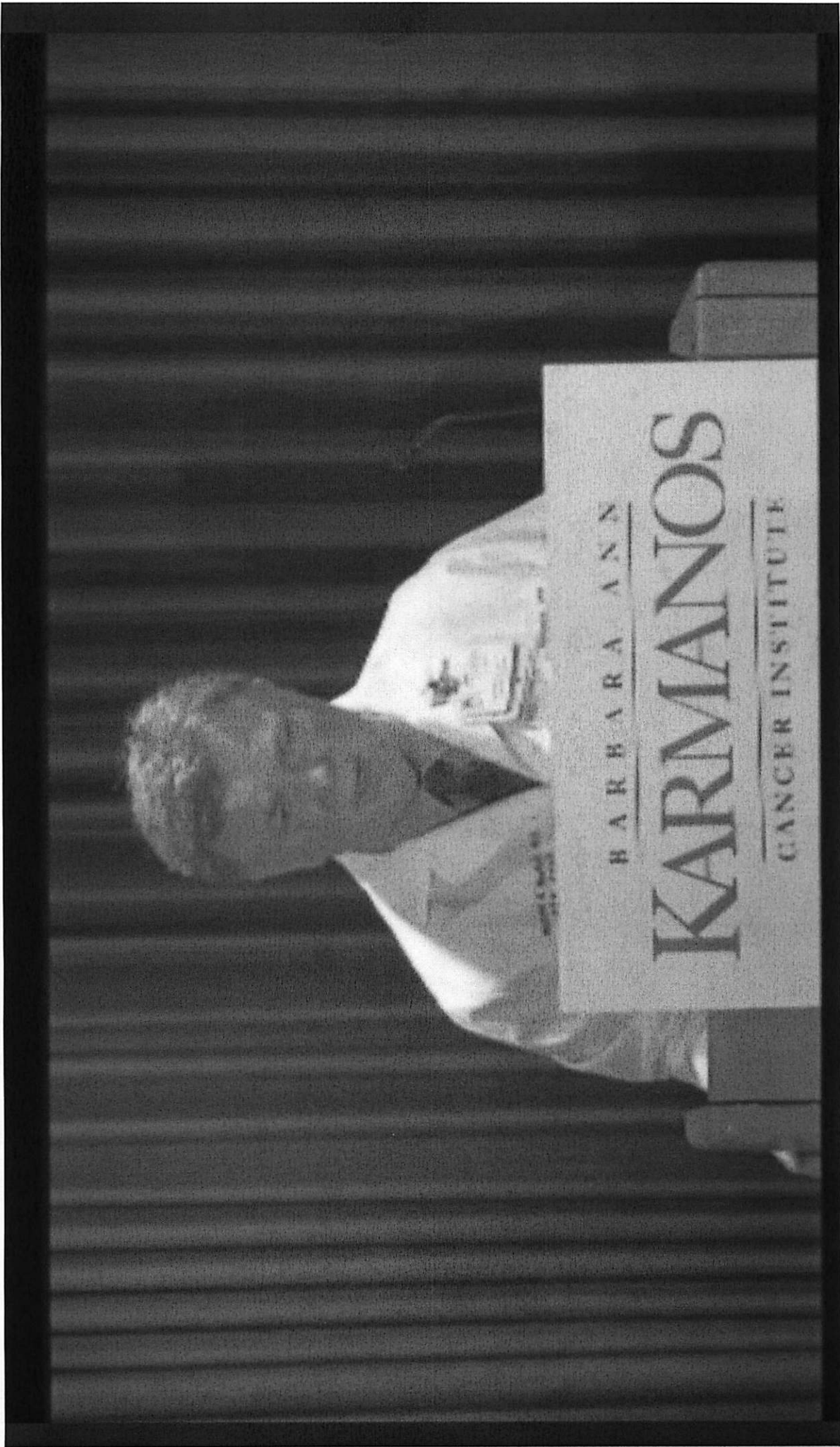


This is the address of the 22 minute video prepared by Dr. Michael Harbut on 8-5-10 DURING the Deepwater Horizon oil spill. With this document, Dr. Harbut was attempting to provide clinical information to the physicians who would be treating people affected by exposure to the crude oil and other chemicals involved in DWH tragedy.

http://www.sciencecorps.org/Harbut_consult/DrHarbut.wmv



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8-5-10

Hello, I'm Michael Harbut. I'm a professor of internal medicine at Wayne State University in Detroit and I'm the director of the environmental cancer program at the Karmanos cancer institute, also in Detroit.

Karmanos Cancer Institute is a cancer center and is one of the National Cancer Institutes centers of excellence.

The reason that I'm making this video for the Science Corp and for the other groups that have asked is that I have a good deal of experience into seeing patients who have had exposure to petroleum distillates, and petroleum and organic solvents.

And I'm getting a lot of calls from physicians from around the country or more specifically in the Gulf region looking for what sort of advice I can offer them individually in terms of the diagnosis and treatment of patients.

We did We did issue through Science Corps a guidance for chemical case and we also issued a length examination of the health case issues associated with petroleum and petroleum distillates and dispersants. But no one thought it would be worthwhile for clinicians to be able to have the advantages of sort of a conversational curbside consult reflection of the experiences I have had. 1:09

1:16 I need to tell you first of all before going much further that this is not intended as medical advice in any individual case and should not be construed as anything related to providing medical care for any individual patient.

The first thing I would like to talk about that has sort of been on my mind in this whole discussion is this issue of permissible exposure limits, measurable values or the amount of toxins someone to which someone may get exposed. You first need to know that these should not be used for guides to medical treatment. These levels which were determined to be safe or unsafe are determined by a process which starts out as a scientific – but often ends as being quite political.

1:50 You can't depend on them for deciding whether or not you're going to treat an individual patient, there can be indicators of whether or not patients are exposed to a given toxins but they have very limited medical value – beyond this. This is documented in the literature time and time again and I really want to caution you to not get drawn into the belief that just because something has a low parts per million or parts per billion score, if you will, that it's safe for people to be breathing it in or drinking it.

2:35 So, among the first things I want to pass on to you is to be very cautious when interpreting the results of air sampling or water sampling because they may not be

accurate, not only in their actual essence but also accurate in the form of what's safe and unsafe.

2:48 So Next, let me talk a little about petroleum and the petroleum distillates found in the dispersants.

The petroleum, as you know, and for details, please do look up our PDF that I told you about on Science Corp.org?? for petroleum and petroleum distillates. There is a lot of similarity actually in the content, they are organic solvents such as Benzene, often Xylene, often Toluene, often n-Hexane – It's sort of an entire mixture.

3:22 For the clinician it's a realistic matter. There isn't a lot of difference in the diagnosis and treatment of people who have been exposed to petroleum itself or the dispersants. We know that they are largely the same thing when it comes to human health effects.

The next thing that I want to say that's sort of important is that the diagnosis and treatment of illnesses caused by these exposures

The diagnosis and treatment of illness caused by these exposures can be very difficult, although it's easy to mistake one for another in terms of Diagnosis and _____. Nonetheless, they are easy? To approach the patient who has had an exposure and do him or her a lot of good if they're suffering.

4:09 So, among the sort of things that I often see with these exposures in the short term is a cough. People will come in and say, I work in a refinery and I've been exposed to this spill of petroleum products. First I had burning of my eyes a rash, a sore throat, a cough. But that was a few weeks ago and I'm now still having a cough, which is exacerbated by almost any exposure including heat or cold air or rain.

4:40 Among the things that petroleum products or petroleum solvents or petroleum distillates all – sort of lumping these together for purposes of this discussion. Among the things that we know to be caused is asthma, and hypersensitivity pneumonitis, sometimes called chemical pneumonitis. And these may be also the much more rare the occurrence of lipoid pneumonitis.

What basically this is is a classical inhalation injury which causes some damage to the surface epithelium that can result in asthma, mindful that asthmas are not causing wheezing many of the times.

5:21 It can manifest as Shortness of Breath, chest tightness, of course you have to rule out myocardial disease when you have the chest tightness presentation. Cough, harking people off. I and other related presentations that we see in asthma in general.

Now, if the organic solvent or the organic product or petroleum or petroleum distillate gets the print of the lung, it can cause a hypersensitivity reaction.

5:51 Hypersensitivity reactions are basically a magnified allergic type reactive allergic type response on the part of the lung to inhaled matter. And because of the petroleum products are quite microscopic they are able to get deep into the lungs and do damage.

6:17 And the treatment for this is of course immediate removal of exposure. We often use steroids and supportive measures that are used in respiratory distress. This can be a very serious condition. It can go on to become chronic. It can lead to bronchiolitis Obliterans, organized pneumonia or what is now called cryptogenic organizing pneumonia.

6:41 these are in the realm of scientific cascade, a cause and effect that can be seen. Another thing that is also troublesome in patients who present at the exposure to this group of agents -

7:00 is there will be memory loss, or mental confusion, or bad dreams. We know that this family of exposures can cause neuropsychological effects, all sorts of emotional instability in susceptible patients. And the simple Mini Mental status exam where you ask "what day is it.....you know the presidents.....it may not be enough and they will require referral to neural-psychological evaluation.

7:28

Another problem we see, and I want to keep this sort of brief, and I want to stress again that this is not a complete guide - you can find more complete guidelines not only in our postings but on the Agency for Toxic Substances and Disease Registry.

7:43

A very good website where there are booklets and educational modules to help make occupations and environmental diagnostic steps.

7:59 So we will often see a rash which is related to the exposure to the petroleum and petroleum products. Treatment for this is the treatment for most environmental agents is removal and appropriate topical medication, sometimes steroids sometimes-systemic steroids.

8:17 And of course, the normal dermatological treatment.

Another problem that we see because of the exposure of the patients to these agents is neuropathy. We do know that in many of the petroleum products there is an n Hexane. N-Hexane is associated with Wallerian Degeneration of the peripheral nerves. It's a dying back degeneration. The myelin sheath disintegrates. Testing for this one of sort's pearls I would like to leave you with is "Remember that EMG is not abnormal in neuropathy until about one third of the nerve has been essentially killed off.

8:55 So if a patient comes in with some sort of mile neuropathy but you get no EMG, You still need to consider the role of petroleum exposure in the diagnostic differential and treatment process.

9:12 What are some of the more long term worrisome things? Well, obviously I'm at a cancer institute and one of the things we look at most is causation of cancers. Cancers really we don't expect to see the development right away. I will not be surprised to see a significant upswing in cancer incidents in the region, and if not Broader if there is food is involved.

9:36 For a number of reasons, one, we know there is at least Benzene, a known carcinogen and mutagen has been associated with leukemia, lung cancer and probably a number of other cancers. This would be expected to be developing in the lungs probably at least within 5 to 10 years, maybe longer, in patients who have exposure to these products with Benzene in them.

10:06 I'm cautioning you that I'm using this term myself "significant exposures." What is significant exposure?? Well, we fully agree in the environmental cancer community that there's such a thing as a safe level of exposure to any carcinogen.

10:16 For most carcinogens, we know that the more you get exposed to the more likelihood you have of getting cancer. But the ___ is because we have a background level of exposure to many of these carcinogenic chemicals anyway. We won't see the increased beyond background which is probably also environmentally induced to a larger degree, until there's a certain level reached and nobody really knows what that level is. The prudent physician will suggest that people will not inhale, eat or drink any carcinogens at all.

10:51 There are also some data that shows that some of the animal life, some of the fish life may eat some of the petroleum products and there may be mutagens or carcinogens form in the life forms in the fish or whatever – or living creature we're talking about that may become food.

11:18 I'm sort of hesitant to talk a lot about this right now because we don't know that. The flags have been raised. Seafood which has eaten these petroleum products any produce mutagens and be capable of being transferred to people who eat those products. Ultimately, the data's not up on this but it certainly is something that's sobering and a major concern.

11:46 In terms of mutagens, and what I call Endocrine disrupters. Many of the chemicals that go to make up the petroleum mixture have been implicated as being Endocrine Disrupters. Meaning that they are recognized by the body as being hormones, and most often female hormones.

There is discussion and there is information in the literature that says that the ingestion of agents which cause the creation of these endocrine disrupters, may

contribute to the actual epidemic in the U.S. of the early onset of Menses, precocious puberty and probably some of the testicular abnormalities that are seen in animal life.

12:31 Nobody knows for sure but it's certainly the 900 pound gorilla in the room along with the 2 other 900 pound gorillas being the Mutagens and Carcinogens!!

The next thing I'd like to touch on sort of briefly as part of this very, very abbreviated clinical conversation, is what do you do when you see a patient who has exposure to the petroleum products and who has a particular complaint??

Well, the one I talked about a few minutes ago is cough. You'll also see commonly in some neurophysiological manifestations in terms of insomnia, bad dreams and other potential neurotic diagnostic labels.

12:30 You should probably do a very minimal number of things. I would recommend that you read "How to take an environmental history" from the ATSR web site to absorb that. I recommend you look at the KARMANOS web site WWW.karmanos.org and look up the environmental cancer program. We've got a very innovative cancer program here at Karmanos, that has been helpful to physicians for learning more about his area of medicine.

13:58 I would recommend that you would probably do pretty significant testing. Probably will need a complete pulmonary function test including platysmograph and diffusion capacity. You should of course at a minimum do a cubic, SAM 12, I generally recommend a Beta 2 Microglobulin for renal dysfunctions. A GTT can be VERY helpful.

I've been recommending for a number of years a serum electrophoresis with Immune Fixation. This is not only to determine any -- It's a clinical evaluation that can determine any abnormality in the protein which is measured but it can also give you a baseline against which future changes can be measured.

14:40 I commonly recommend also an anti histone? Antibody, If you remember your rheumatology training, the antihistone antibody becomes abnormal in drug induced Lupus, its manifestation of exposures are lupus like.

I published a brief letter a number of years ago where we looked at an antihistone antibody in patients who were exposed to solvents and found it to be positive and after the removal the -----garbled-----organic solvent meaning petroleum based products and it can be helpful.

15:21 You also want to do all the standardized studies which are indicated for the presentation in terms of the radiographic evaluation of the lungs. To help determine if there is a hypersensitivity pneumonitis. You really ought to consider a 64 slice high resolution CT scan. An experienced reader should be looking at it there

should be attention given to the setae. There should be attention given to the sub-pleural changes, you can't be satisfied with the radiologist who looks at it and says "No acute changes." That really is not good enough in toxic exposures potential evaluation.

15:55 You want to get a urinalysis as well. It's fairly important, keeping in mind that some of these agents have been associated with bladder and kidney cancer.

16:10 The general consideration the measurement of specific organic solvent, a specific petroleum products in the blood doesn't yield very much. These agents evaporate very quickly. You may draw it at noon on e day and by the time you get it to the lab and you attempt? To keep it safely in the test tube – safely means sealed – ...

16:36...it still may evaporate when the cap is taken off. Also when people inhale or ingest these chemicals they __??__ agents they rapidly are cleared from the body.

So rather than looking for specific agents, most clinicians who see a number of patients in this field recommend that you look for end-organ damage which would of course be the lungs, the heart, the brain, the kidneys, the liver, the bladder. These agents are capable of harming almost all of the organs either alone or in combination.

17:13 I want to talk about the measurement – I want to talk about the combination of these agents. Many studies that the Government must rely on because of its specific mandates, in may of the studies which industry will use to defend itsef against illnesses that might be attributable to their exposures - to the exposures they produce – will look at a study or a series of studies of one particular chemical and separate it out from the others. That's really intellectually bankrupt>

17:49 If a motor vehicle victim comes in and has a broken arm, a broken leg, a ruptured spleen, a concussion, you don't look at each one individually.

18:03 It's important to remember that even though the studies are normal, in terms of the damage these agents will do in combination, they will act at least additively and, in many cases, synergistically.

just because this patient comes in with a – it goes back to what I told you initially – that you can't really depend on air water sampling because you're looking at only one agent.18:25.

So a patient may come in with a safe level of exposure – quote-unquote safe – mindful that this is determined by political process – not by heavenly fiat or absolute scientific rigidity and rigorous evaluation. Put through somewhat of a political process.

Just because there's lower than what are considered to be dangerous levels before for 4 or 5 different chemicals doesn't mean the patient is home safe. It just means that you probably are going to have much more of a worry about toxic results because of the effects of the chemicals.

19:04 So, this is a very fast, very rapid sort of overview of the things I think are very important to be looked at in the evolution of patents with exposure to petroleum and petroleum products and especially now –

19:19 Today is August 5, 2010 – and it appears that they may be slowing the flow of or stopping the escape of more petroleum. But, the health effects will persist and if not appear periodically in some cases actually accelerate.

19:39 I think it's also important to know for physicians who are examining patients who may be in the Gulf area that just because they can't find oil, that they say came out of the well, doesn't mean it went away.

19:54 Something happened to it. As we all know, you can't have a million gallons of a closed system and have it only go away. It just doesn't do that.

So, I think you have to be conscious of this fact that there could be fugitive deposits of the oil or the dispersant-oil mixture around in the Gulf:

Perhaps someday it will become totally dispersed and sea life will be eating it and the issue of carcinogenicity and mutagenicity will be more of an acute and measurable problem.

10:32 But as a practical and clinical thought if I were in your situation in the Gulf, what I would do is be conscious of that there are millions of gallons of the stuff unaccounted for. Until they can account for it, you should treat the petroleum in the same sort of way society treats a felon on probation. The felon and the petroleum may be out of sight, but it is a big mistake to put them out of mind.

32:03 E-mail questions to harbutm@Karmanos.org

Call 248 547-9100

Dr. Kathy Burns at Science Corps.