

From: Hatcher, Michael (ATSDR/DTHHS/EMB)
Sent: 5 May 2016 09:16:18 -0400
To: Stephens, James W. (ATSDR/DTHHS/OD)
Cc: Murray, Ed (ATSDR/DTHHS/OD);Pinheiro, Germania
(ATSDR/DTHHS/EMB);Tencza, Brian (ATSDR/DTHHS/EMB)
Subject: Clinician Counseling FAQ for PFASs
Attachments: Physician PFASs Counseling Fact Sheet May 5th 2016.docx
Importance: High

Jimmy,

Attached is the clinician counseling FAQ for PFASs. I am sending for your advanced review and will send to Selene for her review shortly. If you are think we are ready to share with the group, I will send to John Decker to distribute.

Michael

An Overview of Perfluoroalkyl and Polyfluoroalkyl Substances for Clinicians Responding to Patient Exposure Concerns

Introduction

The purpose of this fact sheet is to aid physicians with patient consultations on per- and polyfluoroalkyl substances (PFASs). It highlights what PFASs are, specifies which chemicals fall into this category of substances, identifies health effects associated with exposure to various PFASs, and suggests how to address patient concerns about potential PFASs exposure.

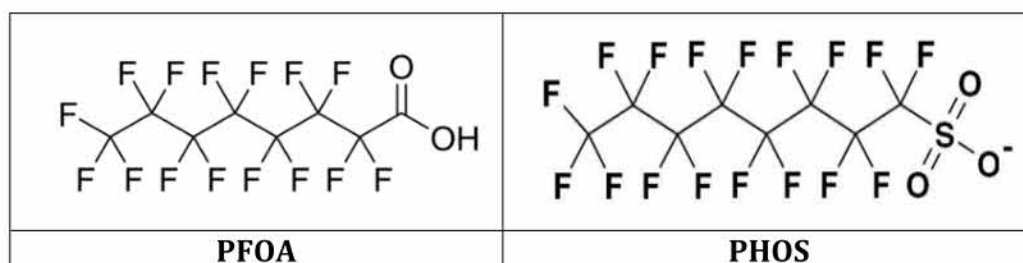
What are PFASs?

Per- and polyfluorinated alkyl substances (PFASs), sometimes known as PFCs (per- and polyfluorinated chemicals) are synthetic chemicals and do not occur naturally in the environment. There are many different types of PFASs such as perfluorocarboxylic acids (PFOAs, sometimes called C8, or PFNAs) and perfluorosulfonates (PFOS and PFHxS). These chemicals have been used since the 1950s in many commercial applications, as well as in industrial and consumer products because of their surfactant and stain- and water-repellant properties. Specifically, these chemicals have been used in adhesives, cosmetics, cleaning products, and firefighting foams.

Why are PFASs a possible health concern?

According to the US. Environmental Protection Agency (EPA), PFASs are considered emerging contaminants. An “emerging contaminant” is a chemical or material that is characterized by a perceived, potential, or real threat to human health or the environment or by a lack of published health standards.

PFOS and PFOA are two of the most studied PFASs. Exposure to PFOA and PFOS is widespread and global. PFASs are extremely persistent in the environment and resistant to typical environmental degradation processes. The source pathway for dispersion of these chemicals appears to be long-range atmospheric and oceanic currents transport. Several PFASs and their potential precursors are ubiquitous in the urban environment. Some long-chain PFASs bioaccumulate in animals and can enter the human food chain. The term ‘long chain’ perfluorinated substances refers to PFASs with carbon chain lengths C8 and higher (including PFOA) and PFASs with carbon chain lengths C6 and higher (including PFOS).



PFOS and PFOA also persist in the human body and are eliminated slowly. Both PFOS and PFOA can be found in the blood, urine, breast milk and in umbilical cord blood.

PFOS and PFOA pose potential adverse effects for human health given their potential toxicity, mobility and bioaccumulation potential.

What are the main sources of exposure to PFASs?

For the general population, ingestion of PFASs is considered the major human exposure pathway. The major types of human exposure sources for PFASs, include:

- Drinking contaminated water
- Ingesting food that may contain high levels of PFASs, such as certain types of fish and shellfish
- Ingesting food contaminated by packaging materials containing PFASs (e.g., popcorn bags, fast food containers, and pizza boxes)
- Hand-to-mouth transfer from surfaces treated with PFAS-containing stain protectants, such as carpets, which is thought to be most significant for infants and toddlers
- Workers in industries or activities that manufacture, manipulate or use products containing PFASs may be exposed to higher levels than the general population.

What are other low level exposure sources?

Individuals can also be exposed by breathing air that contains dust contaminated with PFASs (from soil, carpets, upholstery, clothing, etc.), or from certain fabric sprays containing this substance.

Dermal exposure is a minor exposure pathway. Dermal absorption is slow and does not result in significant absorption.

What are the potential PFASs exposure risks to fetuses and children?

Recent research evaluating possible health effects to fetuses from PFAS exposures have shown that developing fetuses can be exposed to PFASs when umbilical cord blood from their mothers cross the placenta during pregnancy. It is important to note that different PFASs have varying levels of permeability to the placental barrier.

Newborns can be exposed to PFASs through breast milk. Older children may be exposed to PFASs through food and water, similar to adults. In addition, young children have a higher risk of exposure to PFASs from carpet cleaners and similar products, largely due to time spent lying and crawling on floors in their early years.

How long do PFASs remain in the body?

Different PFASs have different half-lives. PFASs usually persist in the blood more than 1000 days. PFOS and PFOA have half-lives in humans ranging from 2 to 9 years.

What are exposure limits for PFASs in drinking water?

The Environmental Protection Agency (EPA) has determined that the concentration of PFOA and PFOS in drinking water, either individually or combined, should not be greater than 0.07 parts per billion. If this concentration is exceeded, EPA advises that an alternative drinking source should be used.

What are PFASs levels in the American population?

Most people in the United States and in other industrialized countries have measurable amounts of PFASs in their blood.

The National Health and Nutrition Examination Survey (NHANES) is a program of studies conducted by the Center for Diseases Control and Prevention (CDC) to assess the health and nutritional status of adults and children in the United States. NHANES (2011–2012) measured the concentration of PFASs in the blood of the general U.S. population (12 years of age and older). The average blood levels found were as follows:

- PFOA: 2.1 parts per billion, with 95% of the general population at or below 5.7 parts per billion
- PFOS: 6.3 parts per billion, with 95% of the general population at or below 21.7 parts per billion
- PFHxS: 1.3 parts per billion, with 95% of the general population at or below 5.4 parts per billion

Based on data collected from previous NHANES survey years, levels of PFASs are decreasing in the blood of the general population.

How can PFASs potentially affect human health?

There is limited evidence about the health effects on humans from PFASs.

Animal Studies:

Adverse health effects have been demonstrated in animal studies, but these occurred at levels higher than those found in people. The main health effects observed were: increase in liver weight, changes in spleen, thymus, and developmental endpoints. Adenomas of the liver, testis, and pancreas were observed in rats exposed to PFOA. Liver adenomas were also found in those rats exposed to PFOS. Toxicological studies give us important clues, but the exact link between the health effects of PFASs on animals and how that relates to human health has not been established yet.

Human Studies:

(http://www.c8sciencepanel.org/prob_link.html)

Cholesterol	Some epidemiological studies demonstrated statistically significant associations between serum PFOA and PFOS levels and total cholesterol in: <ul style="list-style-type: none">• workers exposed to PFASs,• residents of communities with high levels of PFOA in the drinking water compared to NHANES data the US general population, Other studies have found no association between PFASs exposures and the total cholesterol endpoint.
Uric acid	Several studies have evaluated the possible association between serum PFOA and serum PFOS levels and uric acid. Significant associations were found between serum PFOA and uric acid levels at all evaluated exposure levels.
Liver effects	A number of human studies have used liver enzymes as biomarkers of possible liver effects. In occupational studies, no

	associations between liver enzymes and serum PFOA or PFOS levels were consistently found. A study of highly exposed residents demonstrated significant associations but the increase in liver enzymes was small and not considered to be biologically significant.
Cancer	Increases in prostate, kidney, and testicular cancers have been found in workers exposed to PFASs and people living near a PFOA facility. These results should be interpreted cautiously because the findings were not consistent, and most studies did not control for other potential factors including smoking. Additional research is needed to clarify this association. The International Agency for Cancer Research (IARC), however, has classified PFOA as possibly causing some cancers. No other PFASs have been evaluated by the IARC.

There are still important research gaps about these chemicals that need to be addressed but the toxicity in animals, mobility, persistence, and bioaccumulation of these substances in the environment raise concerns about possible human health effects.

What are potential health effects from prenatal PFASs exposure to fetuses?

There is evidence to suggest that high serum PFOA or PFOS levels may possibly be associated with lower birth weights. Although some studies have found this association, the decreases in birth weight were small and were not considered clinically significant. A study found that 1-ng/mL increase in prenatal PFOS and PFOA levels that were associated with a 5.00 gram reduction in birth weight for PFOS and 14.72 gram reductions in birth weight for PFOA (Verner et.al. DOI:10.1289/ehp.1408837). While the lower birth weight is not seen as clinically significant, any decrease in birthweight is a concern warranting further study.

Information to answers questions patients may have for the clinician.

As a clinician, you know careful listening and patient engagement is critical for ensuring quality patient care, especially when health concerns are raised. Perhaps the most difficult challenge in speaking with patients about their health concerns is addressing uncertainty. If your patient has concerns about an exposure to PFASs, you may face the challenge of helping your patient cope with the uncertainty of potential health effects from a PFAS exposure.

Based on feedback from clinicians and from individuals who have spoken to their health care provider about their PFAS exposure concerns, a set of patient questions have been identified. To assist you in speaking with your patients about their concerns, key messages and supporting facts needed to answer the anticipated patient questions are provided in the table below for your use.

Before the patient questions are presented, a reminder about communicating uncertainty is offered. These tips are:

- Listen carefully to your patients and try not to rush to a solution.
- Do not downplay concerns.

- Ask about others in the home that also may have been exposed. Does the patient’s family member have any symptoms of illness?
- Share with the patient as much information as possible in order to help them understand their health risks.

Patient Questions and Key Message Answers:

Questions Patients May Ask	Key Patients Messages	Key Messages Supporting Facts
<p>What should I do, there are high levels of PFASs in my water?</p>	<p>If the water you use is above the safety limits EPA has set, you should find an alternative water source for drinking, food preparation, cooking, brushing teeth, and other activity that might result in you swallowing the contaminated water.</p>	<p>Potential health effects are associated with exposure to PHASs.</p> <p>EPA has established a health advisory PFOA and PFOS drinking water concentrations level at 0.07 parts per billion or greater. PFOA and PFOS are additive. If PFOA and PFOS at individual or combined concentrations exceed 0.07 parts per billion, a new drinking water source is advised.</p> <p>Normal processes to prepare water for drinking, do not remove any of the PFASs. Home water filters and boiling water will not remove PFASs from a drinking water source.</p> <p>If bottle water is the alternative selected, your patient should be advised to select bottle water that uses reverse osmosis in the bottlings process. There are no regulations regarding PFASs level that water bottlers must meet. If water bottlers draws water from a PFAS contaminated source that bottled water would not be a good alternative.</p>
<p>Is it safe for me to breastfeed my baby?</p>	<p>Breastfeeding is associated with numerous health benefits for infants and mothers.</p> <p>At this time, it is recommend that you as a nursing mother continue to breastfeeding your baby.</p>	<p>Extensive research has documented the broad and compelling advantages of breastfeeding for infants, mothers, families, and society. Some of the many benefits include immunologic advantages, lower obesity rates, and greater</p>

Questions Patients May Ask	Key Patients Messages	Key Messages Supporting Facts
	<p>The science on the health effects of PFAS for mothers and babies is growing and this guidance could change.</p> <p>However, given the scientific understanding at this time, the benefits of breastfeeding your baby outweigh those of not breastfeeding.</p>	<p>cognitive development for the infant as well as a variety of health advantages for the lactating mother. Even though a number of environmental pollutants readily pass to the infant through human milk, the advantages of breastfeeding continue to greatly outweigh the potential risks in nearly every circumstance.</p>
<p>Could my current health problem be related to PFASs exposure?</p>	<p>Research has not conclusively connected any current health problem to past or current PFASs exposure.</p>	<p>While some health studies have found health associations with PFASs exposure, the studies are inconsistent and it remains unclear if PFASs cause any of the health problems.</p> <p>If a patient presents with concerns that a health issue is connected to PFASs exposure, it is appropriate to discuss the patient's concerns and perform a thorough health history and physical exam relative to any symptoms reported.</p>
<p>Do I need to be concerned about future health problems that might occur because of PFASs exposure?</p>	<p>Research has not conclusively connected PFASs to any future health problem that might develop.</p> <p>However, we can continue to monitor new findings on PFASs health effects and evaluated your health status annually.</p>	<p>While some health studies have found associations with PFASs exposures and health effects, like:</p> <ul style="list-style-type: none"> • Cholesterol • Uric acid • Liver effects • Cancer <p>These studies are inconsistent and overall health effects remains unclear.</p>

Questions Patients May Ask	Key Patients Messages	Key Messages Supporting Facts
Should I get a blood test for PFASs?	<p>Blood test for clinical use is not recommended.</p> <p>The blood test has no value in diagnosis, treatment or prognosis of a future health effect for the patient.</p>	<p>The value of blood testing is in evaluating exposure at a population level and monitoring an exposed population over time. In this case, monitoring can evaluate if exposure reduction measures in a community were successful. However, given the long biological half-life of PFASs frequent blood monitoring has no value.</p>
What do my PFASs blood tests results mean?	<p>The blood test for PFASs can only tell us the levels of specific PFASs in your body at the time you were tested.</p> <p>The blood tests results cannot be interpreted and used in your patient care.</p>	<p>There is currently no established PFAS blood level at which a health effect is known nor is there a level that predict past or future health problems.</p> <p>The level of PFASs can only be compared to the average national blood level for the different PFASs in the NHANES studies. This can tell a person if their blood levels are within range of the national norms or if their levels are high or low compared to the national average.</p>
Should I be tested for any of the health effects associated with PFASs exposure (cholesterol level, liver function, uric acid, etc.)?	<p>Laboratory testing is not recommended to monitor cholesterol levels, liver function, and uric acid because of a PFAS exposure concern.</p> <p>However, if you are concerned we can do baseline testing to determine if these values are within the normal range for you.</p>	<p>Health effects associated with PFASs are not specific and can be caused by many other factors.</p> <p>There are no baseline guidelines to support use of these clinical test to monitor PFASs health concerns.</p> <p>Patient concerns, previous and existing conditions identified in the differential diagnosis, age, symptoms, and physical examination should be taken into account to request these tests.</p> <p>Baseline blood tests for cholesterol, uric acid, thyroid function tests and liver function are well established in clinical medicine for acute and</p>

Questions Patients May Ask	Key Patients Messages	Key Messages Supporting Facts
		chronic conditions. If appropriate clinical laboratory monitoring is done, those laboratory measures can be considered in assessing the overall health of the patient.

Where can I get more information?

Resource	Link
ATSDR	
Toxic Substance Portal	http://www.atsdr.cdc.gov/substances/index.asp
ToxFAQs	http://www.atsdr.cdc.gov/toxfaqs/tf.asp?id=1116&tid=237
CDC	http://www.cdc.gov/biomonitoring/PFCs_FactSheet.html
C8 Science Panel	http://www.c8sciencepanel.org/prob_link.html
EPA	https://www.epa.gov/chemical-research/research-perfluorooctanoic-acid-pfoa-and-other-perfluorinated-chemicals-pfcs
IARC	http://www.iarc.fr/
NIEHS	https://www.niehs.nih.gov/health/materials/perflourinated_chemicals_508.pdf

From: Day, Kristine (CDC/ONDIEH/NCCDPHP)
Sent: 6 May 2016 12:17:55 -0400
To: Knutson, Donna (CDC/ONDIEH/NCEH);Breyse, Patrick N. (CDC/ONDIEH/NCEH)
Subject: confirming who from CDC to include RE: Call EPA/CDC on May 10

Following up to confirm if these are the correct CDC/ATSDR attendees based on Tom's list of EPA participants below.

Pat
Donna
Pam P-B
Christian

According to EPA...

"Tom wanted to keep the meeting small. EPA participants would be:

-Tom Burke
-Robert Kaplan (Region 5 Regional Administrator)
-Joel Beauvais (Acting Deputy Assistant Administrator of Water)"

From: Clancy, Carolyn
Sent: 2 May 2016 09:39:42 -0400
To: Breyse, Patrick N. (CDC/ONDIEH/NCEH)
Subject: FW: Editing proposed new rules for GW Vet Brain Cancer and Camp Lejeune
Importance: High

Pat,

OMB will not consider non-peer reviewed documents. So I think we will have to do our best (and quite a bit of rework) to get Camp Lejeune regs out (don't see a way around this).

For the future: if ATSDR aspires to impact policy — and be recognized publicly for same — you will need to create a faster path than typical peer-reviewed processes (my recollection is that journal articles published by CDC scientists can take many months to exit internal CDC processes).

When I was at AHRQ we dealt with this issue with respect to work we did for CMS — many scientists also wanted to publish their work so we worked with some journals to establish rapid processes with shared reviewers (i.e. Same reviewers would examine both manuscript and policy document). Comparable issue for USPSTF.

Happy to chat and/or put you in touch with folks who led this work.

Carolyn

Carolyn M. Clancy, MD
Deputy Under Secretary for Health,
Organizational Excellence
Department of Veterans Affairs
810 Vermont Ave, NW
Washington, DC 20420
202-461-0370

From: "Flohr, Brad, VBAVACO" <brad.flohr@va.gov<mailto:brad.flohr@va.gov>>
Date: Monday, May 2, 2016 at 8:45 AM
To: Department of Veterans Affairs <carolyn.clancy@va.gov<mailto:carolyn.clancy@va.gov>>, Ralph Ericsson <Ralph.ericsson@va.gov<mailto:Ralph.ericsson@va.gov>>, "Irons, Terra" <Terra.Irons@va.gov<mailto:Terra.Irons@va.gov>>
Cc: "Russo, Bill" <Bill.Russo@va.gov<mailto:Bill.Russo@va.gov>>, "Lezama, Nicholas G." <Nicholas.Lezama@va.gov<mailto:Nicholas.Lezama@va.gov>>, "Kalasinsky, Victor" <Victor.Kalasinsky@va.gov<mailto:Victor.Kalasinsky@va.gov>>, "Dursa, Erin" <Erin.Dursa2@va.gov<mailto:Erin.Dursa2@va.gov>>, "Barth, Shannon K." <Shannon.Barth@va.gov<mailto:Shannon.Barth@va.gov>>, "Schneiderman, Aaron" <Aaron.Schneiderman@va.gov<mailto:Aaron.Schneiderman@va.gov>>
Subject: RE: Editing proposed new rules for GW Vet Brain Cancer and Camp Lejeune

Carolyn,

Per our discussion with OMB last week, they will not consider non-peer reviewed documents. We are deleting our references to the ATSDR paper in the regulation and replacing them with reference to the sources of the information used by ATSDR: IOM, EPA, IARC, etc.

Brad

From: Clancy, Carolyn
Sent: Sunday, May 01, 2016 10:54 AM
To: Flohr, Brad, VBAVACO; Erickson, Ralph L.; Irons, Terra
Cc: Russo, Bill; Lezama, Nicholas G.; Kalasinsky, Victor; Dursa, Erin; Barth, Shannon K.; Schneiderman, Aaron
Subject: Re: Editing proposed new rules for GW Vet Brain Cancer and Camp Lejeune

Re CLJ — I spoke with Pat Breysse who thought (and will verify) that we can shared their document for the purpose of establishing draft regulations, i.e., share with OMB. He asked if this would be sufficient from their perspective? (I know some entities would consider a technically un-reviewed document to be 'gray' literature)

Can you let me know??

Carolyn M. Clancy, MD
Deputy Under Secretary for Health,
Organizational Excellence
Department of Veterans Affairs
810 Vermont Ave, NW
Washington, DC 20420
202-461-0370

From: Clancy, Carolyn
Sent: 2 May 2016 16:07:39 -0400
To: Breyse, Patrick N. (CDC/ONDIEH/NCEH)
Subject: FW: Editing proposed new rules for GW Vet Brain Cancer and Camp Lejeune

A bit more

Carolyn M. Clancy, MD
Deputy Under Secretary for Health,
Organizational Excellence
Department of Veterans Affairs
810 Vermont Ave, NW
Washington, DC 20420
202-461-0370

From: "Irons, Terra" <Terra.Irons@va.gov<mailto:Terra.Irons@va.gov>>
Date: Monday, May 2, 2016 at 8:49 AM
To: Department of Veterans Affairs <carolyn.clancy@va.gov<mailto:carolyn.clancy@va.gov>>, "Flohr, Brad, VBAVACO" <brad.flohr@va.gov<mailto:brad.flohr@va.gov>>, Ralph Ericsson <Ralph.erickson@va.gov<mailto:Ralph.erickson@va.gov>>
Cc: "Russo, Bill" <Bill.Russo@va.gov<mailto:Bill.Russo@va.gov>>, "Lezama, Nicholas G." <Nicholas.Lezama@va.gov<mailto:Nicholas.Lezama@va.gov>>, "Kalasinsky, Victor" <Victor.Kalasinsky@va.gov<mailto:Victor.Kalasinsky@va.gov>>, "Dursa, Erin" <Erin.Dursa2@va.gov<mailto:Erin.Dursa2@va.gov>>, "Barth, Shannon K." <Shannon.Barth@va.gov<mailto:Shannon.Barth@va.gov>>, "Schneiderman, Aaron" <Aaron.Schneiderman@va.gov<mailto:Aaron.Schneiderman@va.gov>>
Subject: Re: Editing proposed new rules for GW Vet Brain Cancer and Camp Lejeune

Yes ma'am, this is the case. We were instructed to make edits to the scientific reasoning based only on literature and assessments that have been published.
Terra

Sent from my BlackBerry 10 smartphone on the Verizon Wireless 4G LTE network.
From: Clancy, Carolyn
Sent: Monday, May 2, 2016 8:34 AM
To: Irons, Terra; Flohr, Brad, VBAVACO; Erickson, Ralph L.
Cc: Russo, Bill; Lezama, Nicholas G.; Kalasinsky, Victor; Dursa, Erin; Barth, Shannon K.; Schneiderman, Aaron
Subject: Re: Editing proposed new rules for GW Vet Brain Cancer and Camp Lejeune

Thank you

If you could confirm with them that this is the case I will get that feedback to ATSDR (the bottom line, if they want to be science 'white hats' who impact policy, they need a new work process)

Carolyn M. Clancy, MD
Deputy Under Secretary for Health,
Organizational Excellence
Department of Veterans Affairs
810 Vermont Ave, NW
Washington, DC 20420

202-461-0370

From: "Irons, Terra" <Terra.Irons@va.gov<mailto:Terra.Irons@va.gov>>
Date: Monday, May 2, 2016 at 8:31 AM
To: Department of Veterans Affairs <carolyn.clancy@va.gov<mailto:carolyn.clancy@va.gov>>, "Flohr, Brad, VBAVACO" <brad.flohr@va.gov<mailto:brad.flohr@va.gov>>, Ralph Ericsson <Ralph.erickson@va.gov<mailto:Ralph.erickson@va.gov>>
Cc: "Russo, Bill" <Bill.Russo@va.gov<mailto:Bill.Russo@va.gov>>, "Lezama, Nicholas G." <Nicholas.Lezama@va.gov<mailto:Nicholas.Lezama@va.gov>>, "Kalasinsky, Victor" <Victor.Kalasinsky@va.gov<mailto:Victor.Kalasinsky@va.gov>>, "Dursa, Erin" <Erin.Dursa2@va.gov<mailto:Erin.Dursa2@va.gov>>, "Barth, Shannon K." <Shannon.Barth@va.gov<mailto:Shannon.Barth@va.gov>>, "Schneiderman, Aaron" <Aaron.Schneiderman@va.gov<mailto:Aaron.Schneiderman@va.gov>>
Subject: Re: Editing proposed new rules for GW Vet Brain Cancer and Camp Lejeune

Dr. Clancy,

I think they have seen it. The problem is that they would ideally want to reference the document, but it has not been peer reviewed or published; therefore, they don't want to mention it in the regulation at all.
Terra

Sent from my BlackBerry 10 smartphone on the Verizon Wireless 4G LTE network.
From: Clancy, Carolyn
Sent: Sunday, May 1, 2016 10:53 AM
To: Flohr, Brad, VBAVACO; Erickson, Ralph L.; Irons, Terra
Cc: Russo, Bill; Lezama, Nicholas G.; Kalasinsky, Victor; Dursa, Erin; Barth, Shannon K.; Schneiderman, Aaron
Subject: Re: Editing proposed new rules for GW Vet Brain Cancer and Camp Lejeune

Re CLJ — I spoke with Pat Breysse who thought (and will verify) that we can shared their document for the purpose of establishing draft regulations, i.e., share with OMB. He asked if this would be sufficient from their perspective? (I know some entities would consider a technically un-reviewed document to be 'gray' literature)

Can you let me know??

Carolyn M. Clancy, MD
Deputy Under Secretary for Health,
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From: "Flohr, Brad, VBAVACO" <brad.flohr@va.gov<mailto:brad.flohr@va.gov>>
Date: Wednesday, April 27, 2016 at 8:19 AM
To: Ralph Ericsson <Ralph.erickson@va.gov<mailto:Ralph.erickson@va.gov>>, "Irons, Terra" <Terra.Irons@va.gov<mailto:Terra.Irons@va.gov>>
Cc: "Russo, Bill" <Bill.Russo@va.gov<mailto:Bill.Russo@va.gov>>, "Lezama, Nicholas G." <Nicholas.Lezama@va.gov<mailto:Nicholas.Lezama@va.gov>>, Department of Veterans Affairs <carolyn.clancy@va.gov<mailto:carolyn.clancy@va.gov>>, "Kalasinsky, Victor" <Victor.Kalasinsky@va.gov<mailto:Victor.Kalasinsky@va.gov>>, "Dursa, Erin" <Erin.Dursa2@va.gov<mailto:Erin.Dursa2@va.gov>>, "Barth, Shannon K." <Shannon.Barth@va.gov<mailto:Shannon.Barth@va.gov>>, "Schneiderman, Aaron" <Aaron.Schneiderman@va.gov<mailto:Aaron.Schneiderman@va.gov>>

Subject: RE: Editing proposed new rules for GW Vet Brain Cancer and Camp Lejeune

Thanks for this, Loren and Terra.

Brad

From: Erickson, Ralph L.

Sent: Wednesday, April 27, 2016 4:12 AM

To: Irons, Terra

Cc: Flohr, Brad, VBAVACO; Russo, Bill; Lezama, Nicholas G.; Clancy, Carolyn; Kalasinsky, Victor; Dursa, Erin; Barth, Shannon K.; Schneiderman, Aaron

Subject: Editing proposed new rules for GW Vet Brain Cancer and Camp Lejeune

Terra:

While I'm out-of-the-office I ask that you get a start on helping edit the science portion of the new proposed rules we discussed on Monday afternoon. (Thanks again for dialing in!) If I leave anything out in this message, I'm sure that either Brad Flohr or Bill Russo will add as appropriate. In a prior email I shared with you the two draft rules documents that were discussed.

Brain Cancer: The key elements that need to be added or clarified here are references to prior published work that showed an increase in brain cancer among GW Vets, but NOT an increase in any other cancer (e.g. Barth et. al). We should also be sure that we mention that we extended our review of these mortality data into more recent years. You might also ask Vic Kalasinsky or go to Gulf Link to get a map showing the extent of the plume / oil well fires smoke across this region in 1991. N.B. Because SecVA has not announced this proposed presumption, it will not be announced at the RAC by any of us.

Camp Lejeune: The big issue here is that ATSDR has never posted their 67 page document to the public NOR have they had it peer-reviewed. As you heard on the phone, OMB will have no part of referencing a phantom document! For that reason, we will need to scrub the science section of this proposed rule (for the 9 conditions) and reference only the published peer-reviewed literature that supported our TWG conclusions. We should also mention IARC, NTP, EPA, etc... as their classifications carry weight. The ATSDR water study is also important to mention as it was the starting point for exposure assessment. In essence, we will need to briefly explain that we started with reviewing the evidence for the 15 conditions mentioned in the 2012 CL law ... reviewed all of the literature, especially what was new since the 2009 NRC report... and decided that certain disease conditions met our standard (preponderance of the evidence) for inclusion in new presumptions, while other conditions did not. The addition of Parkinson's disease was based on the recent publication of the IOM's report reviewing our clinical guidelines. We'll need to find a way to reference IARC or something to support the inclusion of bladder cancer.

I will be back by at my house by mid-day on Tuesday and can then help review where we stand with the edits. Thanks!

Brad and Bill: Do you have anything else to add from your notes for the science edits we need to make on these two?

Dr. Clancy: I've included you on the CC line for your situational awareness and because neither Brad nor I will be able to attend the CoSVA's meeting on Thursday to update him on our progress.

ATB,
Loren

From: Cibulas, William (ATSDR/OA/OD)
Sent: 29 Apr 2016 09:54:03 -0400
To: Breyse, Patrick N. (CDC/ONDIEH/NCEH)
Cc: Everhart, Cheryl (ATSDR/OA/OD); Sarisky, John (CDC/ONDIEH/NCEH); Decker, John A. (CDC/ONDIEH/NCEH)
Subject: FW: EPA School IPM Roundtable – May 25 Roundtable Agenda & Logistical Information
Attachments: Schools IPM Roundtable 05-25-16 Agenda v4.docx, Principles for School IPM Roundtable v3.pdf

Pat – 1) Doesn't look like Administrator McCarthy is participating, only AA Jim Jones; 2) Both CDC and ATSDR logos attached to document.

John – It says we can bring a colleague. Let me know if Program has interest in attending.

Bill

From: Gail Bingham [mailto:gbingham@resolv.org]
Sent: Friday, April 29, 2016 9:19 AM
To: Sheila Heitzig (sheitzig@aaaai.org) <sheitzig@aaaai.org>; Tonya Winders (twinders@allergyasthmanetwork.org) <twinders@allergyasthmanetwork.org>; James Roberts (robertsj@musc.edu) <robertsj@musc.edu>; Cary Sennett (csennett@aafa.org) <csennett@aafa.org>; Adams-Taylor, Sharon (CDC aasa.org) <Sadams@aasa.org>; Cibulas, William (ATSDR/OA/OD) <wic1@cdc.gov>; Kristie Trousdale <kristiet@cehn.org>; Claire Barnett (healthyschools@aol.com) <healthyschools@aol.com>; Tom Green (ipmworks@ipminstitute.org) <ipmworks@ipminstitute.org>; jli@naccho.org (CDC naccho.org) <jli@naccho.org>; Dove, Roxanne [NEA] <RDove@nea.org>; David Dyjack <ddyjack@neha.org>; Joanne Zurcher <JZurcher@neha.org>; Sandra Whitehead <SWhitehead@neha.org>; Andy Architect (aarchitect@pestworld.org) <aarchitect@pestworld.org>; Jim Fredericks <jfredericks@pestworld.org>; Schantz, Shirley (CDC nasn.org) <sschantz@nasn.org>; John Bailey (john.bailey@cpschools.com) <john.bailey@cpschools.com>; Kimberly Richey (krichey@nsba.org) <krichey@nsba.org>; Ricardo Zubiate (Ricardo.Zubiate@slcschools.org) <Ricardo.Zubiate@slcschools.org>; Raul Rivas (RRivas@pike.k12.in.us) <RRivas@pike.k12.in.us>; Seth Miller (millers@gowestville.org) <millers@gowestville.org>; Dawn Gouge (dhgouge@ag.arizona.edu) <dhgouge@ag.arizona.edu>
Cc: Frank Ellis (Ellis.Frank@epa.gov) <Ellis.Frank@epa.gov>; Eiden, Catherine <Eiden.Catherine@epa.gov>; Glick, Sherry <Glick.Sherry@epa.gov>; Dana Goodson <dgoodson@resolv.org>; Gail Bingham <gbingham@resolv.org>
Subject: EPA School IPM Roundtable – May 25 Roundtable Agenda & Logistical Information

Dear colleagues,

We are writing to thank you for your interest in EPA's School Integrated Pest Management Initiative and to confirm your or your organization's participation in the Roundtable to be held on **May 25, 2016, from 9:00 a.m. to 12:30 p.m.** in the William Jefferson Clinton East Building on 1201 Constitution Avenue, Room 1153, Washington, DC.

A proposed agenda is attached. Please bring photo identification and allow sufficient time to pass through security. There is plenty of space for you to bring a colleague, but please let us know their name(s) so that we can plan accordingly.

As you know, participating organizations are invited to sign on to a statement of voluntary principles. We have attached a copy of the principles with the logos we have so far; and we will update it as we get the logos of those organizations who are in the process of seeking final approvals. In addition, if your organization has information on IPM that you might wish to share, please feel free to bring copies to the Roundtable.

For those who are traveling to DC from outside the region, EPA has reserved a block of rooms at the [Crystal Gateway Marriott](#) near Washington's Reagan National Airport (DCA) at the government rate of \$226/night. To reserve a room in the "Resolve Meeting" block, go to the following web address: https://resweb.passkey.com/Resweb.do?mode=welcome_ei_new&eventID=15065398. Please make your reservation by **next Wednesday, May 4.**

For any travel-related questions, please contact Dana Goodson at dgoodson@resolv.org or 202-965-6209.

Please let us know if you have any questions. We look forward to seeing you on May 25.

Gail Bingham and Dana Goodson

Gail Bingham, President Emeritus

RESOLVE

Ph: (202) 965-6200 | Cell: (b)(6)

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U.S. Environmental Protection Agency
Schools Integrated Pest Management (IPM) Roundtable

Wednesday, May 25, 2016 | 9:00 AM - 12:30 PM

William Jefferson Clinton East Building | Room 1153 | 1201 Constitution Avenue, Washington, DC

Agenda

Desired Outcomes

- Launch the Schools IPM Initiative
- Learn about the networks and communications channels participant organizations have available, and what information and resources organizations would find helpful
- Share information and resources EPA and other participants have on IPM in schools
- Discuss next steps

Materials: Schools IPM Principles

8:45 Gather for coffee/tea and informal conversation
(Please bring [photo ID](#) and allow time to go through security.)

9:00 Welcome and Opening Remarks

Jim Jones, Assistant Administrator, Office of Chemical Safety and Pollution Prevention, U.S. EPA

Participant Introductions

9:45 Participant Discussion: Outreach Mechanisms

Objective: Learn about the networks and communication channels participant organizations have available, and what information and resources organizations would find helpful.

10:30 BREAK

10:45 Presentations and Discussion: Information Resources

Objective: Share success stories and challenges to implementation, and brainstorm effective ways to implement school IPM. Share information and resources that EPA and other participants have about IPM in schools.

Presentations [60 min]

- *Seth Miller, PhD, Superintendent, Westville School District, Westville, IL*
- *Raul Rivas, Director of Facilities and Security, Metropolitan School District of Pike Township (IN)*
- *Ricardo Zubiarte, Assistant Director Facilities Services, Salt Lake City School District*
- *Dawn Gouge, PhD, Associate Professor, University of Arizona*
- *Frank Ellis, Branch Chief, Office of Chemical Safety and Pollution Prevention, U.S. EPA*

Discussion [30 min]

12:15 Wrap Up and Next Steps

Objective: Discuss plans for a follow up meeting and other ways to share information and questions as participants engage in outreach to members.

12:30 Adjourn

School Integrated Pest Management Initiative

The U.S. Environmental Protection Agency convened the undersigned national organizations to pursue a voluntary effort to make Integrated Pest Management (IPM) practices the standard in all schools over the next three years. These organizations met in May 2016 and will reconvene in a year to review progress toward this shared goal.

IPM is a science-based approach to pest management that seeks to control pest problems proactively, avoiding the unnecessary use of and exposure to pesticides while achieving acceptable control of pests indoors and outdoors.

Principles of Agreement

- We understand that children are uniquely vulnerable to environmental hazards due to their developing systems and greater exposures
- We support and will promote and communicate making sound IPM practices the standard in all schools
- We will encourage implementation of school IPM policies and practices and will encourage our members to routinely re-evaluate and improve their practices, as needed

Recommendations for Schools and School Districts

- Assess current pest management practices and recurring pest problems
- Designate and train an appropriate staff person to coordinate IPM activities
- Adopt and implement an IPM policy or plan to prevent and effectively address pest problems
- Conduct regular inspections and monitoring for pests and pest conducive conditions
- Adopt in-house IPM pest prevention and control practices indoors and outdoors and/or contract with pest management firms to perform IPM services
- Provide IPM education corresponding to the roles of those in the school community
- Visit epa.gov/managing-pests-schools for free tools and information

Participants



Asthma and Allergy Foundation of America



CHILDREN'S ENVIRONMENTAL HEALTH NETWORK

Appendix

How Can EPA Help?

EPA will provide information and tools to help schools implement IPM programs. EPA will not represent these materials as endorsed by participating organizations, but will make them available to anyone wishing to use them.

The following information was available as of Spring 2016:

- Instructional Videos — apps.cdpr.ca.gov/schoolipm/managing_pests/video_series.cfm
- Training — cals.arizona.edu/apmc/StopSchoolPests.html
- Webinars — go.usa.gov/cTZX9
- IPM Resources — schoolpestmanager.org
- Sample Pest Management Contract — go.usa.gov/cTZ8z
- Sample IPM Policy — go.usa.gov/cTZX3
- Assistance:
 - Center of Expertise for School IPM — school.ipm@epa.gov; 844-EPA-SIPM
 - Regional School IPM Coordinators — go.usa.gov/cZ6AQ

From: Stephens, James W. (ATSDR/DTHHS/OD)
Sent: 6 May 2016 17:59:49 +0000
To: Decker, John A. (CDC/ONDIEH/NCEH)
Subject: FW: Updated version of clinician fact sheet
Attachments: Physician PFASs Counseling Fact Sheet Draft May 6th review.docx

John, I think this still needs some work but is getting closer. Can you please take a look and let me know what you think?

From: Hatcher, Michael (ATSDR/DTHHS/EMB)
Sent: Friday, May 06, 2016 1:50 PM
To: Stephens, James W. (ATSDR/DTHHS/OD) <jws9@cdc.gov>
Subject: RE: Updated version of clinician fact sheet

Jimmy,

This is near to complete. We still are looking for the health effects from PFHxS and PFNA to add. Have not located the spot Selene mentioned yet. Also we want to work on the stress topic more. I will send you some work that was done years back on Katrina.

How do you want to connect and talk about these?

Michael

*Michael T. Hatcher, DrPH
Chief, Environmental Medicine Branch
Division of Toxicology and Human Health Sciences
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4770 Buford Highway, NE (Mail Stop F-57)
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770-488-3489 Voice
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MHatcher@cdc.gov
See our educational resources at:
<http://www.atsdr.cdc.gov/emes/index.html>*

From: Stephens, James W. (ATSDR/DTHHS/OD)
Sent: Friday, May 06, 2016 12:57 PM
To: Hatcher, Michael (ATSDR/DTHHS/EMB) <mth1@cdc.gov>
Subject: RE: Updated version of clinician fact sheet

Awesome. Thanks!

From: Hatcher, Michael (ATSDR/DTHHS/EMB)
Sent: Friday, May 06, 2016 12:56 PM
To: Stephens, James W. (ATSDR/DTHHS/OD) <jws9@cdc.gov>
Subject: RE: Updated version of clinician fact sheet

We are almost there. We have reworked a lot of the document to consider community and patient concerns.

Michael

From: Stephens, James W. (ATSDR/DTHHS/OD)
Sent: Friday, May 06, 2016 12:54 PM
To: Hatcher, Michael (ATSDR/DTHHS/EMB) <mth1@cdc.gov>
Subject: Updated version of clinician fact sheet

Are we going to have an updated version of the clinician fact sheet today in time to discuss it with John Decker? I'd like to have a chance to go through it with him before the weekend if possible.

An Overview of Perfluoroalkyl and Polyfluoroalkyl Substances for Clinicians Responding to Patient Exposure Concerns

Introduction

The purpose of this fact sheet is to aid physicians and other clinicians with patient consultations on per- and polyfluoroalkyl substances (PFASs). It highlights what PFASs are, specifies which chemicals fall into this category of substances, identifies health effects associated with exposure to various PFASs, and suggests how to address patient concerns about potential PFASs exposure.

What are PFASs?

Per- and polyfluorinated alkyl substances (PFASs), sometimes known as PFCs are synthetic chemicals and do not occur naturally in the environment. There are many different types of PFASs such as perfluorocarboxylic acids (PFOAs, sometimes called C8, and PFNAs) and perfluorosulfonates (PFOS and PFHxS). These chemicals have been used since the 1950s in many commercial applications, as well as in industrial and consumer products because of their surfactant and stain- and water-repellant properties. Specifically, these chemicals have been used in adhesives, cosmetics, cleaning products, and firefighting foams.

Why are PFASs a possible health concern?

According to the US. Environmental Protection Agency (EPA), PFASs are considered emerging contaminants. An “emerging contaminant” is a chemical or material that is characterized by a perceived, potential, or real threat to human health or the environment or by a lack of published health standards.

PFOS and PFOA are two of the most studied PFASs. Exposure to PFOA and PFOS is widespread and global. PFASs are extremely persistent in the environment and resistant to typical environmental degradation processes. The pathway for dispersion of these chemicals appears to be long-range atmospheric and oceanic currents transport. Several PFASs and their potential precursors are ubiquitous in the urban environment. Some long-chain PFASs bioaccumulate in animals and can enter the human food chain.

PFOS and PFOA also persist in the human body and are eliminated slowly. Both PFOS and PFOA can be found in the blood, urine, breast milk and in umbilical cord blood.

PFOS and PFOA pose potential adverse effects for human health given their potential toxicity, mobility and bioaccumulation potential.

What are the main sources of exposure to PFASs?

For the general population, ingestion of PFASs is considered the major human exposure pathway. The major types of human exposure sources for PFASs, include:

- Drinking contaminated water
- Ingesting food that may contain high levels of PFASs, such as certain types of fish and shellfish
- Ingesting food contaminated by packaging materials containing PFASs (e.g., popcorn bags, fast food containers, and pizza boxes)

- Hand-to-mouth transfer from surfaces treated with PFAS-containing stain protectants, such as carpets, which is thought to be most significant for infants and toddlers
- Workers in industries or activities that manufacture, manipulate or use products containing PFASs may be exposed to higher levels than the general population.

What are other low level exposure sources?

Individuals can also be exposed by breathing air that contains dust contaminated with PFASs (from soil, carpets, upholstery, clothing, etc.), or from certain fabric sprays containing this substance.

Dermal exposure is a minor exposure pathway. Dermal absorption is slow and does not result in significant absorption.

What are the potential PFASs exposure risks to fetuses and children?

Recent research evaluating possible health effects to fetuses from PFAS exposures have shown that developing fetuses can be exposed to PFASs when umbilical cord blood from their mothers cross the placenta during pregnancy. It is important to note that different PFASs have varying levels of permeability to the placental barrier.

Newborns can be exposed to PFASs through breast milk. Older children may be exposed to PFASs through food and water, similar to adults. In addition, young children have a higher risk of exposure to PFASs from carpet cleaners and similar products, largely due to time spent lying and crawling on floors in their early years.

How long do PFASs remain in the body?

Different PFASs have different half-lives. PFASs usually persist in the blood more than 1000 days. PFOS and PFOA have half-lives in humans ranging from 2 to 9 years.

What are exposure limits for PFASs in drinking water?

The Environmental Protection Agency (EPA) has determined that the concentration of PFOA and PFOS in drinking water, either individually or combined, should not be greater than 0.07 parts per billion. If this concentration is exceeded, EPA advises that an alternative drinking source should be used.

What are PFASs levels in the American population?

Most people in the United States and in other industrialized countries have measurable amounts of PFASs in their blood.

The National Health and Nutrition Examination Survey (NHANES) is a program of studies conducted by the Center for Diseases Control and Prevention (CDC) to assess the health and nutritional status of adults and children in the United States. NHANES (2011–2012) measured the concentration of PFASs in the blood of the general U.S. population (12 years of age and older).

The average blood levels found were as follows:

- PFOA: 2.1 parts per billion, with 95% of the general population at or below 5.7 parts per billion

- PFOS: 6.3 parts per billion, with 95% of the general population at or below 21.7 parts per billion
- PFHxS: 1.3 parts per billion, with 95% of the general population at or below 5.4 parts per billion

Based on data collected from previous NHANES survey years, levels of PFASs are decreasing in the blood of the general population.

How can PFASs potentially affect human health?

There is limited evidence about the health effects on humans from PFASs. There are still important research gaps about these chemicals that need to be addressed but the toxicity in animals, mobility, persistence, and bioaccumulation of these substances in the environment raise concerns about possible human health effects. Below are summaries of studies in animals and humans.

Animal Studies:

Adverse health effects have been demonstrated in animal studies, but these occurred at levels higher than those found in people. The main health effects observed were: increase in liver weight, changes in spleen, thymus, and developmental endpoints. Adenomas of the liver, testis, and pancreas were observed in rats exposed to PFOA. Liver adenomas were also found in those rats exposed to PFOS. Toxicological studies give us important clues, but the exact link between the health effects of PFASs on animals and how that relates to human health has not been established yet.

Human Studies:

C8 Health Study

A large epidemiological study, the C8-science panel, included 69,000 persons > 18 years of age. It found probable links between elevated PFOA blood levels and the following health outcomes: high cholesterol (hypercholesteremia), ulcerative colitis, thyroid diseases, testicular cancer, kidney cancer, preeclampsia, and elevated blood pressure during pregnancy. The reason for this study was to determine whether a probable link exists between PFOA and any human disease involving releases of the chemical known as PFOA from a West Virginia facility. Inhabitants in the surrounding area of these releases showed 500-times elevated PFOA-concentrations in blood compared to the general population (NHANSE).

Overview of Human Studies

Cholesterol	<p>Some epidemiological studies demonstrated statistically significant associations between serum PFOA and PFOS levels and total cholesterol in:</p> <ul style="list-style-type: none"> • workers exposed to PFASs, and • residents of communities with high levels of PFOA in the drinking water compared to NHANES data for the U.S.
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	<p>general population, Other studies have found no association between PFASs exposures and the total cholesterol endpoint.</p>
Uric acid	<p>Several studies have evaluated the possible association between serum PFOA and serum PFOS levels and uric acid. Significant associations were found between serum PFOA and uric acid levels at all evaluated exposure levels.</p>
Liver effects	<p>A number of human studies have used liver enzymes as biomarkers of possible liver effects. In occupational studies, no associations between liver enzymes and serum PFOA or PFOS levels were consistently found. A study of highly exposed residents demonstrated significant associations but the increase in liver enzymes was small and not considered to be biologically significant.</p>
Cancer	<p>The International Agency for Cancer Research (IARC) has classified PFOA as possibly carcinogenic and EPA has concluded that both PFOA and PFOS are suggestive carcinogenic.</p> <p>Some studies have found increases in prostate, kidney, and testicular cancers in workers exposed to PFASs and people living near a PFOA facility. Other study findings are not consistent and most did not control for other potential factors including smoking. Additional research is needed to clarify this association.</p>

What are potential health effects from prenatal PFASs exposure to fetuses?

There is evidence to suggest that high serum PFOA or PFOS levels may possibly be associated with lower birth weights. Although some studies have found this association, the decreases in birth weight were small and were not considered clinically significant.

Another study found that a 1-ng/mL increase in prenatal PFOS and PFOA levels that were associated with a 5.00 gram reduction in birth weight for PFOS and 14.72 gram reductions in birth weight for PFOA (Verner et.al. DOI:10.1289/ehp.1408837).

While the lower birth weight is not seen as clinically significant, any decrease in birthweight is a concern warranting further study.

Patient Questions and Key Message Answers:

As a clinician, you know careful listening and patient engagement is critical for ensuring quality patient care, especially when health concerns are raised. Perhaps the most difficult challenge in speaking with patients about their health concerns is addressing uncertainty. If your patient has concerns about an exposure to PFASs, you may face the challenge of helping your patient cope with the uncertainty of potential health effects from a PFAS exposure.

Based on feedback from clinicians and from individuals who have spoken to their health care provider about their PFAS exposure concerns, a set of patient questions have been identified. To assist you in speaking with your patients about their concerns, key messages and supporting facts needed to answer the anticipated patient questions are provided in the table below for your use.

Questions Patients May Ask	Key Patients Messages	Key Messages Supporting Facts
<p>What should I do, there are high levels of PFASs in my water?</p>	<p>If the water you use is above the safety limits EPA has set, you should find an alternative water source for drinking, food preparation, cooking, brushing teeth, and other activity that might result in you swallowing the contaminated water.</p>	<p>Potential health effects are associated with exposure to PHASs.</p> <p>EPA has established a health advisory PFOA and PFOS drinking water concentrations level at 0.07 parts per billion or greater. PFOA and PFOS are additive. If PFOA and PFOS at individual or combined concentrations exceed 0.07 parts per billion, a new drinking water source is advised.</p> <p>Normal processes of improving home water quality, do not remove any of the PFASs. Most home water filters and boiling water will not remove PFASs from a drinking water source.</p> <p>If bottle water is the alternative selected, your patient should be advised to select bottled water that lists use of reverse osmosis on its label. There are no regulations setting limits on the level of PFASs allowed in bottled water. If water bottlers draw water from a PFAS contaminated source that bottled water would not be a good alternative. Reverse osmosis processing would eliminate contaminants like PFASs.</p>
<p>Is it safe for me to breastfeed my baby?</p>	<p>Breastfeeding is associated with numerous health benefits for infants and mothers.</p> <p>At this time, it is recommend that you as a nursing mother continue to breastfeeding</p>	<p>Extensive research has documented the broad and compelling advantages of breastfeeding for infants, mothers, families, and society.</p> <p>Some of the many benefits include immunologic advantages, lower obesity rates, and greater cognitive</p>

Questions Patients May Ask	Key Patients Messages	Key Messages Supporting Facts
	<p>your baby.</p> <p>The science on the health effects of PFASs for mothers and babies is growing and this guidance could change.</p> <p>However, given the scientific understanding at this time, the benefits of breastfeeding your baby outweigh those of not breastfeeding.</p>	<p>development for the infant as well as a variety of health advantages for the lactating mother.</p> <p>Even though a number of environmental pollutants readily pass to the infant through human milk, the advantages of breastfeeding continue to greatly outweigh the potential risks in nearly every circumstance.</p>
<p>Could my current health problem be caused by exposure to PFASs?</p>	<p>Positive association: (the following have a positive association)</p> <ul style="list-style-type: none"> • Thyroid disease • High cholesterol • Ulcerative colitis • Testicular cancer • Kidney cancer • Pregnancy-induced Hypertension • Liver effects • High uric acid <p>Your health problem could potentially associated with exposure to PFASs.</p> <p>However, current research cannot absolutely prove PFASs causes this illness.</p> <p>OR</p> <p>Negative association: Your health problem has not been associated with exposure to PFASs.</p> <p>Based on current research, your illness has not been associated with exposure to PFASs.</p>	<p>Key supporting facts on health effects for each of these associated diseases can be found in this fact sheet on page 3 “How can PFASs potentially affect human health?”</p> <p>Suggestion to the clinician: If a patient presents with concerns that a health issue is connected to PFASs exposure, it is also appropriate to discuss the patient’s concerns and perform a thorough health history and physical exam relative to any symptoms reported.</p>

Questions Patients May Ask	Key Patients Messages	Key Messages Supporting Facts
<p>Are there future health problems that might occur because of PFASs exposure?</p>	<p>Studies have suggested an association between PFASs and certain health effects but they are not definitive. No current studies predict future health effects after exposure to PFASs.</p> <p>However we can continue to review new findings on PFASs and continue to evaluate your health status.</p>	<p>Studies in humans and animals are inconsistent and inconclusive but study findings suggest that certain PFASs affect a variety of possible endpoints. Confirmatory research is needed to better understand PFASs health risks.</p>
<p>Should I get a blood test for PFASs?</p>	<p>Measuring PFASs in your blood is not necessary. A blood test has no value in diagnosis, treatment, or prognosis of a future health effect for a patient.</p>	<p>There is currently no established PFAS blood level at which a health effect is known nor is there a level that predicts past or future health problems.</p>
<p>What do my PFASs blood tests results mean?</p>	<p>The blood test for PFASs can only tell us the levels of specific PFASs in your body at the time you were tested.</p> <p>The blood tests results cannot be interpreted and used in patient care.</p>	<p>There is currently no established PFAS blood level at which a health effect is known nor is there a level that predict past or future health problems.</p> <p>The level of PFASs can only be compared to the average national blood level for the different PFASs in the NHANES studies. This can tell a person if their blood levels are within range of the national norms or if their levels are high or low compared to the national average.</p>
<p>Should I be tested for any of the health effects associated with PFASs exposure (cholesterol</p>	<p>Testing cholesterol and liver function as well as uric acid level are useful in monitoring your overall health. I can order these laboratory test to see if your values for these</p>	<p>Health effects associated with PFASs are not specific and can be caused by many other factors.</p> <p>There are no guidelines to support use of these clinical test to monitor PFASs</p>

