal in the comparatively recent past—the last century or so. They include pure alcohol (ethanol), opium and marijuana.

Governments tend to be quick at making restrictive laws but not so good at repealing them once they are no longer appropriate. For example, when the Western Roman Empire collapsed in the 5th century, most of the Roman laws remained theoretically in effect even though there weren't any Roman officials left around to either enforce or repeal them (the Visigoths saw to that). What this means for our society is that as our energy supply contracts and our society spontaneously decomplexifies, a large number of laws will remain on the statute books but will be enforced with decreasing frequency. Some may never be formally repealed. A non-contentious example of this might be the common prohibition on drying clothes on clothes lines. People have been doing this ever since they started wearing clothes about 100,000 years ago, but in modern industrial society there are tens of thousands of local jurisdictions which have banned the use of clothes lines for esthetic reasons. If there is a widespread and prolonged electric grid outage, people will very quickly go back to using clothes lines, but the silly laws will remain on the statute books for many years, perhaps forever, because people will have more urgent matters to deal with than repealing irrelevant legislation. We can expect to see a similar situation arising with regard to some herbal medicines which are currently illegal. Practitioners of herbal medicine should therefore use their judgment to decide whether and when to use this category of herbal preparations.

Opium

Opium has been used for pain relief for millennia. The poppy plant was cultivated in ancient Persia, Egypt and Mesopotamia. The main active ingredient in opium is morphine, which was first isolated in 1804. Morphine is on the World Health Organization's List of Essential Medicines. It became a controlled substance in the US in 1914.

Opium is the dried latex obtained from the opium poppy (Papaver somniferum). There are several varieties of poppy but only this variety produces significant amounts of opium. Seeds can be bought by mail order from specialist suppliers, from garden centres (as ornamental poppies) or shaken out of dried poppies from a craft store. Once the poppy plants have grown and flowered, the opium is harvested by making vertical cuts in the immature seed heads. A brown resin oozes out and can be scraped off after a few hours. The opium can be smoked, eaten, drunk as tea or given in suppository form.

Opioids today are widely abused by addicts and traded on the black market. They include morphine, diamorphine (heroin), oxycodone and hydromorphone (Dilaudid). All are chemically related to opium. So, in a societal collapse, what will happen to the addicts? Nobody knows for sure, but my guess is that some of them will be forced to go without for periods of time, but that the problem of opioid addiction will not disappear, since no previous societal collapse has produced such a result.

In order to survive as an opioid addict, you need a society which is willing to support you and your habit. Some opioid addicts hold down jobs and contribute to society; most don't, and depend on welfare payments and doctors handing out free prescriptions. If the welfare payments and free prescriptions go away, the opioid addiction will not spontaneously vanish with them, and some other way will be found to continue feeding the habit. Withdrawal symptoms from opioids can be quite uncomfortable uncomfortable but are rarely dangerous—rather like having flu for two or three weeks—but few addicts will quit voluntarily. While most addicts will not have the skill or patience to cultivate their own opium poppy crops, the vast underground economy which invariably materializes in the course of a societal collapse will no doubt provide it for them.

[Further reading: Opium for the Masses by Jim Hogshire]

Marijuana

In Canada, until the law was changed recently, licensed medicinal uses of marijuana included severe arthritis, HIV/AIDS, terminal cancer, spinal cord disease and multiple sclerosis. The medical licensing requirements for marijuana vary from one country to another.

Hemp fibre has been used to make ropes and clothing for thousands of years. The first recorded evidence of medical marijuana use appeared over 4,700 years ago in the pharmacopoeia of Shen Nung, one of the fathers of Chinese medicine. In the 1800s marijuana preparations were widely used in many proprietory medicines. In the early part of the 20th century, legislation was passed in many countries making the use of marijuana illegal, even for medicinal purposes. This roughly coincided with similar prohibitions on the use of alcohol in some jurisdictions, particularly the United States. The alcohol prohibition laws were lifted after a relatively short time; the marijuana prohibition laws generally remain in place.

The growing and harvesting of marijuana plants is quite simple—the plant is a hardy weed—although achieving superior potency is something of an art. The plant is thought to have originated in India. It thrives best in hot, dry climates but it can be grown in most places in the world. Contemporary books on marijuana growing tend to emphasize indoor growing under artificial light, but in a post-collapse scenario this would probably not be relevant as outdoor and greenhouse growing would be the only option, with the likelihood of prosecution growing increasingly low. The flowering tops of the female plant contain the highest concentrations of resin and tetrahydrocannabinol (THC), the main active ingredient.

[Further reading: The Cannabis Grow Bible by Greg Green is a 429 page volume which contains all you need to know. It is available at multiple places on the Internet.]

Ethanol

Useful for disinfection of skin and wounds by topical application. Historically, it has also been given orally to patients before painful procedures such as amputations. For example, during the Napoleonic wars, officers were given rum or brandy before an amputation, while enlisted men were given a piece of wood to bite down on. However, I really wouldn't recommend it for this purpose. It is unlikely to be effective for pain relief except in doses so high that it would endanger the patient's life. Vomiting and aspiration of vomit are significant side effects. A safer and more effective choice for pain relief would be opium.

The first recorded instance of distillation of alcohol was by Arabian alchemists around 700 AD, but distillation had probably been performed in Arabia and Egypt much earlier. Distillation was made subject to registration of stills and payment of taxes in the 1790s in the USA, and in most other jurisdictions at around the same time. Failure to comply with these requirements after this date constituted a criminal offence.

Construction and operation of an ethanol still is a traditional art practiced in many parts of the world. The basic principles are as follows: vegetable material such as potatoes, corn or fruit is fermented using yeast (the “mash”) and ethanol is produced as a byproduct of the fermentation process. In order to separate and purify the ethanol, the mash is heated to just above the boiling point of the ethanol, at 173.1°F or 78.37°C. The ethanol vapor rises into a tube, is cooled and turned back into a liquid by means of a condenser and drips down into a second container.

There is a widespread belief that drinking homemade liquor from illicit stills may lead to death or blindness from methanol poisoning. Examples of this can be found in the media (“Homemade liquor kills 48”, Associated Press, 8 July 2009), PubMed (“Serious methanol poisoning from home brewed alcohol”, Crit Care Resusc, March 2012) and popular fiction (“Invasion,” Foyle's War British TV detective drama, Series 4 Episode 1). Surprisingly, the idea that home distilled ethanol can cause widespread accidental methanol poisoning appears to be a myth. Home distilled liquor (variously called “hooch”, “moonshine” or “poteen” depending on the country) is produced using a fermentation process. In this process, traces of methanol are produced along with ethanol, but the quantity of methanol is generally too small to be harmful. Methanol also occurs naturally in trace quantities in beer and wine.

Methanol, also known as wood alcohol, is produced in industrial quantities by completely different techniques such as catalytic processes acting on coal or natural gas, or the destructive distillation of wood. It is not produced by fermentation. It is true that methanol is a potent neurotoxin and can cause death, blindness and other neurological effects. There are numerous case reports of methanol poisoning on PubMed and it is a serious public health problem in some parts of the world, particularly India and Indonesia. However, as far as I can establish, all cases of methanol poisoning have resulted from the deliberate adulteration of fermented liquor with industrial methanol. Ethanol produced for automobile fuel is often deliberately adulterated with methanol to discourage people from drinking it.

The only theoretical way in which you could get methanol poisoning from an ethanol still would be to save up and drink together the first few drops of distillate from multiple distillation batches. This contains the naturally occurring methanol mentioned above, but in a high concentration, because methanol is more volatile than ethanol and evaporates first. The first few drops from the distillation process should therefore always be discarded. A good technique is to bring the still up to the boiling point of methanol (148.5°F or 64.7°C) for a period of time, discard the distillate, then bring it up to 173.1°F or 78.37°C to distill ethanol.

There are many good books about small scale ethanol distillation available for free download on the internet, but one which I found particularly readable was Making Pure Corn Whiskey – A Professional Guide For Amateur and Micro Distillers by Ian Smiley. [For a quick and easy method, search for “Grandpa Orlov's Vodka Recipe.”]

Surgery

There are many different types of surgery which a village healer might be expected to perform, from minor surgery such as digging out thorns and splinters to major surgery such as amputation, appendectomy or Caesarean section. The former is within most people's comfort zone, the latter probably not so much. I am going to talk about amputation, not because you will be doing it often, but because it illustrates some important points about post-collapse village medicine.

When might you need to perform an amputation? Most people would probably think first about crush injuries, gunshot wounds and bomb blasts, and indeed, these are all situations when an amputation might be necessary. The average person would probably not immediately think of diabetes, and yet this very common disease will probably account for the largest number of amputations going forward into the next few decades of the Long Emergency.

Diabetes is the most common reason for lower limb amputation today. One third of all foot amputations are performed on diabetics with foot wounds or ulcers. The reason why so many diabetics need amputations is because high circulating blood sugar levels over many years cause damage to the interior of blood vessels, making them them narrower and less efficient at delivering blood and oxygen to where they are needed. As the condition progresses, the flow of blood and oxygen drops below critical levels, at which point the tissue dies.

Let's look at a few statistics (from American Diabetes Association) and try to project them into the future.

Percentage of the population with diabetes: 10%

 Size of US population: 313 million

 About 65,700 nontraumatic lower-limb amputations are performed in people with diabetes annually (180/day)

Therefore, the number of diabetic amputations per head of total population per year is 0.0002. This might seem a small number. But suppose you are a village healer looking after 500 people in fairly isolated conditions for 40 years. The number of diabetic amputations likely to be needed in your community during your working lifetime is four. But then the future years are unlikely to resemble the past years. If modern pharmaceuticals become unavailable, we will have a large number of untreated diabetics developing complications much faster than they would have previously. The numbers are difficult to estimate, but let's say that the number of amputations needed may increase five-fold. Then, instead of looking at just four amputations in a working lifetime, you may now be looking at 20 amputations—one every couple of years. Whatever the exact numbers may turn out to be, there will be a significant number of these procedures needed.

Ideally you will be able to refer your diabetics to a surgeon at a hospital who has the necessary expertise and materials to perform these procedures. If this is not possible due to lack of funds, lack of transport fuels, lack of available personnel or some other reason, there are only two options: the patient slowly dies as the dead tissue putrefies and leaks toxins and bacteria into the bloodstream, or you perform the amputation yourself. Here is a quick guide to the general principles of performing an amputation under austere conditions.

Try to make the patient as comfortable as possible. A glass of whiskey and a piece of wood to bite on are helpful, but we should be able to do better than this. A good dose of opium will not be as good as a modern general anesthetic but will be better than the brandy or the piece of wood. Give enough to relieve pain, but not so much as to suppress respiration (an important side effect). Strap the patient down securely, because most people react badly to having their limbs sawn off.

Choose the level at which to perform the amputation. The aim is to remove both dead and compromised tissue. The latter, although not dead, has a poor blood supply and is unlikely to heal. If you try to be too kind to the patient and perform too low an amputation, the stump may not heal, necessitating a re-amputation at a higher level. You need to cut back to healthy tissue.

Tell the patient what you are going to do, why you have to do it, and the risks of either undergoing, or not undergoing, the procedure. This is called “informed consent.” Not undergoing the procedure means almost certain death; undergoing the procedure still carries about a 25% risk of death (American Civil War statistics). If they do not give consent, do not operate.

Maintain conditions as close to sterile as you reasonably can. Wash your hands, the limb to be amputated and all surgical instruments in hot soapy water, then swab them with ethanol. Use sterile gloves. Use a bone saw, but if you don't have one, any fine-toothed saw will do. Make sure that it is both clean and sharp. You will also need a scalpel or a very sharp knife, some suture material (sterilized fishing line), a piece of tubing to act as a drain, and lots of clean towels.

Think about what end result you are trying to achieve. You want the end of the bone to be covered by a reasonably thick layer of skin, muscle and fatty tissue. You can't just cut the limb off square as though it were a piece of timber: you have to cut the bone an inch or so shorter than the surrounding tissue, smooth off the end so it doesn't have any sharp or jagged edges, then close the soft tissues over the top of it. Tie off bleeding blood vessels as you go.

Place a tube in the operation field as you close up to drain blood and infected materials away. You don't want them building up in the end of the stump because this will lead to infection. The tube will be removed in a few days once the wound has stopped oozing. Suture the soft tissues together over the end of the bone to make a rounded stump.

After the operation, change dressings regularly, watch for signs of infection (fever, redness or swelling around the operation site, drainage of pus). If any of these signs occur, start antibiotics if available.

This concludes the section on surgery. There are many other surgical procedures which may be needed in a post-collapse village medicine scenario. Cesarian sections and appendectomies, for example, are not too difficult to perform (not really any more difficult than an amputation) and may be equally life-saving. The description of amputation is intended to illustrate some important lessons about post-collapse community surgery including:

It is possible to do simple surgery successfully and humanely, even in the absence of a complex technologically based society If preventive medicine (e.g. drugs to control diabetes) goes away, then rescue medicine (e.g. amputation) is likely to be needed more often

Some types of surgery may be outside the comfort zone of both the person performing the surgery, and the patient, but if the patient is almost certainly going to die without it, then neither of you have much to lose by trying

Some herbal medicines (opium, ethanol) can be a great help and should be stockpiled well ahead of the time when they may be needed

Surgery: suggestions for further reading

These materials can mostly be downloaded free of charge from the Internet. I suggest you do this now, rather than waiting until later, because the Internet isn't going to be around forever and you need to have local copies available.

Where there is no doctor by David Werner

 Where there is no dentist by Murray Dickson

 Surgery for victims of war (International Committee of the Red Cross)

 Surgical Care at the District Hospital (World Health Organization)

 The Survival Medicine Handbook by Joseph Alton

 Giving Birth In Place (American College of Nurse-Midwives)

 The Occasional Vaginal Delivery by Katherine Miller

Making difficult choices

In today's society, most of the choices we make are fairly inconsequential. Should I buy an SUV or a Prius? Should I order chicken wings or a hamburger? Should I watch the news or the sports? None of these are life-or-death decisions.

In contrast, many of the choices we make in the future may be much more significant. I have given one example above: Should I allow an untrained person to amputate my gangrenous leg without a general anesthetic, or should I succumb to gangrene? Other possible choices may include: Should I submit to the authority of the local warlord, even though he wasn't elected, or should I die for my high principles? Should I encourage my children join the military in order to battle to the death for access to ever-dwindling fossil fuel resources, or should I prepare for life without fossil fuels? Should I kill other people in order to survive a bit longer, or should I sacrifice my own life so that others may live? There are no clear right or wrong answers to any of these: the answer is always “It depends.” These are the kind of choices which our ancestors had to face, and which we will no doubt have to face again. The era we are entering into has been called “the Age of Limits.” It might as well also be called “the Age of Difficult Choices.” Good luck.