Mississippi State Department of Health

Mississippi Morbidity Report

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Deepwater Horizon Oil Spill – One Year Later

The Deep Water Horizon oil spill started April 20, 2010 with an explosion and fire on the Deepwater Horizon drilling rig which continued to spill oil into the Gulf of Mexico until a temporary cap was placed on the wellhead on July 15, 2010. A permanent cement plug was completed on Sept 19, 2010. The following is a summary of the Mississippi State Department of Health's assessment of possible human health effects associated with the spill.

Physical Health

When the oil began to be released into the Gulf of Mexico and spread toward the Mississippi coast, the initial concern was the possibility of acute health effects from direct or indirect exposure to the oil. Individuals may have been exposed to oil from direct contact or ingestion of contaminated foods, but the primary route of exposure of concern was inhalation of volatile organic compounds. Working closely with the Centers for Disease Control and Prevention (CDC) and with other Gulf States, a system for detecting these potential health effects was developed. In Mississippi, four coastal hospital emergency departments and five inland hospital emergency departments (for comparison) began monitoring and reporting the occurrence of specific health conditions to the Mississippi State Department of Health (MSDH). Beginning in early May and continuing through September 2010, the selected emergency departments monitored for the occurrence of respiratory, rash, gastrointestinal, and neurologic syndromes (such as headache). Reviews of the data indicate there were no increases attributable to oil in the monitored illnesses in the coastal area over the time of the spill. Also, data from the coastal area were not different from data collected from inland comparison areas. In addition, an electronic database of emergency department chief complaints was monitored for the same syndromes at 3 coastal hospitals with no unexplained findings. Similar data from federal coastal health facilities were provided by CDC and no increases were seen. All three systems were found to be sensitive as demonstrated when several rash illnesses were detected above the expected baseline, and after investigation these were actually cases of poison ivy.

The Mississippi Poison Control Center (PCC) at the University of Mississippi Medical Center was utilized to receive calls both from the public and from healthcare providers to answer questions regarding exposure to the oil. The calls were predominately from individuals simply requesting information or to self-report exposure. Of the calls reporting possible exposure, a number of callers indicated they were advised to call the PCC as part of the claims process. Of the callers reporting exposures, none had symptoms requiring referral to a local healthcare facility for follow-up, observation, or treatment. Of the 305 total calls received by the PCC through November 15, 2010, only one was from a healthcare provider. Additionally, the MSDH received few calls from healthcare providers. These calls were requesting information in the event an individual developed illness after oil exposure. None of the calls from providers were to report illnesses as a result of exposure.

The Mississippi Department of Environmental Quality (DEQ) and the U.S. Environmental Protection Agency (EPA) performed extensive sampling along the gulf coast for volatile organic compounds (VOCs) and polycyclic aromatic hydrocarbons (PAHs). A substantial amount of quality assured data from these agencies indicated the very low levels of VOCs and PAHs detected were in the range one would expect to see in any urban area due to ground based emissions such as vehicle exhaust. The maximum levels detected were only a small fraction of the established human health levels of concern for continuous exposures for up to a year's duration. One cannot say with any certainty where the very low detected levels seen in air

originated from, but local sources such as vehicles and equipment or industrial emissions produce VOCs at these levels and even higher levels regularly.

Hundreds of seafood samples were collected by the Mississippi Department of Marine Resources (DMR) and analyzed by the Mississippi State Chemical Laboratory before, during and after the Mississippi Gulf Coast was impacted. Results were negative or only a small fraction of a percent of the levels established by the Food and Drug Administration (FDA) and the states for the criteria used for reopening fisheries.

Following a thorough review early in the spill by federal and state toxicologists, dispersants and their components were not considered an additional potential risk to public health. Two of the primary ingredients of the dispersants are actually FDA or EPA approved chemicals for direct human use or for use in potable water supplies. While not directly human health related, two ecological studies conducted for the EPA found no difference in the toxicity of oil alone, dispersants alone, or a mixture of oil and dispersants.

In people, there is no single or simple laboratory test to determine if exposure occurred or if a health problem resulted from exposure. Commercially available tests to determine VOC levels in blood are not recommended by the MSDH, the PCC, or the CDC. These compounds only remain in blood for a short period of time so these tests cannot detect exposures that occurred weeks or months earlier. Further, some exposures to these compounds occur in routine daily activities from numerous common sources, such as vehicular exhaust, tobacco smoke or second hand smoke, or filling a car's tank with gasoline. Because these exposures are so common, such tests are not used or recommended even in the ongoing routine medical evaluation of workers who work with petroleum and its products. Consumers should be strongly cautioned regarding the lack of utility of having any VOC tests performed. If a person has a health concern they believe to be oil related, MSDH recommends they should be evaluated by their primary care provider. After that, consultation between the individual's primary car provider and a medical toxicologist can be facilitated by MSDH, if the provider finds it necessary.

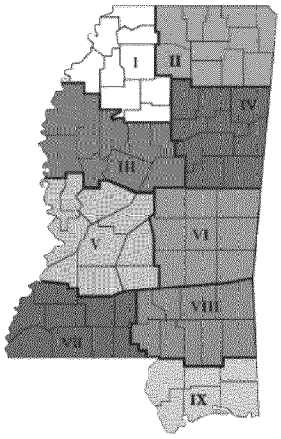
From a human health perspective for the population on shore, Mississippi was fortunate. Given the depth of the water and the distance from shore, the VOCs and PAHs did not reach the shore. Between the scrubbing action of the 5,000-foot ascent through the water column followed by days to weeks of wind and wave action, the residual material that made it to land was heavily weathered. The recovered material was classified as non-toxic and disposal was allowed at normal community landfills.

Mental Health

The oil spill and its economic consequences may have caused stress-related symptoms in people on the coast. The MSDH in conjunction with the Mississippi Department of Mental Health (DMH) developed a system of monitoring the number of calls for mental health assistance. The DMH maintains toll free telephone numbers for the public to use to obtain assistance with mental health issues and maintains a computerized database of calls received. These data were analyzed daily by comparing the total number of calls received each day from the two coastal mental health regions and two comparison regions in central Mississippi. The data were also compared to historical call line data from the coastal region. The intention of this analysis was to provide basic monitoring of the demand for mental health services in coastal Mississippi during the time of the Deepwater Horizon Oil Spill.

In addition to the DMH call center data, an electronic database of emergency department chief complaints from three coastal hospitals was analyzed by MSDH for words indicating new, acute mental or psychological issues. Neither the DMH data nor the emergency department data showed any increase in demand for mental health services.

Because continued concerns that people with mental health issues related to the oil spill were not receiving treatment, MSDH and DMH requested assistance from CDC to conduct a Community Assessment for



Mississippi
Provisional Reportable Disease Statistics
August 2011

		Public Health District									State Totals*			
		I	II	III	IV	V	VI	VII	VIII	IX	Aug 2011	Aug 2010	YTD 2011	YTD 2010
Sexually Transmitted Diseases	Primary & Secondary Syphilis	1	2	0	0	16	2	1	1	5	**28**	25	116	148
	Total Early Syphilis	4	6	4	2	27	4	1	3	11	**62**	62	352	385
	Gonorrhea	75	43	72	47	199	50	40	78	65	**669**	526	4,020	4,076
	Chlamydia	244	180	277	149	524	155	125	218	191	**2,063**	1,845	14,645	14,560
	HIV Disease	4	4	5	1	25	2	4	2	10	**57**	67	445	346
Myco-bacterial Diseases	Pulmonary Tuberculosis (TB)	0	0	0	0	4	1	1	1	0	**7**	13	48	63
	Extrapulmonary TB	1	0	0	0	2	1	0	0	1	**5**	0	10	6
	Mycobacteria Other Than TB	1	2	2	1	4	0	1	3	4	**18**	26	214	275
Vaccine Preventable Diseases	Diphtheria	0	0	0	0	0	0	0	0	0	**0**	0	0	0
	Pertussis	0	0	0	0	0	4	0	1	0	**5**	10	24	52
	Tetanus	0	0	0	0	0	0	0	0	0	**0**	0	0	0
	Poliomyelitis	0	0	0	0	0	0	0	0	0	**0**	0	0	0
	Measles	0	0	0	0	0	0	0	0	0	**0**	0	0	0
	Mumps	0	0	0	0	0	0	0	1	0	**1**	0	3	0
	Hepatitis B (acute)	0	1	2	0	0	0	0	0	0	**3**	2	31	23
	Invasive *H. influenzae* b disease	0	0	0	0	0	0	0	0	0	**0**	0	3	0
	Invasive Meningococcal disease	0	0	0	0	1	0	0	0	0	**1**	0	3	3
Enteric Diseases	Hepatitis A (acute)	0	0	0	0	1	0	0	0	0	**1**	1	6	2
	Salmonellosis	33	59	13	44	57	18	17	13	11	**265**	247	831	689
	Shigellosis	1	2	0	0	7	5	0	1	7	**23**	7	107	35
	Campylobacteriosis	1	2	0	0	4	0	1	0	0	**8**	13	50	93
	E. coli O157:H7/HUS	0	0	0	0	0	0	0	0	0	**0**	1	7	9
Zoonotic Diseases	Animal Rabies (bats)	0	0	0	0	0	0	0	0	0	**0**	0	1	0
	Lyme disease	0	0	0	0	1	0	0	0	0	**1**	0	3	0
	Rocky Mountain spotted fever	1	0	0	0	0	0	0	1	1	**3**	4	12	19
	West Nile virus	1	0	1	0	8	0	1	2	1	**14**	4	30	5

* Totals include reports from Department of Corrections and those not reported from a specific District.

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Public Health Emergency Respons n t hre e w t additional questions to
e .SPER is a door-to- s i l valid sample of
ud results of the CASPER i ude e es of mental stress
that were of concern led: 24.5% of respondents p s symptoms,
lissisippi BRFSS state ur l symptoms of anxiety,
30.1 % reported alwa y about having enough money to pay the rent iortgage, and 13.7 %
reported y ving enough money to buy nutritious meals. Jo comparison data is
is.) Because of this collaborative effort was better able to
direct specific funding received fr ddr nt he t de fied by study. To
CASPER is being considered :.

Long Term Studies

The Gulf Long-term Follow- udy (GuLF Study) r t r g health effects among
55,000 individuals who worked some part of the response to ere, therefore, more
oil, VOCs, PAHs, or concentrated dispersants. The study also has a
large control cohort who s ed. It is funded by the
National Institutes of Health (NIH te of Environmental
Health Sciences.

An additional study, also funded b roductive and birth
outcomes, cardiorespiratory t nt eneral population.
This research is y a network of ersity, Louisiana State
and University of Texas Medical Branch at Gal veston.