In the market variant of the logic of choice patients are called customers, while in the civic variant they are modelled after citizens. The first variant cannot begin to understand disease, the second wants us to control our bodies instead of nourishing them. What the two have in common is something that so far has not been made explicit. This is a specific understanding of the character of scientific knowledge, medical technologies, and the tasks of professionals. Within the logic of choice scientific knowledge is taken to be a growing collection of facts that gradually increase in certainty. Professionals need to know these facts. Preferably they should also add to them. Where appropriate they should be passing them on to lay people: one of their tasks is to provide patients with information. With the relevant facts laid out, someone has to determine the value of various possible courses of action. What might be better? A pen or a pump? Tight or mild regulation? This insulin or that other? Once a decision is made, providing or implementing the chosen technique is a professional task again. But as making the decision is a matter of balancing values, there is no particular reason why doctors or nurses should be doing this. Since treatment interferes with the life of patients, it is the values of patients that should count for most. Framed in this way, the logic seems inescapable. And it is: in the logic of choice. But not in the logic of care.

In this chapter I try to articulate how scientific knowledge and medical technology figure within the logic of care. What makes it difficult to do this, is that almost all discussions about knowledge and technology are framed in a rationalist repertoire. Most doctors, nurses, patients, and certainly most managers, researchers and policy makers would nod their heads if they were to read what I have just written about professional practice. Yes, that is the way it works, or should do. However, if they are probed with questions, these same people are likely to tell stories that do not fit the rationalist picture. Complex stories, in which facts and values intertwine. Surprising stories, in which technologies do not live up to their promise. Stories with strange twists and turns that are difficult to understand. Usually, these complexities are cast as distracting disturbances. They are taken to be signs of the messiness of mundane practices that fail to submit to theoretical ideals. That they do, however, is no reason to doubt
the ideals. But is this right? Should clinicians indeed feel embarrassed about the gap between well-ordered theories that tell them how to handle science and technology and the far more messy practices in their consulting rooms? Is it appropriate for managers to express disdain for what they call the ‘unruliness’ of doctors and nurses? Maybe not. Maybe it is time to have a closer look at what happens in consulting rooms and think about revising our theories about scientific knowledge, medical technology and the tasks of health care professionals. For all of these make quite different sense in the logic of care.

**Informative facts or target values**

In the consulting room of the diabetes outpatient clinic a doctor and a patient face each other. Mr. Zomer has only recently been diagnosed. He does not yet fully grasp what having diabetes is likely to involve. Today the doctor will therefore explain a few things to him. So there they are, ready for a difficult conversation. What is going on here: do we witness a moment where a professional engages in the task of ‘providing value free information’? No, we don’t. In circumstances like this, or so the logic of care has it, passing a package of bare facts across the table by talking clearly, or by handing out a coloured brochure, is not enough. Mr. Zomer is not a student who needs to acquire knowledge about diabetes but a patient who has to learn to live with it. Living with diabetes is going to take a lot of his time and a great deal of his practical and emotional energy. And since it is also likely to lead to unpleasant complications, it would be absurd to assume that the facts that are to be explained are value-free. They are nasty. Confronting their negative character is a requirement of good care. You have diabetes: that is bad. At the same time, however, patients should not get overwhelmed by misery. Thus, the doctor will stress that, fortunately, there are good treatments for diabetes these days. The balance is precarious. There should be space for sadness, but not too much. A doctor should offer consolation, but also encouragement. And while suffering must be recognised as bad, the disease must simultaneously be accepted as something that needs to be dealt with in one way or another as life goes on.

The logic of care wants professionals not to treat facts as neutral information, but to attend to their values. And values come into play long before the moment when the facts have to be explained to a patient. Take the situation in which someone’s blood sugar level is found to be 15 mmol/l. This is not a neutral fact, but one that is deviant: 15 mmol/l is too high. In the hospital, blood sugar levels (as well as urea concentrations, haemoglobin levels and other
results of laboratory measurements) are therefore not even called facts. They are called values: blood values. Measuring blood values is an important aspect of the treatment of, and life with, diabetes. A body with diabetes is unable to regulate its own blood sugar levels from within. In bodies without diabetes, an increase in blood sugar level leads to an increase in insulin level and this insulin then instructs the cells of those bodies to absorb sugar. In diabetes this feedback system fails. After a meal blood sugar levels rise, unless you inject insulin from the outside. When you have injected insulin, blood sugar levels decrease as the cells burn up or stock the sugar they can now absorb. As blood sugar levels get lower, bodies without diabetes start to produce glucagon which releases the body’s sugar supplies. In people with diabetes, this counter-regulation does not work properly. Thus the blood sugar levels of people with diabetes will get too low unless they intervene once again from the outside and eat something. Really low blood sugars make people slide into a coma. In that state they are unable to eat and need other people to inject glucagon for them.

All of this implies that blood sugar levels are fact-values. They acquire their significance from their relation to a standard: the normal blood sugar level. But this normative fact, the normal blood sugar level, is not a simple given either. It is not something ‘we’ know for a fact, with solid certainty. This may sound strange. Surely something as banal as the normal value of human blood sugar levels should by now have been unambiguously established? But it has not. The extremes are easy: a blood sugar level of 15 mmol/l is too high and one of 2 mmol/l is too low. Interestingly, these particular fact-values also leave little room for choice. A blood sugar level of 15 is so damaging that if the body is not protected from it, it will seriously suffer. And if someone with a blood sugar level of 2 calmly considers her options, then soon she will have no options left. Come on now, eat! But where are the limits, at what point does normality stop and intervention begin?

First, let us look at the lower limit. When precisely does a blood sugar level (plasma glucose level) become too low? When, to use the medical term, does hypoglycaemia begin? The Dutch textbook Diabetes Mellitus reads as follows (I translate): ‘For people without diabetes mellitus, blood sugar levels vary between 3 and 8 mmol/l, depending on the amount of time that has elapsed since their last meal. In general, for diabetes patients a blood glucose level of 3.5 mmol/l is used as a criterion for hypoglycaemia.’ The author (Timon van Haeften) does not mention it in this quotation, but if your blood sugar level falls below 3.5 mmol/l you begin to feel dizzy and irritable. Another quote. The doctoral thesis Insulin Induced Hypoglycemia and Glucose Counterregulation (written by Edith ter Braak) mentions another cut-off point for hypoglycaemia: ‘Hypoglycaemia may be defined as a blood glucose
level of less than 3.9 mmol/l, since glucose counter-regulation in healthy people begins at this value.\textsuperscript{iv}

These two numbers do not come from different countries or specialisms. They both come from hospital Z. Van Haeften even co-supervised the research of Ter Braak (he is gratefully mentioned in her acknowledgements). And yet these are different numbers. The implication is not that one of the numbers is true and the other an error, nor that a controversy was going on. Rather it is that numbers are adaptable. Both authors know this very well, so they avoid strong claims. They modulate their definitions with an ‘in general’ or a ‘may be defined’. It may be done differently as well, there are specific cases where other definitions are in order. The body does not dictate which number to use, since it does not know what the number will be used for. This depends on practice. Thus, the textbook, aimed at (future) physicians in consulting rooms, mentions a lower limit of 3.5 mmol/l. As this is the blood value where people may begin to feel their own hypoglycaemia, it is most useful in helping doctors to understand the stories of their patients. It is also good information to pass on to patients, since it fits with their own physical experiences. You may learn to realise at this point that you had better eat something. By contrast, the doctoral thesis describes research on hypoglycaemia and glucose counter regulation. In that context 3.9 mmol/l is the more helpful lower limit to work with, because this is the blood sugar level at which (in people without diabetes) counter-regulation begins.

Within the logic of care the blood sugar level’s lower limit is not a factual given that precedes decisions about what to do. But this implies that in the process of care it is not possible to put the facts on the table first, to then add the values, so as to finally decide what to do.\textsuperscript{v} This is not to say that facts mould themselves to our wishes. Instead, the point is that practices informed by the logic of care do not proceed in a linear manner. Instead, a ‘sensible course of action’ and the ‘normative facts’ relevant to it, co-constitute each other. Care practices are resilient as well as adaptable. A good cut-off point is specific, not general. It depends on such things as the effort involved in taking a measurement; your ability to feel your hypos coming on; and whether or not you still want to work in the garden or go for a walk. It depends on the practices you are involved in. Something similar is also true for the upper limit of a normal blood sugar level. According to the textbook \textit{Diabetes Mellitus}, 8 mmol/l is the highest value that the blood sugar levels of people without diabetes usually reach. However, this is not a very useful fact for people with diabetes. As they need to regulate their blood sugar level from the outside, the ‘upper limit’ they are concerned with is not so much a fact as well as a task. It is the blood sugar level they have stay below through
balancing the acts of injecting, eating, exercising and so on. This blood sugar level is set for them, or they work it out jointly with their doctors, and it is called a ‘target value’.

Clinical epidemiology research indicates that it is sensible to avoid having blood sugar levels of more than 10 mmol/l. Someone whose blood sugars remain below this limit most of the time runs less risk of developing the complications of diabetes (such as blindness, atherosclerosis and neuropathy). However, this does not imply that staying below 10 mmol/l is a good target value for everyone all the time. It has only become within reach at all since the introduction of fast-release insulin, which you can inject before each meal. It was impossible to achieve an upper limit of 10 mmol/l when people with diabetes injected slow-release insulin and did so only once a day. For people who have just been diagnosed, or who are going through a bad period in their lives, a limit of 10 mmol/l tends to be too high as well. Just as it is for people who are overwhelmed by a sense of failure when they have a measurement of 11 once in a while. Within the logic of care, a good target value is one that may be achieved in practice. One that is technologically possible and doesn’t spoil people’s daily lives too much. This is the reason why a target value cannot be passed on as a simple piece of information from the start. Within the logic of care, identifying a suitable target value is not a condition for, but a part of, treatment. Instead of establishing it before you engage in action, you keep on searching for it while you act.vi

Means or modifiers

So the logic of choice tries to separate facts from values while the logic of care attends to them jointly. But there is more. Another striking difference is linked with this. The facts that the logic of choice wants to lay out, represent a disease that is located within the patient’s body. The fact-values relevant to the logic of care cannot be laid out at all. Since they concern a disease that interferes with a patient’s life, they do not refer to a three dimensional object (a body) but to something historical (a life). Thus they cannot be brought together at a single place or time. Instead, they are a part of ongoing practices: practices of care as well as practices to do with work, school, family, friends, holidays and everything else that might be important in a person’s life. Fact-values emerge from life just as they interfere with it. What follows is that for the logic of care gathering knowledge is not a matter of providing better maps of reality, but of crafting more bearable ways of living with, or in, reality. True clinicians submit their interest in, say, the pancreas and the hormones that it fails to produce,
to their concern with life with a disease. Life with a disease does not begin once all the facts have been assembled, because gathering fact-values is an intervention in a person’s life to begin with. Prick blood. Put it in a machine. Read the results. Activities such as these are part of life with diabetes as this is shaped by current treatment practices.

Within the logic of choice intervention begins at a later stage. Only once the values are balanced and a decision has been made, does it become possible to act – that is, to start treatment. The technologies involved in that treatment are taken to be ‘means’. They serve an end. The idea is that when patients are making a choice, they decide about this end. A professional then has to come up with the best means of achieving it. The professional literature presents these means. Clinical epidemiology has developed clinical trials as research tools to inquire into the effectiveness and effectivity of treatments. Clinical epidemiology itself however, relates to patient-choice in an ambivalent way. Sometimes it indeed presents its trials as tools that increase knowledge of the ‘means’ that doctors have at their disposal, suggesting that the ‘ends’ can be established elsewhere. At other times, however, clinical epidemiology casts patient-choice as superfluous. For if trials show which treatments are more effective and efficient than their alternatives, there is no further need to make decisions. Just go for the treatments the trials show to be best! To the adherents of this line of thought, it is a great puzzle: why do professionals not comply? Why do they refuse to implement the results of front-line clinical trials? There is a lot going on here, but let me just note that this question fails to recognise that the parameters explored in trials, their measures of success, do not necessarily map onto the ends that patients and their doctors may want to achieve. If there are different treatments, the question is not just which of them is more effective, but also which effects are more desirable. The question is not just which treatment has the greatest impact on a given parameter, but also which parameter to measure. In chronic diseases ‘health’ is out of reach, so it is not obvious which parameter to go for. Different treatments may well improve different parameters. Or, to put it in the terms used in the logic of choice: not all technologies serve the same ends and not all ends are equally worthwhile to everyone concerned.

Countering a simplified belief in ‘science’ as the answer to all questions, the logic of choice stresses the multiplicity of medical possibilities. This makes good sense. In its turn, however, the logic of choice simplifies the relation between means and ends. It suggests that if you choose where you want to go, your technologies will get you there. However, in the consulting room it quickly becomes clear that technologies are not obedient means: they rarely subordinate themselves to their official ends. Instead of improving a single parameter,
they have an excess of, sometimes unexpected, effects. This is the case for all kinds of interventions. Take the apparently simple, low tech, sugar-free diet. Before the invention of injectable insulin, there was an experimental treatment that consisted of removing all carbohydrates from the diets of people with diabetes. This slightly slowed the speed with which they died. Once insulin injections became available, such drastic diets became obsolete. However, for decades people with diabetes were still advised to avoid sugar. This limited their total intake of glucose and prevented the sudden blood sugar rushes that follow from eating sugar. Both ends were beyond dispute. But what about the means? Avoiding sugar was unpleasant. Many people like a sweet taste. What is more, dieting singled out people with diabetes as deviant, as different from those round about them who enjoyed ice cream and cake. Once sugar-free variants of sweet products appeared on the market, things became easier. But while their sweetness was pleasant, sugar-free ice cream and cake still set people with diabetes apart.

No wonder then, that a lot of people with diabetes were happy when they were no longer advised to avoid all sugar. At some point, partly because of the introduction of fast releasing insulin that could be injected before each meal, the treatment regimen changed. While it remained important to try to keep blood sugar levels stable, abstinence was replaced with a new magic word: balance. People now have to balance their energy intake, their insulin dose, and their exercise. This means that you can have your cake and eat it, so long as you burn up what you eat. If you go for a walk, you even have to take something sweet with you in order to prevent possible hypos. Adaptive calculations have replaced relentless restrictions. But this is not without its own unanticipated problems. In the old days, or so one of our informants told us, when people had a birthday party, they would buy a special sugar-free treat for you. You were an exception. Now you can eat the same food everybody else eats. But this means that you are called upon to also behave like everybody else. Have some cake, people say, you did last time. You are allowed cake, aren’t you? Come, join in. It is not easy to handle moments like that, for it is hard to refuse and say ‘no’. The complicated story about carbohydrate balance appears to be more difficult to explain than the simple story that all sugar is forbidden. The sugar-free diet made the dividing line between ‘people with diabetes’ and ‘people without diabetes’ clearly visible. Now, because sugar-free cake no longer does this for them, people with diabetes have to maintain this dividing line all by themselves.

It was never one of the goals of sugar-free diets to protect people with diabetes against the meddling of others. That it had this effect only arose retrospectively, after the diet had changed. Technologies always have unexpected effects: they generate forms of pain and
pleasure that nobody predicted. While for anthropologists of technology this might be a fascinating insight, in the logic of care it is something that points to a task. Good care requires that something be done with it. Watch out for the ways in which your ‘means’ mess up your ‘ends’. Do not just pay attention to what technologies are supposed to do, but also to what they happen to do, even if this comes unexpected. This means that good professionals need to ask patients about their experiences and attend carefully to what they are told, even if there is nothing about it in the clinical trial literature. There won’t be. The unexpected is not included in the design of trials. The parameters to be measured are laid out in the first stage of a clinical epidemiology research project. If doctors and nurses want to learn about the unexpected effects of interventions if should understand every single intervention again as yet another experiment. They should, again and again, be attentive to whatever it is that emerges.

Technologies do more than is expected of them. What is more: they also change expectations. Take blood sugar monitors. Before these miniaturised machines existed people’s blood sugars were measured in the laboratory once every three months or so, in the early morning before breakfast. If the fasting blood sugar levels measured in this way were less than 10 mmol/l everyone was pleased. If they were higher, a doctor might adjust your insulin dose the next time you came to the outpatient clinic. Sometimes people went to the lab a few days in a row, or came back several times on a single day. But unless you were admitted to the hospital that was it. Miniaturised blood sugar monitors allow for far more frequent measurements since patients can carry them around. Using a monitor, you can measure your blood sugar levels yourself, between other daily activities. More frequent measurement in its turn, allows for better calibrated doses of insulin. And this has changed treatment goals. Where it used to be good if fasting blood sugar levels remained below 10 mmol/l, now 10 mmol/l can (in many cases) be set as a target level for the whole day. Thus this small machine has changed the blood values it set out to measure. Instead of behaving as a modest means, it has interfered with its own ends.

Blood sugar monitors have changed what they were meant to do, but they have not done so alone. Strict regulation, in which blood sugars are kept below 10 mmol/l all day if possible, depends on other things as well: fast-release insulin; trial results showing that strict regulation reduces complications; doctors trusting their patients’ ability to look after themselves; patients willing to spend a lot of effort on self-care; daily lives in which this is possible. All of these things have jointly changed the treatment regime. But this, in its turn, has led to new problems. The incidence of hypoglycaemia has increased. If blood sugar levels
are lower on average, then they are more often too low. This is not surprising, but it is annoying. Interestingly, the same blood sugar monitor that has helped to cause this problem, forms part of its solution. If you have doubts about your blood sugar level, this little machine allows you to check whether indeed you should eat something. You may feel bad because your blood sugar level has just dropped from 15 mmol/l to 8 mmol/l. If that is the case it is unwise to eat. But if your blood sugar level has just dropped to 4 mmol/l, you had better have an apple or a sandwich. So if you take the trouble to use it, your monitor warns you against eating when it would be unwise to do so even if you feel bad, while it encourages you to eat if this is needed to avoid a hypoglycaemia. Somewhere along the way, then, the blood sugar monitor has changed itself. Initially a tool for avoiding high blood sugar levels, it now also helps to prevent blood sugar levels falling too low. x

In the logic of choice technologies are instruments. This sounds tautological. Of course technologies are instruments. They are means to ends and the more effective these means are, the better. But what if technologies have unexpected effects? What if they go beyond, and indeed transform, the ends they are supposed to serve? Technologies are unruly. Once introduced into a world where they interfere in unexpected ways with lots of other erratic entities and configurations, they change much more than they were intended to, and are ultimately transformed themselves as well. Instead of being modest means, they are inventive mediators. The logic of care is attuned to this. It assumes that things are just as unpredictable as people. It does not take technologies to be ‘mere’ instruments. Instead, good care involves a persistent attempt to tame technologies that are just as persistently wild. Keep a close eye on your tools, adapt them to your needs, or adapt yourself to theirs. Technologies do not subject themselves to what we wish them to do, but interfere with who we are.

Calculating or attuning

In the logic of choice all fluidity is located in the moment choices are being made. At that moment the facts are given, and so too are the possible courses of action. But the way the various values involved will add together has yet to crystallise. What to do? This or that, A or B? That is the question. In the logic of care fluidity and solidity are distributed differently. They cannot be separated out so easily. Let us take another look at what happens in the consulting room. Sometimes this may indeed be glossed as a matter of weighing up the advantages and disadvantages of alternative options. Take the situation of Dirk Gevaert. He is
32 years old and has a small company. Not only is he the director of this company, but he also travels by car for personal visits to his clients. The last thing he wants is to get a hypo while he is driving (he does not want to have an accident, and neither does he want to be caught by the police driving badly and have his licence taken away). Thus, in order to avoid getting hypos, he takes care to eat enough and not inject too much insulin. But this isn’t ideal, for in this way he keeps his blood sugar levels fairly high. Thus his risk of developing complications is high as well. If he were to set his target levels lower in order to avoid long term trouble, this might mean that he has to give up his work. But he takes pride in his work and it provides him and the people working for him with an income. What to do? If Dirk Gevaert keeps his blood sugar levels so high that he is no danger on the road, then he is a danger to himself. But if he gives priority to his future eyesight, he loses his company. The typical clinical mode of handling such difficult questions is to seek a compromise, but sometimes a compromise is hard to craft. If so, a choice has to be made.

In the consulting room, then, doctor and patient often talk about what to value most. Or patients go home with a dilemma to think through and talk about with their ‘relevant others’. But even more often, the most pressing question is not what might be best to do, but what can be done. What can be achieved in practice? Will and desire may count for a lot, but they are rarely decisive. Take Dirk Gevaert again: if he lived in a country where he had no alternative way to earn a living, he would not have a choice either. The practicalities to deal with take many forms. Let us go back to Mr. Zomer. Earlier in this chapter was told that he has diabetes. In the month that followed he gradually got used to living with this disease. He learned to inject insulin and has adapted his eating habits. Now his physician explains to him that research has shown that tight regulation reduces his chances of developing complications. ‘This is something you might want to consider, Mr. Zomer,’ she says. She adds that tight regulation would mean that he would need to measure his own blood sugar levels regularly. If he records the results and brings them along to the next consultation, then she – the physician – will prescribe a more accurate, slightly higher, dose of insulin. He could begin by taking five measurements one working day a week. ‘What do you think?’ Mr. Zomer looks thoughtful. And then he nods. Yes, this seems like a good idea to him. Of course he wants better eyesight, better arteries and less neuropathy in his years to come. All this sounds as if it is definitely worth the effort of measuring his blood sugar levels.

So far, this scene nicely fits within the logic of choice. A decent doctor, too: she properly provides her patient with information and leaves the decision to him. Alas. At the next visit, there are hardly any numbers in the notebook in which Mr. Zomer was supposed to
write down the results of his measurements. What is going on here? In the logic of choice, this situation suggests that maybe Mr. Zomer does not really want to bother with tight regulation. Once he started to realise the disadvantages of all the measuring required, he may have come to another conclusion. Or maybe he has changed his mind for some other reason. Either way, if he does not want to measure then so be it. It is his own choice. In the logic of care this makes little sense. A good health care professional will not think that Mr. Zomer changed his mind once he got home, but rather that measuring turned out to be too difficult to do.

Something that sounded fine in the consulting room turned out to be hard to carry out in daily life. These things happen. But faltering attempts are not necessarily moments of conclusion. There he is again, Mr. Zomer, sitting in a chair facing his doctor. He would still like to try tight regulation if only this could be done. So care goes on. The ideal doctor begins with a comforting: ‘That must have been disappointing for you, then, Mr. Zomer, that it was more difficult than you thought it would be’. Moralising doesn’t help. Stronger still, feelings of guilt are to be tempered, for they are counter-productive. Guilty people deserve punishment, not care. How then, if you feel guilty, to engage in self-care activities?

Thus, emotional support that facilitates self-care is a first necessary step. But it is not enough. The next task is to disentangle the practicalities Mr. Zomer has to deal with when it comes to measuring his blood sugar levels. Is there something that may be slightly changed, so that next time round Mr. Zomer stands a better chance of succeeding? If his measuring skills are falling short, a diabetes nurse may lead him through the procedure once again. Prick your finger; hold the test strip close to it; push blood onto the test strip; place the strip in the monitor; read the result; and record it in your notebook. While they rehearse this, the nurse may notice that Mr. Zomer has a device that does not suit him. He has trouble removing the screw top of the test strip container; or the display showing the results is too small; or the machine is too big and too cumbersome to carry around. If something like this is the case, she may lend him another monitor: would that work better? And she asks him questions. What exactly is difficult to do? It may turn out that there is a problem with Mr. Zomer’s work. Yes, there is. He works on road construction. This makes it impossible for him to prick his finger five times a day. For he prefers not to prick with all his colleagues watching, but the mobile toilet, quite a walk, is the only place with any privacy, and it is dirty. What is more, if he would go there often, he would be accused of dodging work. He just cannot do it.

It is often far from easy to differentiate between what you do not want and what you cannot do. In the consulting room, patients and professionals tend not to waste too much time separating out desires and possibilities, but talk about them together. They discuss the
intricacies of daily practices in their emotional as well as their technical detail. How to go about them? How to include treatment in your daily life without messing too much with other things that are important to you? Thus, for Mr. Zomer the point is not to choose between ‘measuring’ or ‘not-measuring’, but to find out how to measure. How go about it. The nurse suggests that Mr. Zomer might try to take a single measurement five days a week instead of five measurements on a single day. ‘Would that work?’ Somehow technology, daily habits and people’s skills and propensities have all to be mutually adjusted. This is crucial in the logic of care. It is important to attune everything to to everything else. Nothing is taken to be entirely fixed or entirely fluid. Technologies, habits, hopes, everything in a patient’s life may have to be adjusted. And so, as a patient, may you. Attending a course may teach you to feel the onset of your own hypogos better (if your sensitivity is not yet undermined by the disease). Therapy may help you lose your fear of blood. Or is it the doctor who has to change? She may be too hard or too soft, too fast or too slow. A communication expert may have the doctor look at her own consultations on a video and give her feedback. ‘Look, here, this is a typical moment. You might have taken more time to listen to your patient here. Don’t talk too much’.

The maximum fluidity that the logic of choice attributes to the moment of choice is not found there in the logic of care. You may want a lot, but reality does not necessarily conform. So you may choose to have low blood sugar levels, but suddenly, unexpectedly, they rise. You may decide to drive a car while tightly regulating your blood sugars, but, however hard you try to avoid them, this may lead to hypogos. And even if you really want to take measurements, you may still fail to do so. Such is the viscosity of life. Habits, other people, material conditions: they do not submit to your wishes. You cannot do with them as you please. In any case, most of all you do not want to have diabetes. But you do. Thus, in the logic of care facts and technologies are more fluid than the logic of choice takes them to be, while will and wishes are more constrained. Less fluid. Control is not on offer. The world may well be adaptable and adjustable, but only up to a point. There are limits to what can be changed – but these limits are not obvious at the beginning. It is difficult to predict what may work and what will fail. Thus, the logic of care wants us to carefully experiment. Try, be attentive to what happens, adapt this, that or the other, and try again.

In the logic of choice a good decision depends on properly balancing the advantages and disadvantages of various courses of action. The model of ‘balance’ mobilised here comes from accountancy. There, a financial balance has a credit and debit side. Although the advantages and disadvantages of medical interventions are more difficult to quantify than sums of money, the model is used in a strikingly similar way. It is as if making a decision
were like making a calculation. Pros and cons, one side versus the other. In the logic of care this is different. ‘Balance’ is important once again, but not as a matter of adding and subtracting advantages and disadvantages. After all, addition and subtraction require fixed variables, but in the logic of care no variable is ever fixed. All variables are variable – to some extent. The ‘balance’ sought, then, is something that needs to be established, actively, by attuning viscous variables to each other. Rather than the balance sheet of the accountant, the balancing body of a high wire artist or a dancer come to mind. And even if finally everything fits, if everything is nicely attuned to everything else, it may all fall apart again. Your fingers lose their sensitivity. Your eyesight deteriorates. You have to care for your aging parents. Your relationship falls apart. You are made redundant at work. You want to take a long-haul flight across several time zones: how to manage that? The logic of choice suggests that choosing is confined to specific moments. Privileged moments, difficult maybe, but bounded. The logic of care, by contrast, suggests that attuning the many viscous variables of a life to each other is a continuing process. It goes on and on, until the day you die.

**Managing doctors or shared doctoring**

In the logic of choice time is linear. The key moment, the moment a choice is being made, is embedded in a sequence: (neutral) facts → (value-laden) choice → (technical) action. Once the action is over, it becomes possible to evaluate it. As an afterthought. In the logic of care this is different: time twists and turns. There is no single, crucial moment when all relevant facts/values are available. Problems emerge and as they are tackled new problems arise. Fixing the target of a treatment before the treatment begins just cannot be done: establishing a target is a part of treatment. And when something unexpected turns up, it has to be integrated with everything else. Thus, in the logic of care it makes no sense to put arrows between events and order them in a linear manner. Take self measurement: is this one of the conditions for the introduction of tight regulation, or one of its consequences? And why would one want to postpone evaluation until after the action has taken place? It makes more sense to start evaluating early on, as a part of the attempt to fine-tune treatment and improve it. In living with diabetes time is not a moment-by-moment affair. For while the past has left ineradicable traces within you, the future is already present too. You try to juggle with the future. The tight regulation in which you engage does not make you feel better now. Instead, you hope it will postpone the complications of your diabetes. It is good for later. The logic of care does not unfold in time. It folds time.
In the linear time of the logic of choice there is a marked difference between what is given and what is open for discussion. Knowledge and technologies are given. They may change over the years, but they are fixed in the brief moment that matters: the moment a choice is being made here and now. Knowledge and technology make choices possible in the first place. But they fall outside the scope of discussion. You cannot choose for or against their existence: they are given, they frame the options that are available and thus they frame the discussion. What information might be worth gathering, or which technologies worth building is not a matter of choice for individual patients in the consulting room. This has been decided earlier and somewhere else. Which methods have been used to create knowledge? Which research questions have been addressed? Which technologies have been made? And why these and not others? None of this is relevant. All the emphasis is on the choice to be made here and now. The question as to how we have ended up here and now, in this particular situation rather than in another, is not appropriate. Making a choice given this situation is difficult enough as it is.

Maybe it is so difficult that it is not surprising that many patients want professionals to make their choices for them. ‘What do you think, doctor?’ they say. ‘What would you do if it was you; what would you advise if it was your father, mother, partner, child?’ According to the logic of choice answering such questions may sometimes be kind but it is not a professional task. Professionals should provide good information, and properly implement the interventions for which their patients opt. They should be knowledgeable, accurate and skilful. They should be capable of handling large quantities of information and able to act competently, but it is the patients who determine the direction to be taken. Patients manage, doctors implement. This is different in the logic of care. Here it is impossible to separate management and implementation. Attuning variables to each other is as much about establishing facts as it is about figuring out what to do. Using technologies requires that they be adjusted to each specific situation. Care is not a matter of implementing knowledge and technology, but of experimenting with them. To talk about the work involved, I would like to rehabilitate a word that has acquired pejorative connotations. I want to talk of doctoring.

Within the logic of care engaging in care is a matter of doctoring. Doctoring again depends on being knowledgeable, accurate and skilful. But, added to that, it also involves being attentive, inventive, persistent and forgiving.

Doctoring is not something that only doctors do. The entire care team is involved in it. Take the case of Mr. Zomer again. The doctor mentions the possibility of tight regulation. The diabetes nurse suggests that Mr. Zomer collects his measurement results over five days rather
than one. To allow for this she changes a page in his preprinted little notebook, so that he can note the results in a way that is still easy to read. Mr. Zomer himself tries to measure his blood sugar levels, and, if he does not succeed, he goes back to the consulting room to talk things over. The crucial question in relation to doctoring is not who is in charge, but whether or not the various activities involved are well attuned to one another. Does everything and everyone cooperate or are there tensions and clashes? Maybe the doctor should take more time to listen, thus she might learn more about the difficulties her patients face in their daily lives. Attending to her patients’ experiences would allow a doctor to fine-tune her own activities better. There is always something to improve. Even idealised practice is not ideal. It is a matter of trying things out and of being willing to revisit what has been done before. There is always something that fails. Try again, adjust, improve. Or, when the time is right, let go.

A team that shares the task of doctoring offers an interesting model for the democratisation of expertise. Up until now the democratisation of expertise has mostly been presented as a matter of making the demos, the people, in one form or another, rule over experts. As if from the outside. From above. First democratically governed states were called upon to control professionals. Now, in the logic of choice, patients are invited to do so individually. They must push professionals back into their cage, the place where they know the facts and handle the instruments. At the same time patients themselves are to make the crucial decisions, those that involve values. Thus, in the logic of choice patients are called upon to manage their doctors. The logic of care suggests a different way of opening up the monopoly of professional groups over expertise. Let us, somehow, share the doctoring. Let us experiment, experience and tinker together – practically. This is far from easy. Shared doctoring requires that everyone concerned should take each others contributions seriously and at the same time attune to what bodies, machines, foodstuff and other relevant entities are doing. Those who share doctoring must respect each others’ experiences, while engaging in inventive, careful, experiments. They must attune all variable variables to each other, while attending to everyone’s strengths and limitations. They must change whatever it takes, including themselves. Shared doctoring requires us to take nothing for granted or as given, but to seek what can be done to improve the way in which we live with our diseases. And remember that failure is inevitable and death the only security we have.
That I was even able to see that in clinical practice knowledge and technology work in ways very
different from how they tend to be presented is due to a wide literature from science and technology
studies. See for an early set of medical examples: Wright & Treacher eds.1982; and for later work: e.g.

The term ‘normative fact’ comes from the medical literature. I first encountered it when investigating
how ‘normal Hb’ gets established. (See Mol & Berg 1994.) Be warned that what I write here is again a
simplification. It leaves out such things as differences between the standards set by different
laboratories; inaccuracies of the measurements involved; shifting accuracies of various machines; the
consequences of using mmol/l rather than mg/dL as a unit; and so on.


Ter Braak 2000: p.188, original in English.

A lot of diagnostic techniques are not even put to use if there is no promise of a therapeutic
intervention on the horizon; and the ways in which they are being used depends on the treatment
options under consideration. See for this: Mol & Elsman 1996. In the course of a procedure such as
performing an operation, the question of what to do and what the matter is, may also keep on
informing each other in a process of shaping and reshaping what exactly is being done. See: Moreira,
2006.

Rita Struhkamp offers a far more detailed analysis of setting and shifting treatment goals in
rehabilitation practice. She argues that goals give therapy an orientation, but keep on shifting, because
bodies appear to react in unexpected ways and a person’s wishes and priorities gradually shift. See

Arguing against squeezing technology into means-end distinctions, Bruno Latour has proposed that
we face what he so eloquently calls the end of the means. And so we should. See Latour 2002.

The question of the strengths and limits of the RCT, the Randomized Clinical Trial, as a research
strategy, is too large to take on here. But see, for the question of the parameter of success, Lettinga &
Mol 1999. For the question what exactly to compare with what: Mol 2002b. For the issue of ‘control
group’ and of ‘double blinds’ testing, see Dehue 2005. And for the way in which trials have become

It often happens that new diagnostic techniques, or new possibilities for intervention, change the
definition of the diseases they sought to diagnose or intervene in. See e.g. Pasveer 1992. More
generally: what a disease is in the practices of diagnosing and treating it, depends on the technologies
with which it is being diagnosed and treated. See: Mol 2002.

What at first sight looks like ‘the same’ technique or technology, may work in quite different ways
depending on context and use. In their detailed comparisons of different practices of giving birth,
Madeleine Akrich and Bernike Pasveer show that similarities and differences may be layered upon
each other in quite complex ways. They also note that ‘the body itself’ is not a constant, but differs between birth-settings, with the technologies used, and over the course of giving birth. See Akrich & Pasveer 2000 and 2004.

xi The logic of care would like all technologies to be adaptable and fluid, but some are more so than others. Usually, laboratory techniques require more procedural and material consistency than clinical techniques, which may be more easily adaptable, but these, in their turn, depend on skilful users; see Mol & Law 1994. However, even technologies that look solid and sturdy, may be built to be adaptable and able to accommodate change. See de Laet & Mol 2000.

xii For a version of the argument that expertise should be brought under democratic control; see Rip, Mica & Schot eds. 1995. In the context of health care the question has been raised time and time again as to what extent professionals can and should control each other, and to what extent they should be controlled from the outside. See e.g. Freidson 2001. Here, my argument is that just like doctoring is being turned into teamwork, it makes sense to turn ‘self-control’ into teamwork too. Not something that happens inside the profession, nor something from a managerial above, but something that involves the blurring and shifting of boundaries, along with occurring mixtures of expertise. See also Callon and Rabeharisoa, x