

# Using analogy-building to initiate insulin

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## Abstract

This paper focuses on the importance of analogy-building as a tool for insulin initiation in persons with diabetes. It discusses the parts of an effective analogy, and details examples of useful analogies which can be used to motivate people with diabetes to accept insulin therapy.

## INTRODUCTION

Insulin initiation is a challenging aspect of diabetes management, and successful starting of this therapy calls for strong counseling skills. Patients with diabetes tend to resist insulin more than the other aspects of diabetes care, and need a fair amount of persuasion and motivation from the physician, the diabetes nurse, and the physician assistant. It becomes challenging for the physician assistant, however, burdened as he or she is with a multitude of tasks, to explain the intricacies of insulin management to the patient.

## ANALOGY BUILDING

Analogy – building, i.e., using a common-place example as a metaphor for the desired health-related behavior, is an effective way of conveying health messages to the patient, and helps ensure strong patient – provider bonding. Analogies spark our imagination and are important ingredients of our reasoning and argumentation (1).

Reasoning by analogy revolves around four key ingredients: repertoire of commonplaces, commonplaces, unfamiliar or disputed phenomenon, and equation. The repertoire of commonplaces is the hidden starting-point of an analogy. It contains those understandings within a particular subject area that seem so familiar and self-evident that it is inconceivable to question them. Few understandings reach this level of taken-for-grantedness. The repertoire, therefore, is finite (2), and the commonplace selected by the physician assistant should be appropriate for the age, gender, socio-economic status, religion and culture of the person with diabetes. For example, a farming analogy will not work for a computer professional; similarly invoking God will not convince an atheist to take insulin.

The commonplace provides the sturdy anchor for the analogy. It is the unquestioned foundation on which the analogy is built (3) and is used to build an equation with a comparatively unknown phenomenon (insulin therapy). It is unclear or at least disputed, in the patient's mind, what insulin actually is, and whether it is actually 'good' or 'desirable' or not. The linkage between this phenomenon and the commonplace is an argumentatively established equation (4). To be successful, minimal argument should be used by the physician assistant or diabetes nurse, and the equation between commonplace example and insulin should be self-evident.

No formal work has been done on the relative efficacy of different analogies related to diabetes care or insulin therapy, and no effort has been made to translate the basics of analogy building into an exhaustive list of analogies. This list of insulin analogies has been written to help diabetes care providers communicate efficiently.

## NATURE/RELIGION BASED ANALOGIES USING RELIGION: INSULIN IS A GOD -SEND

When we go to a temple or church, we accept the communion given to us as a gift of God. We give it utmost respect and reverence, without questioning its source. The actual gift that we have received from God, however, is our body. Five feet plus of intricate machinery, beautifully packaged, engineered to last a life time without the shortest of pauses.

So what, then, if God kept the insulin reserves low while manufacturing our pancreas? The same thing could have occurred while preparing any item for communion. And even if God has kept the reserves low with the pancreas, the

rest of our reserves are normal. He has given us insulin injections to make up for mistake, to help support the rest of the body.

Insulin is a God send, to be used to preserve the rest of the body that is made by Him.

### **TREATING DIABETES, THE NATURAL WAY: INSULIN IS A NATURAL PRODUCT**

Insulin is a natural product, produced by nature, or by God .It is meant to be used if the pancreas is deficient in insulin production, or if the body exhibits signs of insulin resistance.

Insulin therapy helps in supplementing the production of insulin from the pancreas, or in overcoming insulin resistance by opening receptors.

This is a natural way of controlling diabetes, rather than using artificial means of whipping the pancreas. Insulin is not produced by killing cows or pigs any more. Its use is in synchronicity with nature.

### **POSITIVE THINKING BASED ANALOGIES**

#### **EVEN RATS DESERTS A SINKING SHIP: TAKE CHANGE OF YOUR HEALTH**

As a person with diabetes, you are the Captain of your ship, or your life. You choose to manage your diabetes, and live your life the way you want. You choose to bring on board your diabetes care professionals, including your doctor and you can ask them to leave any time.

At the same time, your diabetes care providers, your relatives, friends and colleagues can leave your ship, or desert you any time.

Even rats desert a sinking ship. All the people who encourage you to avoid insulin and try improven alternative therapy will be the first to ditch you when you develop complications due to poor control of diabetes. At that time, it is only your doctors who will try to help you out.

The only person you can trust is yourself, and you can do so only if you enjoy good health. This is possible only if you maintain good glucose control and take insulin when required.

### **THE ‘SUPERMAN’ OF HORMONES: ON INSULIN FOR STRENGTH**

Our body’s metabolism is divided into two processes: breaking down of body tissues (catabolism). Both these processes go hand –in hand to maintain optimal health.

Ill health, as in diabetes, occurs when the rate of catabolism exceeds that of anabolism. One easy way then, to achieve strength, energy or good health is to increase the rate of anabolism. This is done with the help of anabolic hormones.

The most potent anabolic hormone in the human body is –you guessed it right –insulin. So the most efficient way of improving your health is to take insulin for control, for anabolic effect, for strength and for energy.

The ‘Superman’ of hormones for children and adults with diabetes, is insulin. Taking this ‘Super hormone’ will help you in ‘body builds’, the ‘Superman’ way.

### **INSULIN IS APPROPRIATE: OF LOCKS & KEYS**

Insulin is a key which opens various locks .These locks are actually receptors, which are present in various organs of the body, including liver, adipose tissue and skeletal muscle.

What happen in diabetes is that the locks get jammed or rusted. No amount of pressure will open these locks. In fact, too much pressure may cause the key to break.

In such a situation, using high doses of oral drugs may cause side effects, and worsen the patient’s condition, rather than improve it. The calls for insulin therapy, which will open the locks or receptors slowly and steadily without side effects.

Insulin is the real key for the locks of the person with diabetes.

### **SPORTS BASED ANALOGIES**

#### **DIABETES MANAGEMENT IS A GAME OF CHESS: INSULIN SAVES THE KING (PATIENT)**

What is the difference between a novice and a master in the game of chess? A master is able to see potential moves in the future, and tries to stall his opponent before he can mate or checkmate him.

Diabetes is like chess. There are potential dangers or complications at every step, ready to cripple the patient.

Good diabetes management means playing like a chess master: anticipating future complications and pre-empting them with appropriate therapy. At times one may lose a pawn in order to save the king; using insulin is an insurance to save the patient and safeguard him against diabetic complications.

Your doctor may prescribe insulin keeping in mind the future benefits of the drug, or he may be able to foresee a potential complication that he can prevent with insulin. Let

him play like a chess master; your king is secure with his treatment.

### **INSULIN IS AN ALL-ROUNDER IN CRICKET: ONE DRUG FOR MANY FUNCTIONS**

Cricket is a multidimensional game, and the captain has to choose his batsman, fielders, bowlers and wicket keepers with care, to achieve maximum impact against the opposing team. This task becomes easier if he has all-rounder players available to him. All-rounder is a person who can bat, field, and bowl with equal ease, without inhibition.

Insulin is perhaps the best all-rounder in the fight against insulin: it controls glucose, protects the heart, the kidneys, controls inflammation and produces anabolic (body building effect). Most important, it has no indication.

It can be given IV, IM or SC; it can be administered as 1, 2, 3 or 4 doses, and its dose can be adjusted by the patient, physician or diabetes educator. It is the perfect all-rounder.

### **AGRICULTURE BASED ANALOGIES THE FARMER WHO TILLS THE LAND: INSULIN HELPS MANAGE COMPLICATIONS**

A patient with high glucose levels, and complications like neuropathy, foot ulcer or tuberculosis, may be treated with tablets alone, but the results are usually sub-optimal.

Imagine a farmer who buys the most expensive seeds for his farm, but forgets to plough the land. The seeds will be blown away by wind, or will not be able to strike root, and yield will be below par. On the other hand, a farmer who spends time and energy in ploughing his farms will achieve a better yield, even if his seeds are of average quality.

Using insulin is like ploughing the land before planting seeds. Insulin helps achieve good glycemic control, and helps the antibiotics, antitubercular drugs and pain suppressants produce their effect in an efficient and time saving manner.

### **PLANTING SEEDS: ON CHOOSING THE CORRECT SITE**

The insulin crystals are made in such a way in such a way that they break up and begin acting once they are injected below the skin.

The fat tissue below the skin is different in different parts of the body. Efficiency of insulin is highest when it is injected in the either abdomen or thigh. It is intermediate if used in the arm, and the lowest if administered in the buttocks.

This is just like planting seeds –you have to choose the correct soil for the particular plant... Rocky soil or sandy soil will give poor yield as compared to loamy soil or humus – rich soil.

### **PLOUGH THE FARMLAND FOR A GOOD YIELD: ON FOLLOWING TECHNIQUE**

It is not enough to take insulin; it has to be injected in the correct manner, optimal dose, at the appropriate time (injection meal gap) and with the right technique.

Imagine a farmer who sprinkles the best seeds in his farm, but forgets to plough the land. He will not get a good yield. This is what happens when even a single step is forgotten during injection, e.g. pinching the skin, or creating the correct angle.

Therefore it is important to learn the complete technique from your diabetes counselor and follow it regularly.

### **YOU SHALL REAP WHAT YOU SOW: CHOOSING AN APPROPRIATE REGIME**

Many types of insulin preparations are available in the market, just as different qualities of consumer products are available.

It is common sense that good qualities, premium products (textiles, electronics, electrical goods) last longer, perform better, give more efficiency and need less maintenance than poor quality cheap imitations.

The same is true of drugs, and insulin is no exception. Using good quality insulin, with modern delivery system, maintained in an efficient cold chain, ensures optimum effectiveness, and prevents complications associated with poor glucose control.

If you sow good insulin, you will reap good glycemic control and a complication-free life. If you sow sub-optimal insulin, you get poor control and unwanted complications.

### **TERMITES DON'T TELL BEFORE THEY TEAR: EARLY INSULIN INITIATION**

Termites attack wood work with impunity if it has not protected with chemicals.

The attack is not noticed until it has spread throughout the core of the wood. By the time termites become visible, the structure is usually weakened beyond repair.

Diabetes does the same to our brain, heart, kidneys, eyes and nerves if it is uncontrolled. The body can be protected, however, with insulin.

Protection before complications occur is more effective, as once any defect sets in, it weakens the body irreversibly. One should initiate insulin for glycemic control before the termites set in.

### **THE OVERWORKED FARMLAND: ON SECONDARY OHA FAILURE**

In our greed for food grains, we sometimes plant two to three crops in a year on the same piece of land, using excessive fertilizers.

A diligent farmer notices after a few years that the crop yield has gone down, while his expenditure on fertilizer has increased. If left unchecked, this pattern of usage makes the land barren.

This is what happens after a particular OHA has been used continuously for some time. The dose requirement goes up, but glycemic control worsens, as  $\beta$ -cell exhaustion sets in.

What an intelligent farmer does when he notices this diminishing return is that he lets the land lie fallow for a few months. The self-imposed rest gives strength to the farmland, rejuvenates it and increases its fertility.

In the diabetic patient, use of insulin for a short time when OHA requirements go up prevent the  $\beta$  cells from becoming 'barren' or getting exhausted. It also corrects of glucotoxicity and lets the OHAs start acting again.

### **DRIVING RELATED ANALOGIES**

#### **GET THE ENGINE STARTED: HIGH INSULIN REQUIREMENTS**

Controlling high blood sugars is not an easy task. This is true for all patients, but especially if there is no obvious reason for hyperglycemia. It may take time to bring glucose levels down, but you should be patient.

Imagine that you are trying to start a diesel engine in winter. You have to 'kick' the engine repeatedly to make it begin. Give up after a few half hearted kicks or pushes, and the engine will never start. But persevere and the vehicle will start and take you to your destination.

When we try to control diabetes, we may need high doses of insulin initially, to break the vicious cycle of glucotoxicity, or insulin resistance. Do not give up: once this is overcome,

insulin requirement will fall and control will become easier.

#### **DRIVING IN THE MOUNTAINS: VARYING INSULIN REQUIREMENTS**

Controlling high sugars is difficult. Initially, the patient needs high dose of insulin to break the vicious cycle set up by glucotoxicity. [= glucose acting as a toxin /poison].

This is akin to increasing the acceleration while driving a vehicle uphill. Once the vehicle has climbed the hill, the driver reduces acceleration. Similarly, insulin doses are brought down gradually once insulin resistance is broken.

The uphill drive is always followed by a downhill slope, and the driver usually climbs down in neutral or low gear, at slow speed. Insulin doses, too, are reduced at regular intervals after control has been achieved.

Rash driving downhill at high speed may cause the vehicle to fall off the road. Failure to anticipate increase in insulin sensitivity and reduce insulin doses in time may cause hypoglycemia.

#### **LIFE IS LIKE A ROAD –DRIVE ON IT: FREQUENTLY CHANGING INSULIN REQUIREMENT**

Life is like a road journey, and a person with diabetes has to follow the same road, full of bumps, potholes, speed breakers, detours and diversions.

Glucose control too is like a road, full of highs, lows, ketones and hypos. Insulin requirements therefore change from time to time. Driving on a bad road full of potholes and bumps is stressful for the driver as well as vehicle, and increases fuel consumption. As the person with diabetes encounters a speed breaker or pothole [any physical or mental stress], his or her glucose levels rise and insulin requirement increases. Once the bad stretch of road is over, the driver can drive smoothly and efficiently. Similarly, the person with diabetes returns to living a full and healthy life once the precipitating factor for hyperglycemia is corrected.

The fact that our roads are not smooth does not deter us from using them for travel. Similarly, the ups and downs of diabetes control should not prevent us from enjoying life to full.

#### **THE ENGINE NEEDS SERVICE: CORRECTING $\beta$**

## **CELL EXHAUSTION**

We use so many machines in our day to day life .Cars, refrigerators, televisions sets, cookers and washing machines are examples of commonly used machines.

All these machines have one thing in common. They need servicing (or rest) at frequent intervals. They may differ in the frequency of maintenance, and in the quality or quantity of servicing required. One motor cycle may need servicing every month while another one of the same make may do with annual visits to the garage.

In the same way, the pancreas needs service on & off .This means treating the patient with insulin for some time while stopping secretagogue drugs (tablets which whip the  $\beta$  cells).

Whenever sugar levels rise, one should think that the engine needs service. Take insulin for a few weeks, control blood glucose, reverse glucotoxicity, correct  $\beta$  cell exhaustion, and then go back to tablets if advised.

## **JACK FELL DOWN AND BROKE HIS CROWN: ON (NOT) SKIPPING INSULIN DOSE**

When we drive uphill to a mountain top or hill station, we usually travel in low gear. Surely and steadily, though slowly, is the by word for success. If we maintain a constant speed, we will reach our destination some time or the other.

But imagine a person who drives fast, then parks his vehicle in neutral gear on an upslope. The vehicle will reverse down the incline, and will reach its starting place, instead of the destination.

In the same way, when we miss an insulin dose, we undo whatever good the previous dose had done. Each dose has a limited duration of action, and missing even a single dose puts the clock back, or puts the car in reverse.

Frequent missing of doses will make Jack (you) fall down and may result in avoidable

“Breaking of the crown” (organ damage).

## **FRIENDSHIP RELATED ANALOGIES**

### **ENVIRONMENT – FRIENDLY; PATIENT –FRIENDLY: ON INSULIN DURING SURGERY**

Surgery is a time of physical and mental stress. This increases sugar levels by producing chemicals which are known as 3F (fight, flight, fright) hormones

Good wound healing is required in the post operative period,

and strict glycemic control is essential for this.

If the environment is not good, air, water, and soil are not ideal, no plant can grow, even if the seed is of the best quality. Similarly, if we do not control sugar, blood pressure, cholesterol, etc. even the best surgeon will not be able to produce good results.

Insulin helps by achieving good glycemic control, maintaining favorable environment, reducing inflammation and promoting wound healing. It is patient - friendly method of treatment

## **PATIENT FRIENDLY, PHYSICIAN FRIENDLY: ON INSULIN AS A FRIEND**

Insulin is prescribed by the doctor for the patient’s benefit. We cannot wish diabetes away; neither can we wish away its treatment. It is up to us how we view the world and ourselves. If we look at insulin and at diabetic drugs as an unwanted and unwelcome intrusion in our lives, we will always be unhappy.

If we think of our insulin as a friend which helps us live a full & active life, we will remain happy and contented. Insulin is a friend who helps us maintains good glucose control, avoid complications, enjoy life and live long.

Insulin is patient - friendly as well as physician –friendly: it is simple to initiate, easy to adjust and regimes can be molded as per convenience.

## **THE BOY WHO CRIED LION: TAKE INSULIN BEFORE COMPLICATIONS STRIKE**

Once there was a boy who used to cry ‘lion’ and tease his friends. Each time the friends would come running to help him, but and go away disgusted because of his prank, as there would be no lion.

One day, the lion actually turned up. The boy rose on alarm, but the villagers did not trust him, and did not come to the rescue.

The boy died.

Diabetes troubles the body in various ways. Many times your doctor will advise you to take insulin for a particular complication but you will get relief with tablets. With time you may begin to distrust your doctor, thinking that he always cries ‘lion’ when there is none.

Actually he is concerned for your health, and wants to

remain on the safe side. Trust him, and follow his advice, because without warning a trouble may strike which will not vanish without insulin.

### KITCHEN RELATED ANALOGIES

#### TOO MANY COOKS IN THE KITCHEN: ON (NOT) DOCTOR SHOPPING

Think of a kitchen where many ladies are cooking a single meal, one grinds the spices, another heats the vegetables, a third prepares the cereal, while a fourth adds the oil and the fifth gets in every one's way and issues orders.

What will be the result? Certainly chaos, more chaos, and perhaps an inedible dish.

Similarly, the patient with diabetes represents a complicated, but single entity which needs competent, but single pair of hands for glycemic control.

Just as too many cooks spoil the broth, frequent change of doctors will spoil the patient.

Sticking to one cook may mean a slow speed as far as preparing a meal is concerned; but it will ensure a tasty and edible meal and a full stomach as well! Similarly, sticking to a committed diabetologist will ensure long-term glucose control.

#### TOO MANY COOKS SPOIL THE BROTH: POT-POURRI OF PHARMACEUTICALS

Many patients tend to follow indigenous systems of medicine along with allopathic drugs. At times they add traditional recipes of unknown benefit to their treatment and reduce the dose of insulin on their own. Often they skip a lunch time or night time dose of insulin because "My neighbor said so."

Following different regimes of treatment at the same time is equal to having many cooks trying to prepare a dish together. More often than not, the cooking will end up in a fiasco.

Adding indigenous, untried, untested drugs, based on whims and fancies of an unqualified neighbour, friend or chemist is like too many cooks adding sugar, salt and spices without any direction. Just the dish will turn out to be inedible, diabetes will become unmanageable.

Stick to one system of medicine, and if required stick to insulin; this will ensure effective and long-lasting control of

diabetes.

### DOCTOR RELATED ANALOGIES

#### UNITED WE STAND, DIVIDED WE FALL: ON (NOT) CRITICIZING THE DIABETES CARE PROFESSIONALS

It is easy to find fault in your diabetes care provider, whether it is a nurse, dietician or physician. It is especially easy to criticize them when they advise insulin, or request you to tighten your dietary or exercise management. It is easy to find fault with their advice if sugars do not get controlled easily, or if the glucometer shows an unexpectedly high value.

You must always remember that your doctors are part of your team, trying to help you maintain good health. If you do not achieve good control, they feel bad, and if you do not try to follow advice, they get frustrated.

There is no point fighting each other, because if you do so, diabetes will defeat you. Remember, united we stand, divided we stand.

#### ROLLING STONE GATHERS NO MOSS: ON (NOT) DOCTOR SHOPPING

Diabetes is a chronic disease, and its management a long term, drawn-out process. It has its share of ups and downs, and both patient as well as doctor needs patience in abundance.

Many patients get frustrated with results, and change their doctor. Things usually become worse, and then they shift to a third physician. The commonest cause for leaving a doctor is when he advises insulin to the patient.

Just as a rolling stone gathers no moss, a rolling or unfaithful patient gathers no health. One cannot avoid the truth or deny the disease. Rather, one should face the ups and downs of diabetes with confidence and with full trust in one's team of diabetes care providers.

### TIME AND PATIENCE RELATED ANALOGIES

#### TIME IS A GOOD HEALER, IF IT GETS HELP FROM DRUGS: ON NOT STOPPING INTERMITTENT INSULIN TOO EARLY

Time has no substitute, and time is a great healer. Every good thing takes time to produce.

You cannot produce an adult human being in months – it takes years. You cannot grow wheat or rice in days – it needs months. You cannot prepare tasty lentils dal in

minutes – it requires hours.

Similarly, when you start insulin for whatever reason, be it curing infection, correcting neuropathy or giving rest to the pancreas, you should take it for at least a few weeks or months. This helps in achieving desired results that last a long time.

Stopping insulin too early is like making a half – baked cake, or harvesting an unripe fruit; neither food is fit for consumption, and the pancreas remains unfit for work.

### **A STITCH IN TIME SAVES NINE: EARLY INSULIN INITIATION**

A commonly heard, but uncommonly followed proverb, this phrase has no direct equivalent in many Asian languages.

The quicker you act to stem the rot, or stop a progressively worsening process, the better the results. And if you take simple preventive measures today; you can avoid major corrective steps later.

The same is true as far as insulin therapy is concerned. The sooner you start insulin in the face of increasing sugars, glucotoxicity and  $\beta$  cell exhaustion, the earlier you will be able to restore glycemic control and avoid complications.

If you leave insulin till too late, complications will appear, and cause further morbidity and inconvenience.

### **CONCLUSION**

This paper has tried to highlight some e useful analogies, which can be used with good effect in a diabetes clinic by physician assistants. It ha

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