Klimas, Wessely and NICE: Redefining CBT?

Margaret Williams **10th November 2006**

Patent Foramen Ovale (PFO) is the persistence (or the acquired re-opening) of the normal foetal opening between the right and left atria of the heart. In his September 2006 seminar (see below), Dr Paul Cheney from North Carolina – who has seen over 5,000 patients with (Myalgic Encephalomyelitis) / Chronic Fatigue Syndrome -- states that PFO is "tightly associated" with (ME)CFS to the order of at least 80% or more of patients.

Despite the fact that the UK medical defence unions have advised doctors that exercise regimes (which form part of a cognitive behavioural therapy regime) must be prescribed with just as much caution as pharmacological interventions, it seems that the National Institute for Health and Clinical Excellence (NICE) may have overlooked the implications of this advice: in its Draft Guideline on "CFS/ME", the only recommended management regime is cognitive behavioural therapy (CBT), including graded exercise therapy (GET) and, for the severely affected, "Activity Management".

There is no warning that patients with ME/CFS might have PFO. On the contrary, the NICE Draft Guideline advises against even looking for such pathology in those with ME/CFS.

Why is the UK ME/CFS community so collectively opposed to the NICE Draft Guideline?

The answer is because NICE is recommending CBT and GET as the only management regime and those whose lives are struck down by ME/CFS know full well that the UK CBT/GET regime has already been shown to be at best of little help, and at worst, dangerous.

The UK definition of CBT is contained in the Chief Medical Officer's Working Group Report of January 2002: "*Cognitive behavioural therapy is a tool for constructively modifying attitude and behaviour*".

The UK definition of GET is contained in the NHS Plus National Guideline on Occupational Aspects of CFS of October 2006: "*GET involves structured activity management that aims for a gradual increase in aerobic activities"*.

According to Cheney, aerobic exercise may kill the patient with (ME)CFS, so patients are rightly wary, because for almost 20 years Wessely School psychiatrists have claimed that ME does not exist except as an aberrant belief, and that "CFS" is a psychiatric disorder in which patients refuse to confront their "faulty illness beliefs" (ie. that they have a physical, not a mental, illness). These psychiatrists believe it is such "faulty" beliefs that prevent people from recovering, therefore the "faulty" beliefs must be modified in order to get people who harbour misperceptions about their bodily sensations off welfare

benefits and back into work. Patients who do not – or physically cannot—comply have had their benefits stopped. There has been little evidence that CBT is a tool to support patients or to help them cope with the ravages of serious organic disease.

Confusion about CBT in the UK

Confusion abounds in almost every aspect of ME/CFS, including what is now meant by "CBT/GET", and in the UK there seem to be signs of expedient change as to the type of CBT/GET that is to be delivered to those with ME/CFS, as well as the purpose of it; in other words, it seems the nature of CBT is being re-defined.

For example, in October 2006 at the Sheffield (UK) Conference, CBT was described by Professor Anthony Pinching as "*a valuable tool for managing chronic disabling illness in patients who are having difficulties in adjustment"*. Given Pinching's published track record, notably his article in Prescribers' Journal in 2000, this seems to represent a significant shift, because in that article he stated that CFS is not related to on-going exertion; that patients should not be "*over-investigated*" because investigating them causes them "*to seek abnormal test results to validate their illness*"; that approaches can be "*behavioural*"; that "*the benefits of graded exercise have been shown by randomised controlled trials*", and that "*the essence of treatment is activity management*", relying heavily upon Wessely School studies, many of which promote the delivery of CBT/GET in a coercive and overly-inflexible way (Prescribers' Journal 2000: 40:2:99-106).

But Pinching's is not the only apparent turn-around: given that at the behest of Wessely School psychiatrists who believe "CFS/ME" to be a behavioural disorder, the Government rushed to invest £8.5 million in "CBT for CFS" by setting up new Centres that are to deliver CBT/GET for those with ME/CFS, it now seems to be wondering – in the light of so much incontrovertible evidence of serious organic pathology in ME/CFS that cannot be denied forever – if this may have been the wisest way of addressing the problem, and as a consequence, some Government bodies seem to perceive a pressing need to justify by any means possible the expenditure of such large amounts of money on what may be seen as inappropriate interventions.

And so the NICE Draft Guideline states: "*The Guideline Development Group was clear that CBT was not about unhelpful advice or dictation of illness beliefs, but about changes in lifestyle and learning to achieve improvements with the patient's abilities. The GDG did not regard CBT or other behavioural treatments as curative or directed at the underlying disease process. Rather, such treatments can help some patients cope with the condition and consequently experience an improved quality of life"* (6.3.7 / Deriving Recommendation / Discussion of the Evidence).

Noble-sounding words, but this sweet-talking does not stop the UK ME community from seeing such surreptitious amendment as a case of "Come into my parlour, said the spider to the fly", especially given that NHS Plus has not waited for the final NICE Guideline but has gone ahead and published its 64-page Policy Document referred to above

(Occupational Aspects of the Management of Chronic Fatigue Syndrome: a National Guideline". Department of Health: 6th October 2006: 273539) that is grounded entirely on the psychosocial model of ME/CFS and which recommends that patients who are still working should be advised to stay at work even if they feel "tired". Importantly, it stipulates that no-one with a diagnosis of ME/CFS should be permitted to retire until they have undergone "rehabilitation" by means of CBT/GET. It is noted that the key players in this document are Professor Trudie Chalder, Professor Mike Sharpe and Professor Peter White, all of whom are well-known for their intransigent belief that "CFS/ME" is a behavioural disorder. It is also noted that the "Guideline Leader" does not work for the NHS but for a private medical insurance company.

To accompany this Policy Document, NHS Plus has produced three booklets: one for employers, one for employees and one for healthcare professionals, all of which contain misinformation about ME (about which the parent document states: *"The descriptive term CFS is preferable to previously used terms such as post-viral fatigue syndrome or ME"*).

The booklet for employers states: *" This leaflet summarises the evidence-based guidance on how to support individuals back into, and to remain in, work. CFS is an illness characterised by severe, disabling tiredness. A feeling of being tired all the time is very common. ME and post-viral fatigue syndrome are terms that people with CFS often use (but) most healthcare professionals prefer the term CFS. (Appropriate treatments) for CFS (are) CBT, a structured form of psychotherapy (and) GET, a structured programme designed to increase aerobic activity. If an individual complains of fatigue, an employer should refer them to an occupational health professional. Ill-health retirement should only be considered if appropriate treatments such as CBT and GET have been explored"*.

The booklet for employees says much the same: "*It is a good idea to try to stay at work even though you feel tired. CBT and GET are treatments that research has shown can increase the chance of returning to work. Ill-health retirement is not a first choice"*.

The booklet for healthcare professionals is even more damaging: *"The perpetuation of CFS may include deconditioning, inappropriate avoidance of activity as a coping mechanism, personal conflicts and fears about the condition itself. Management (is by) a biopsychosocial approach. There are two interventions supported by good quality evidence (sic): CBT involves cognitive restructuring to tackle negative beliefs. (Its) effectiveness may be limited by excessive focus on bodily symptoms and taking medical retirement or disability benefit during the treatment. (In) GET, patients 'negotiate' an aerobic exercise programme. Patients should be advised against seeking early medical retirement until all rehabilitation strategies have been explored"*. The reference to support this last statement says: *"Evidence from expert opinion"*.

There is no reference to the research evidence that has demonstrated serious, multi-system pathology: employers and healthcare professionals (ie. the decision-makers) are given no information about the proven dysfunction of virtually all body systems, including cardio-vascular, respiratory, gastro-intestinal, musculo-skeletal, opthalmic,

neurological, and most importantly, the immune system (with the evidence of autoimmunity). Not to do so is, by any standards, deceptive.

Curiously, Professors Peter White and Mike Sharpe seem to be somewhat confused: whilst on the one hand they say that the effectiveness of CBT may be limited by being in receipt of disability benefit, in the same document they also say: "*being in receipt of sickness benefit at the start of treatment may be a marker of severity"*.

Thus in the UK things are far from transparent: the NICE Draft Guideline says one thing, but the NHS Plus documents have pre-empted the NICE Guideline (due in April 2007) and say another thing entirely.

Those in the UK ME community who might be tempted to accept the NICE Draft Guideline's assurances that CBT is not about "*dictation of illness beliefs*" need to remember that the psychotherapy it recommends will still be delivered in psychiatric units at the behest of psychiatrists who will still harbour their ill-founded prejudices against ME patients.

Confusion about CBT in the US

In November 2006 Nancy Klimas, Professor of Medicine at Miami, and Anthony Komaroff, Professor of Medicine at Harvard (both of whom are not only clinicians but also long-time researchers into ME/CFS) attended the launch by the US Centres for Disease Control (CDC) of its "CFS Toolkit" and its campaign to advance knowledge of (ME)CFS.

At the launch, Professor Klimas said: "*Historically, the lack of credibility afforded this illness has been a key obstacle to understanding it. Today, with solid evidence that CFS has identifiable biologic underpinnings, and with evidence that people with CFS experience a level of disability equal to that of patients with multiple sclerosis, advanced HIV disease and undergoing chemotherapy, I hope we can begin to put an end to the stigma surrounding this illness*."

Also at the launch, Professor Komaroff said about the lingering belief that (ME)CFS is psychological and somehow imagined: "*That debate raged for 20 years, and now it's over*".

As reported on 3rd November 2006 by United Press International, there are over 3,000 research papers that have established (ME)CFS as a valid physiological illness, with evidence of inflammation, reduced blood flow and impaired cellular function. It was described as a "brutal" disease which often occurs in conjunction with other diseases such as lupus and Lyme disease, and its symptoms can be as severe and painful as renal failure, AIDS or multiple sclerosis.

Importantly, distinctions were drawn to the two different types of (ME)CFS: one that occurs immediately after an infection and one that develops gradually over time, and to the fact that the two types seem to differ genetically.

Many parts of the Toolkit are helpful: the CDC points out (and accepts) that irritable bowel syndrome, multiple chemical sensitivity, fibromyalgia and Gulf War Syndrome may be co-morbid conditions; that allergies are seen in many patients and that many (ME)CFS patients are very sensitive to medications; that alternative therapies should be considered (and that the practitioner should remain open-minded about them); the need to be alert to dizziness in patients and the need to refer them a neurologist and / or a cardiologist before initiating treatment; that there is considerable variation in symptom expression and severity; that symptoms are unpredictable; that the disorder can have a profound impact on daily life, requiring significant lifestyle changes; that (ME)CFS is an 'invisible illness' in which patients often do not look sick and that this contributes to patients being misunderstood and isolated; that a therapy which works for one patient may be of little benefit for another; that advising patients to engage in aerobic activity can be detrimental as it can cause a full-scale relapse that can last for weeks, and that patients with (ME)CFS can lose their jobs, economic security and home.

However, when it comes to treatment, there seems to be confusion, with Klimas saying at the launch: "*Although there's no single treatment—no hoped for 'magic bullet'—that fixes the illness at its core, there are treatments that can improve symptoms, increase function and allow CFS patients to engage in activities of daily living. Current best practices for clinical care include a combination of symptom management, activity management and exercise therapies."*

This seems at variance with her previous on-the-record views about CBT, for example:

- *"I don't take the British view that CBT is the one thing you can do to effectively treat (ME)CFS. But it's a tool that helps some patients"* (The Science and Research of CFS: CFIDS Chronicle Special Issue, 2005-2006)

- *"The question arises whether a formal CBT or GET program adds anything to what is available in the ordinary medical setting. A well informed physician empowers the patient by respecting their experiences, counsels the patients in coping strategies, and helps them achieve optimal exercise and activity levels within their limits in a common sense, non-ideological manner"* (ME/CFS: Clinical Working Case Definition, Diagnostic and Treatment Protocols. Bruce M Carruthers, Nancy G Klimas et al JCFS 2003:11:1:7-115).

How is it that in 2003, Klimas said that a competent physician would give his patient common sense counselling in coping strategies, but three years later she now says the same patient should be handed over for psychotherapy?

Is the answer that CBT has been "redefined" in the US also, so in the absence of any remotely therapeutic intervention, Klimas might well recommend CBT to *help* patients

with ME/CFS cope with it (whereas in the UK Wessely et al have used it to *deny* the very existence of ME/CFS)? Klimas is also on record as saying at the CDC: "*It's critical for patients and their healthcare providers to know that there is hope and that we can help*".

On the matter of management, some of what the Toolkit says is hardly controversial, namely that the objective of an effective management programme is threefold: (1) to help patients develop effective coping strategies (2) to relieve symptoms and (3) to teach patients to manage activity levels so as to avoid post-exertional malaise on the one hand and deconditioning on the other.

However, it also states: "*The goal of CBT is to change perceptions and behaviours that can contribute to symptom expression*" and "*Working with a CBT therapist, (ME)CFS patients can examine their beliefs and coping behaviours and modify these as necessary to manage the illness more effectively*".

As in the UK, there seem to be a confusing divergence about the nature of CBT for those with (ME)CFS.

Changes in the UK?

Are things changing in the UK? On the basis of the Wessely School psychiatrists' chameleon stances (depending on whether their audience is in the US or the UK), they may currently see advantages in creating the illusion that the aim of CBT has always been to help patients cope with overwhelming illness: if so, are we witnessing the construction of an escape route made necessary by the realisation that -- in the light of such substantial and convincing biomedical evidence -- they've been wrong ?

For illustrations of the pliability of Wessely School opinions about the efficacy of CBT depending on the country in which they were delivered, see http://www.meactionuk.org.uk/Concerns_re_NICE_Draft.pdf

So why is the Wessely School model of CBT/GET not only unsuitable but potentially dangerous for those with ME/CFS? The following notes, taken from Cheney's DVD (a two disc boxed set: for details, send an email to videos@dfwcfids.org as notified on Co-Cure on 27th October 2006), may provide some answers.

It should be compulsory viewing for every member of the NICE Guideline Development Group on "CFS/ME".

Cheney's Seminar

Others have already reported on Cheney's seminar, so what follows is a simplistic summary and makes no attempt to explain the disrupted metabolic and biochemical pathways that were demonstrated in detail by Cheney.

Cheney – who has been involved with (ME)CFS since the Lake Tahoe outbreak in the early 1980s -- began by acknowledging his debt to the work of Peckerman, who had found that half of the patients studied had low cardiac output as measured by impedance cardiography. (Peckerman noted that this could be due to the heart itself, but that it could also be due to problems in the peripheral blood vessels). This fascinated Cheney, who in 2003 underwent a successful heart transplant because of dilated cardiomyopathy, as a result of which he had observed at first hand the spiralling effects on differing body systems of low cardiac output.

Important Clinical Findings

There is an objective database in key medical literature that includes evidence *(sic)* of diastolic dysfunction and heart failure in (ME)CFS. PFO is found in at least 80% of patients with (ME)CFS.

Oxygen should not be transported into a cell that cannot use it without effective defences against its by-products (oxygen being the precursor of free radical formation).

Symptoms are usually manifestations of defence responses and reflect but do not cause the underlying problem.

Symptom-based treatment alone is therefore flawed at best and dangerous at worst: to treat symptoms without understanding the underlying disease process can cause death: the third leading cause of death is treatment by physicians, which kills 250,000 people per year (the first being heart disease and the second being cancer) -- most drugs are not aimed at the primary cause of disease but at symptoms and are therefore dangerous (see below for Cheney's view about the dangers of giving Prozac to those with (ME)CFS).

Principles that are important in (ME)CFS

Adaptation to chronic disease is generally coded as a phenotype shift (ie. one still has the same genes but they are expressing themselves differently). There is an emerging literature that shows phenotypic adjustments are defining illnesses by which genes are changing. Why is this going on? Is the gene shift causing the disease, or is it defending the host? It is mostly the latter, and this is very important, so we need to treat the underlying cause as, once changed, the patient can never return to his/her original phenotype. If genes have changed (and there is evidence that they have), a patient can be genotypically shifted as well and phenotypically shifted, and this is a big issue that stands in the way of a quick fix solution: if chronic disease can never be fixed, how can people be helped to feel better? The answer lies in suppressing the defence mechanism, but this is not very good, because if you fix the defence mechanism, at some deep level you can worsen symptoms.

A key principle is not to use too much oxygen (because it kills). (ME)CFS protects against almost certain death by adapting to a low energy state.

Patients withdraw from activity: they have a dynamic dysfunction that is more than simply an adaptation – there is something about the disease that is making them this way.

The (ME)CFS Case Definition

Cheney outlined the case definition, saying that the classic triad is: no energy, brain dysfunction, and pain. If a patient does not have pain, s/he does not meet the (ME)CFS case definition: (ME)CFS is very much a painful disorder.

Cognitive dysfunction occurs in 99% of cases (processing speed; short-term memory loss; sensory and information overload; information searching; multi-tasking problems; spatial disorganisation). *"Fatigue features in so many other disorders, but what makes (ME)CFS special is the brain component"*.

Mood disturbances occur: depression is rarely severe and is reactive; anxiety disorders abound, as does mood lability, but 40% do not have any mood disorder, so (ME)CFS is not a psychiatric disease.

The evolution of (ME)CFS

There are four phases:

1. the onset, or trigger phase
2. the triad phase
3. the dynamic dysfunction phase (although the fatigue and pain and brain dysfunction are a little better, patients in this phase can do less than when they were more sick)
4. DNA phenotype adaptation phase (there is a phenotypic adaptation that locks this in at gene level).

Key scientific articles

Phase 1: (immune activation: fever, swollen glands, sore throat, malaise: general indications of immune activation)

- Suhadolnick et al (Temple University, USA)
- Komaroff et al (Harvard, USA)
- Klimas et al (Miami, USA)

Phase 2: (the centre of gravity of this illness: fatigue, brain problems and pain; xenobiotic toxicity coming from the gut and the environment)

- McGregor et al (Newcastle University, Australia)
- Pimental (UCLA, USA)

Phase 3: (the brain and heart component)

- Demitrack et al (NIH, USA)
- Moorkens et al (Antwerp, Belgium)
- Schwartz et al (Harvard, USA)
- Peckerman et al (NMJ & D, USA)
- Drexler et al (Hanover, Germany)

Phase 4: (phenotypic and genotypic adapatation → oxidative stress)

- Vernon et al (CDC, USA)
- Kerr et al (London, UK)
- Urowitz et al (Berkeley, USA)
- Pall (WSU, USA)
- Kennedy et al *(Cheney's overhead stated "USA", but if he means Kennedy and Spence, it should be Dundee, Scotland)*

Oxidative stress links (ME)CFS to fibromyalgia, multiple chemical sensitivity and Gulf War Syndrome.

Do people recover from (ME)CFS?

Functional recovery *is* seen: one's ability to do things can improve, but it can go the other way, or there may be no change over time. In functional improvement, do patients really get better, or do they just adapt? The longer things go on, the more difficult it is to see functional recovery. Komaroff's data from Harvard is that after 10 years of illness, there is only a 30% chance of any functional recovery.

The Physical Examination

In phase 1: (immune activation), one sees

- Lymphyodynia (seen in 80-90%)
- Crimson crescents bilaterally on soft palate (seen in 80%)

- Sub-normal temperature

In phase 2: one sees

- Evidence of subcortical brain injury
- Vestibular dysfunction (seen in 94%)
- Hyper-reflexia, especially of the knees and ankles (seen in 70%)

In phases 3 and 4: the most interesting are the metabolic disturbances:

- There is shortened breath-holding capacity (seen in 60%)
- There is very poor oxygen transport (seen in 90%): pulse oximetry readings measuring saturation of haemoglobin show a significant inhibition to desaturate
- There is finger-print destruction (seen in 50%): cross-hatching occurs, with degradation of the ridges; punch biopsies found perivascular lymphoid infiltrates ie. an inflammatory cuffing exactly as seen in lupus, which signifies a non-specific immune activation issue (so the finger-print changes could be reflecting much more than just loss of finger-prints and may represent a vasculopathy)
- There is sub-normal temperature (seen in 80%)
- There is low systolic blood pressure (in 50% of patients it is less than 100)
- There is orthostatic B/P or pulse changes (seen in 70%)
- Hypertension is very rare

These findings portend significant physiological issues, chief of which is that oxygen is being prevented from getting into the cell, and if there's no oxygen, there's no energy.

Magnetic Resonance Spectroscopy

- 70% of patients show elevated lactate levels in the ventricular system (the lactate elevation is not normal and indicates a defect in energy in the brain: (ME)CFS patients have significantly elevated lactate levels and the fatigue correlated significantly with the level of lactate)
- 10% have evidence of neuronal destruction and elevated choline peaks, typically in the perivascular areas.

Magnetic Resonance Imaging

- 78% of patients have punctate lesions which are most consistent with small strokes and there is evidence to support this (ie. they are not caused by a virus or by inflammation).

Mixed venous blood gas picture

- P_vO_2 is 25 (it should be 40)
- P_vCO_2 is 55 (it should be 45)

This is a differential hypoxia with hypercarbia. There are only two diseases where this is seen: one is pulmonary hypertension; the other is (ME)CFS.

The arterial side is normal.

Where does the oxygen go? It's being transported somewhere, but not to the mitochondria. (ME)CFS patients have been shown to have increased pooling of extra-cellular fluid in the belly, pelvis and legs which might contain this dissolved oxygen, but it is more likely being consumed by the oxidative pathway to create superoxide in massive amounts. Superoxide is the progenitor of all free radicals. The consequences are increased intra-cellular oxdidative stress.

If you intervene and give Prozac, you up-regulate superoxide, which is why serotinergic drugs kill neurons.

Intervening with drugs in situations not fully understood breeds chaos and kills patients.

(ME)CFS as cellular metabolic dysfunction

There are problems at cell level in energy production, and because of this degraded energy problem, patients suffer a defect in the ability to detoxify toxins, especially in the portal circulation (giving rise to gut toxicity as seen in phase 2). Gene alterations (seen in phase 4) generate a massive disturbance in the development of energy at the cell level. If you lose energy, you lose glutathione, but the more glutathione you give, the more you just create oxidised glutathione, which generates loss of citrate, causing a left shift on oxyhaemoglobin desaturation. Citrate also binds to magnesium, so over time the patient will develop a severe magnesium depletion syndrome. When that happens, you've had your last good night's sleep: when you lose magnesium, you can't sleep any more.

How and why would a low energy state lead to an inability to transfer oxygen? Cheney concludes that it's part of a bigger picture that uses low oxygen transport to stablise the system.

In (ME)CFS, these serious issues are a big problem, especially in the brain, the heart and in muscle. (ME)CFS is a compensatory response to down-regulate energy production and oxygen transport in order to reduce tissue damage.

Attempts to push beyond energy limits will cause injury.

Prolonged energy deficits can cause semi-permanent DNA phenotype adaptations and complications can occur, especially within energy-sensitive systems such as the heart, the brain and the muscles.

The most likely cause (not trigger) of (ME)CFS is a disruption in handling the toxic by-products of oxygen utilisation.

In (ME)CFS, catalase is deficient in the heart, lungs and liver (catalase is the most protective enzyme in the body against the ravages of superoxide), and Cheney noted that electromagnetic fields [EMFs] "screw up" superoxide dismutase (SOD), which is a major anti-oxidant scavenger.

Is there an (ME)CFS-associated cardiomyopathy?

(ME)CFS patients have a high heart rate but a low cardiac output. In (ME)CFS there is a cardiac dimension that is independent of (but not excluding) autonomic function or blood volume.

82% of patients have abnormal cardiac impedence.

It's hard to talk about a low cardiac output without talking about the involvement of the brain and the adrenal glands.

A mismatch between metabolic demand and cardiac output, even very briefly, will kill.

If the cardiac output goes down, in order not to die, there is a rise in noradrenergic tone (also involving the adrenal glands) to bring the output back up. In (ME)CFS, this is a serious problem, because when the adrenals are exhausted, there will be low cardiac output.

There is no such thing as an (ME)CFS patient who is NOT hypothyroid: this has nothing to do with thyroid failure, but everything to do with matching metabolic demand and cardiac output.

Order of sacrifice in cases of declining microcirculation

First is the skin; second is the muscles and joints; third is the liver and gut (patients can usually only tolerate a few foods); fourth is the brain; fifth is the heart; sixth is the lung and lastly is the kidney (for a more detailed discussion of this order of sacrifice, see http://www.meactionuk.org.uk/The_MRC_Profits_before_Patients.htm).

Among the major causes of death in (ME)CFS is heart failure: Jason et al (August 2006) found that 20% die of heart failure.

There are two types of heart failure: systolic (which is a failure to eject) and diastolic (which is not a failure to eject, but a failure to fill properly).

There are two types of diastolic heart failure: primary relaxation deficit giving rise to decreased cellular energy as seen in (ME)CFS and secondary relaxation deficit as seen in hypertension, diabetes and the elderly over age 75.

Primary relaxation deficit is a disorder that seems to have gone right under the radar of most cardiologists (who focus on the secondary relaxation deficit).

Diastolic heart failure was first described in the 1980s but there was no significant literature until the 1990s, and no significant way to measure it until 2001.
In July 2006 The New England Journal of Medicine carried a significant paper on more than 4,500 patients studied with diastolic heart failure (which is higher than those with systolic heart failure). This is unexplained, but is accelerating (is it in fact an explosion of (ME)CFS?).

One is just as likely to die of diastolic heart failure as from systolic heart failure.

Doppler mitral in-flow velocities show diastolic dysfunction.

Concluding the first disc, Cheney stated there is (quote) *"a whopping percentage of (ME)CFS people with diastolic dysfunction"*.

In the second DVD, Cheney expounds on PFO in relation to (ME)CFS.

He says that at least half of patients exhibit atrial cavitation, and that when these patients stood up, in 80% the filling volume collapsed. He tested this with magnesium and the results were significant: magnesium restored 12% of energy in one minute. Magnesium affects the intracellular energetics, proving that patients have a "tremendous" energy problem that is very sensitive to magnesium. (The reason magnesium is so important is that without it, ATP cannot be converted to ADP for the production of energy).

(ME)CFS patients "*squeeze the hell"* out of their left ventricle, resulting in a "*whopping"* 70% increase in left ventricular wall motion thickness. The reason why patients are squeezing so hard is because they do not have enough energy to fill the chambers of the heart properly so they are trying to compensate by squeezing a lot harder (ie. the way patients are compensating for this loss of cardiac output is by squeezing the left ventricle much harder).

There are significant consequences of this. One consequence is that (ME)CFS patients become asynchronised (ie the heart can be filling and ejecting at the same time).

If out of synchrony, the ventricle cannot cope, so cardiac output is severely degraded.

A second consequence is that patients develop a strain pattern, which is an indication of ischaemia. Cheney has seen ischaemic changes in the inner ventricular wall because of the increased squeezing.

PFO is a hole in the heart producing a right to left shunt of unoxygenated blood full of carbon dioxide as well as products of liver metabolism – the liver is literally draining into the right heart and that blood is being shot straight to the brain (this was demonstrated on the DVD by means of Trans Cranial Doppler bubbles).

The assumed cause of the PFO is the same as in the foetus – to protect the body from oxygen: in (ME)CFS patients are shifted left to right, not because they have an immature way (as in the foetus) of handling oxygen, but because they have a *defective* way of handling oxygen.

In (ME)CFS patients, there is increased left ventricular strain, with increased R-L shunting, and cardiac ischaemia develops, and because of too much squeezing, the PFO (that closed at birth) is opened up, resulting in significant oxygen toxicity, with ischaemic reperfusion-type changes.

The diastolic dysfunction that causes dilatation of the left atrium can actually break the seal of the sealed Foramen Ovale (ie. the increased pressure blows through a previously sealed PFO).

It is increasingly clear that in (ME)CFS, a diminished threshold for oxygen toxicity exists, and that each patient will have a unique threshold.

These findings have a significant negative effect on Emergency Room (A&E) and operating theatre uses of oxygen during surgery – a patient with (ME)CFS could be given too much oxygen and be killed on the operating table.

Hyperbaric oxygen could have a very negative impact on some (ME)CFS patients.

The ultimate consequence of this is low cardiac output, arising from a problem of energy production.
The complications of PFO include:

- Cerebral aneurysm
- Multiple mini-strokes
- Cerebral hypoperfusion produces pressure headaches; migraine, cognitive impairment and a lower seizure threshold
- Venous hypoxia complications are fundamentally linked to intracellular acidosis which depletes electron buffers
- Depleted acid buffers leads to increased sensitivity to diet, drugs and the environment.

PFOs cause significant instability.

There is a difference between diastolic dysfunction and diastolic failure: in diastolic dysfunction there is a filling problem but the body is compensating for it and achieving enough cardiac output to match metabolic demand. Diastolic failure begins when the body can no longer compensate and there is a reduction in cardiac output. Cheney repeated that this is seen in 80% of (ME)CFS patients.

If patients draw down their lifestyle to live within the means of the reduced cardiac output, then progression into congestive cardiac failure (CCF) is slowed down, but if things continue to progress, a point will be reached where there is no adequate cardiac output, and dyspnoea will develop, with ankle oedema and other signs of congestive cardiac failure.

The message from Cheney is clear: in order to stay relatively stable, it is essential for the (ME)CFS patient not to create metabolic demand that the low cardiac output cannot match.

The message for NICE

The message for NICE is that (ME)CFS patients instinctively know that they simply cannot cope with aerobic exercise (as in graded exercise therapy), and that their instincts have been proved correct by Cheney's ground-breaking research.

Many (ME)CFS patients are formerly high achievers who do not need to be patronised by psychiatrists with their behavioural management regimes about how not to exceed their own limits: they know their limits and live within them daily in order to survive.

As has been pointed out to NICE, what such patients need is not multi-million pounds to be given to psychiatrists to try to prove that (ME)CFS patients will recover with aerobic exercise: what is needed is biomedical research to find the cause, without which there can be no hope of effective treatment or a cure.

In the meantime, as NICE has also been informed, patients urgently need practical support services, including help with personal care, shopping, housework, cooking, adaptations in the home (such as a chairlift) ie. basic support for the very ill.

But NICE has already indicated that it is not listening.