

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:)
)
 WATER QUALITY STANDARDS AND)
 EFFLUENT LIMITATIONS FOR THE) R08-9
 CHICAGO AREA WATERWAY SYSTEM) (Rulemaking – Water)
 AND THE LOWER DES PLAINES RIVER:)
 PROPOSED AMENDMENTS TO 35 ILL..)
 ADM. CODE PARTS 301, 302, 303 and 304)

NOTICE OF FILING

To: see attached Service List

PLEASE TAKE NOTICE that on the 4th Day of August, 2008, I filed with the Office of the Clerk of the Illinois Pollution Control Board the attached Prefiled Testimony of Marc H. Gorelick, M.D., a copy of which is hereby served upon you.



By: _____
Ann Alexander, Natural Resources Defense Council

Dated: August 4, 2008

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CERTIFICATE OF SERVICE

I, Ann Alexander, the undersigned attorney, hereby certify that I have served the attached Prefiled Testimony of Marc H. Gorelick on all parties of record (Service List attached), by depositing said documents in the United States Mail, postage prepaid, from 227 W. Monroe, Chicago, IL 60606, before the hour of 5:00 p.m., on this 4th Day of August, 2008.

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TESTIMONY OF MARC GORELICK, MD

I. Introduction

My name is Marc H. Gorelick, M.D. I am a Professor of Pediatrics and Population Health and Chief of the Section on Emergency Medicine at the Medical College of Wisconsin, and Jon E. Vice Chair in Emergency Medicine at Children’s Hospital of Wisconsin. I have extensive expertise in clinical epidemiology, and have published more than 50 peer-reviewed original research papers in that field.

I am testifying today on behalf of Natural Resources Defense Council, Environmental Law and Policy Center, Sierra Club – Illinois Chapter, Friends of the Chicago River, and Openlands in support of the regulation proposed by the Illinois Environmental Protection Agency (“IEPA”) that would require the Metropolitan Water Reclamation District (“MWRD”) to disinfect the effluent from its three wastewater treatment plants (“WWTPs”) that discharge into the Chicago Area Waterway System (“CAWS”). Disinfection is nearly universal in major cities in the United States and prevalent in most smaller communities, for the simple reason that it is widely recognized as necessary to protect public health. While I support the “CHEERS” epidemiological study being conducted by researchers at the University of Illinois – Chicago School of Public Health, supported by the MWRD, and have no reason to believe that it will be anything other than top-notch science, a single study of this nature is simply not a sound basis for bucking that vast consensus and allowing a heavy pathogen load in recreational waters. Simply put, we do not need further study to know that germs in the water can make people sick.

I urge the Board to be very cautious in its approach to the epidemiological study, because placing excessive and undeserved weight on it could set a dangerous precedent for other communities around the nation. It would potentially encourage communities to discontinue a basic health precaution that they have, appropriately, been taking for decades.

II. Qualifications

I am an expert in epidemiology and public health. A copy of my curriculum vitae is attached as Exhibit 1. A biographical sketch summarizing my work and expertise in epidemiology is attached as Exhibit 2.

My current professional positions include the following:

- Professor, Departments of Pediatrics and Public Health, Medical College of Wisconsin (2004-present).
- Chief, Section of Emergency Medicine, Department of Pediatrics, Children's Hospital of Wisconsin (2000-present).
- John E. Vice Chair in Pediatric Emergency Medicine, Children's Hospital of Wisconsin.
- Associate Director, Children's Research Institute, 2007-present.

I have had numerous faculty appointments in the field of epidemiology, including the following:

- Assistant Professor, Departments of Pediatrics and Epidemiology, University of Pennsylvania School of Medicine (1994-1998).
- Senior Scholar, Center for Clinical Epidemiology and Biostatistics, University of Pennsylvania School of Medicine (1994-98).
- Adjunct Assistant Professor, Department of Epidemiology, University of Pennsylvania School of Medicine (1998-2000).
- Associate Professor, Departments of Pediatrics and Epidemiology, Medical College of Wisconsin (2000-2004).

I have conducted extensive published research in the area of epidemiology. I have co-authored more than 50 peer-reviewed original research papers publications in different areas of clinical epidemiology, including case-control and cohort studies, controlled clinical trials, and meta-analyses. Some representative publications include:

Gorelick MH, Shaw KN, Murphy KO. Validity and reliability of clinical signs in the diagnosis of dehydration in children. *Pediatrics* 1997;99(5):e6.

Gorelick MH, Shaw KN. Clinical decision rule to identify young febrile children at risk for UTI. *Archives of Pediatrics and Adolescent Medicine* 2000;154:386-390.

Gorelick MH, Brousseau DC, Stevens MW. Validity and responsiveness of a brief asthma-specific quality of life instrument in children with acute asthma. *Ann Asthma Allerg Immunol* 2004; 92:47-51.

Gorelick MH, Meurer J, Walsh-Kelly C, Brousseau DC, Cohn J, Kuhn E, Grabowski L, Kelly K. Controlled trial of two emergency department-based follow-up interventions to improve asthma outcomes in children. *Pediatrics* 2006;117:S127-S134.

Gorelick MH. Bias arising from missing data in predictive models. *J Clin Epidemiol* 2006;59:1115-23

Gorelick MH, Yen K. The kappa statistic was representative of empirically-observed inter-rater agreement for physical findings. *J Clin Epidemiol* 2006;59:859-861.

Gorelick MH, Alessandrini EA, Cronan K, Shults J. Revised Pediatric Emergency Assessment Tool [RePEAT]: a severity index for pediatric emergency care. *Acad Emerg Med* 2007;14:316-323.

Redman R, Nenn C, Eastwood D, **Gorelick MH**. ED visits for diarrheal illness increased after release of undertreated sewage. *Pediatrics* 2007;120:e1472-1475.

Gorelick MH, Wagner D, McLellan S. Validation of a questionnaire to evaluate water exposures in children. E-PAS 2007:618407.21 [abstract; manuscript submitted for publication].

The last two items are particularly relevant to the subject matter at issue here, as they concern evaluating illness in children exposed to waterborne pathogens. Also relevant is my current research concerning epidemiology of diarrheal illness in children (funding from Children's Research Institute), a nested case-control study of approximately 1600 children to evaluate association between water exposures and diarrheal illness.

I have extensive teaching experience in the area of epidemiology. Course I have taught in that area include the following:

- University of Pennsylvania: Course developer and director, Advanced Topics in Clinical Epidemiology (elective course for Master of Science in Clinical Epidemiology Program); taught in Critical Appraisal workshop for MSCE students.
- Jefferson Medical College: developed and taught course in Evidence-Based Medicine for senior pediatric residents.
- Medical College of Wisconsin: Annual Introduction to Research Design seminar for pediatric fellows; taught in Protocol Development course for MCW fellows and junior faculty.

II. Risks Associated with Sewage Wastewater Pathogens

A. Waterborne pathogens associated with sewage are hazardous to human health

It has been well understood for over a century that pathogens (disease-causing organisms) contained in human sewage can cause illness in humans, sometimes severe and fatal. Some of the worst plagues in history have been caused by untreated sewage being discharged into water sources used by humans – cholera and typhoid fever being two chief examples. Although modern primary and secondary sewage treatment remove

many pollutants and solids from sewage, the pathogens will remain in the final discharged effluent unless the sewage is disinfected.

Most historical disease outbreaks associated with waterborne pathogens have been caused by contaminated drinking water. However, similar risks attend recreational use of contaminated water, because many recreational activities can result in swallowing water – e.g., accidentally falling out of a boat. Even swallowing small amounts of contaminated water in this manner can lead to illness. It is also conceivable, if not likely, that one could become infected if contaminated water entered the body through a cut in the skin.

There are dozens of types of pathogens that are generally associated with sewage-contaminated wastewater. These include bacteria, viruses, and protozoa. The EPA recently estimated that there are 16.4 million cases of gastrointestinal illness each year in the United States from drinking water alone. An average of 23 waterborne disease outbreaks sufficiently severe to warrant investigation are reported annually in the US. The following is a brief summary of some of the more prevalent and/or hazardous types of human pathogens generally associated with sewage-contaminated water:

1. Cryptosporidium. This is a protozoan that was responsible for the largest water-borne disease outbreak in US history in 1993, when over 400,000 people in Milwaukee became ill, and dozens died.
2. Norovirus. Causes severe diarrhea and abdominal cramping. This is best known as the cause of recent disease outbreaks on cruise ships, but is now one of the most common causes of waterborne outbreaks from regular drinking water. In addition, it has been identified in samples of both surface (river) and well water during routine monitoring.
3. Giardia. Another protozoan, this is a common cause of diarrhea in children in day care centers, and is frequently found in sewage effluent. This one is particularly problematic because it is relatively resistant to disinfection, and can cause illness with exposure to a very small number of organisms. In addition, many people exposed to Giardia develop asymptomatic infections, allowing them to spread the infection to household contacts. Up to 20% of people may be Giardia carriers.

B. Sampling data indicate high levels of pathogens

In preparation for my testimony, I have reviewed a summary of indicator pathogen sampling data collected by MWRD and posted to its web site, <http://www.mwrddgc.dst.il.us/>. I have also reviewed charts summarizing this and related indicator bacteria data prepared by the United States Environmental Protection Agency (“USEPA”) Region 5, attached as Exhibit 3.¹ I note that the sampling data provides

¹ I have also reviewed the Dry and Wet Weather Risk Assessment of Human Health Impacts of Disinfection or No Disinfection of the Chicago Area Waterway System (CWS)” prepared by Geosyntec Consultants (the “Risk Assessment”) prepared for MWRD by Geosyntec Consultants. A full analysis of

results for two indicator bacteria, fecal coliform and E.Coli. (Because E. coli is one type of fecal coliform bacteria, I will use the generic term fecal coliform for simplicity.) Fecal coliforms are generally not pathogenic (*i.e.*, disease-causing) in themselves, but are used by regulatory agencies and others to determine the presence of fecal contamination and therefore the likely presence of pathogenic organisms.

As an overall matter, the high levels of indicator bacteria present in many parts of the CAWS, as set forth in the summaries, demonstrate the probable presence of substantial and hazardous levels of waterborne pathogens, including bacteria, viruses, and parasites. Although it can be difficult to draw a bright line between safe and unsafe levels of pathogens based on indicator bacteria levels, the high levels at some CAWS locations – which are far higher than the level of indicator bacteria generally allowed at swimming beaches (200 colonies fc/100 ml) – are quite clearly evidence of the presence of a substantial level of pathogenic organisms. Several of the water samples in the CAWS have levels of E. coli that, if found in a urine sample of an infant, would be considered a sign of a urinary tract infection requiring antibiotic treatment.

Indicator organisms are not a perfect measure of the presence of pathogens in sewage-contaminated wastewater. Rather, they are like footprints indicating the presence of fecal contamination. There has been ongoing discussion and scientific inquiry as to whether fecal coliform count is an adequate indicator, and there are efforts afoot in USEPA to identify a more accurate indicator organism. However, fecal coliform levels provide at minimum a rough ballpark indication of the likely level of pathogens in the sampled water. If anything, these indicators more often significantly under-predict than over-predict the level of pathogens present. First, the vast majority of disease in humans is caused by viruses, not bacteria. This is especially true for children, but true for adults as well. Just as there may be an intruder even in the absence of footprints, even if fecal coliforms are absent, viruses can still be present in substantial numbers.

Organisms differ in their susceptibility to treatment and disinfection and to environmental conditions. It is unlikely, on the other hand, that one would find high levels of indicator bacteria correlated with low levels of viruses because the latter tend to persist in the environment for longer periods of time. Several studies have shown recovery of pathogenic viruses from water samples that were free of indicator organisms. In addition, there are a number of pathogens, most notably protozoa, that can cause illness in very low levels. Thus, even if indicator bacteria levels were low, there might be sufficient levels of these types of pathogens present to be dangerous. Finally, as a general matter, even low levels of *any* human pathogen can be dangerous for sensitive populations – children, the elderly, and persons with compromised immune systems (such as people in chemotherapy). Thus, an overall low level of indicator organisms

the Risk Assessment is beyond the scope of my testimony. However, I noted in my review that there were significant methodological flaws and inappropriate assumptions that likely skewed the results of that study toward a lower finding of risk. Among other things, the Risk Assessment limits itself to evaluation of a small subset of known waterborne pathogens; extrapolates from nearly non-existent data on risk of illness in secondary contact recreational use; and evaluates only gastrointestinal illness, which is only one of many types of illnesses that can be contracted from waterborne pathogens.

cannot be interpreted to mean that the level of waterborne pathogens is safe for such people.

III. The Limits of Epidemiological Research

Epidemiological studies are an important and time-tested tool for assessing health risk. The concept of an epidemiological study is to track a study population believed to be at potential risk of harm from an environmental or behavioral factor – for instance, exposure to workplace chemicals, living near a polluting facility, or eating junk food – and comparing that population to a control population (*i.e.*, an otherwise comparable group of people who are not exposed to the risk being studied). The two populations are tracked for a period of time to determine whether there is a statistically significant difference in adverse health impacts associated with the risk being studied.

I have researched and co-authored more than 50 peer-reviewed epidemiological studies, and have participated in the peer review of many more. I have published articles concerning ways to more accurately understand and interpret epidemiological statistics, and taught numerous graduate and medical school courses on epidemiology (please see my biographical information above). Recently, I completed a peer-reviewed study of diarrheal illness rates in children following a release of undertreated sewage (which found a positive correlation, *i.e.* more children in the exposed group of children were sickened by a statistically significant margin), and I am currently involved in a similar study of 1,600 children to review the correlation between water exposures and diarrheal illness, funded by the Children's Research Institute. I am a very strong believer in the value of epidemiological studies as a means of identifying risk.

I am, however, also aware of the limits of epidemiological research. Epidemiology cannot provide proof of a cause and effect relationship; it can only provide evidence – sometimes stronger, sometimes weaker – of an association. Since epidemiological study populations are not isolated from the general population or otherwise tightly controlled in their behavior and exposures, it can be extremely difficult to isolate the factor that is causing any observed effect, calling into question the strength of the evidence. An attempt to separate out an at-risk population for study (say, heavy sunbathers being studied for cancer) may unwittingly capture a population that also is more likely to engage in another type of risky behavior that is not the subject of the study (say, excessive consumption of pina coladas); or, conversely, may be less likely to engage in behavior causing a similar risk (say, smoking cigarettes in indoor venues).

The difficulty in drawing conclusions from epidemiological results is particularly great when those results are negative. As described in more detail below, there are numerous variables and factors at play in epidemiological study that can easily render a negative result notwithstanding the real presence of a significant risk, particularly when waterborne pathogens are at issue. These include insufficient size of the study sample and relevant subcategories of the sample (*e.g.*, different types of recreators on the CAWS); negative results associated with asymptomatic infections (*i.e.*, people who become infected and pass the disease on to others but do not get sick themselves); and

widely-varying conditions in the environment whereby high illness rates in one set of conditions are cancelled out by lower rates in a different set of conditions. Any or all of these factors can render a negative epidemiological result essentially meaningless.

Given the inherent uncertainty of epidemiological research, it is essential that results of any kind be reproduced in at least one more study. This is part and parcel of the more fundamental principle applicable to all scientific research that results must be replicated in order to be valid – indeed, a substantial part of scientific inquiry consists of attempts to reproduce the published results of others in order to determine their validity. While a single positive epidemiological study may provide sufficient evidence to justify preliminary action, it is absolutely critical to reproduce negative research results before drawing actionable conclusions, given the potential pitfalls of such findings described below.

For these reasons, it would be highly inappropriate to set policy of any kind based upon one negative outcome of an epidemiological study – particularly one concerning waterborne pathogens, whose effects are very difficult to isolate in a study setting. There is no way predict, as of today, what the results of the ongoing CHEERS study of risks to CAWS recreational users will be. However, we have today – even without those results – sufficient information to know that sewage-related pathogens are harmful to human health, and that those pathogens are present at elevated levels in the CAWS. Simply put, we already know that germs are bad for people, and MWRD WWTPs are putting those germs in the water. That, standing alone, is sufficient information on which to base a requirement that WWTPs disinfect their effluent – as, indeed, WWTPs do in virtually every other major city in the country and most smaller communities in Illinois as well.

The following subsections describe numerous reasons why epidemiological results – and particularly negative results – can be of limited predictive value of the risk being studied. Particularly in the context at issue here, there are numerous factors at play that may mask the presence of a very real risk in a negative result.

A. Sample size

Critical to the predictive value an epidemiological study is the size of the study sample. This is because epidemiology is, by its essence, a statistical endeavor. Much like a political poll, one surveys a large group of people to determine whether any patterns emerge that may be predictive for the larger population. And like a political poll, since one is reviewing only a sample and not the whole population, it is necessary to interpret the results with a “margin of error.” That is, if one finds that out of 1,000 people surveyed that 50 of them will get sick, one cannot then make a straightforward extrapolation that in a population of 1,000,000, 50,000 people will get sick. The proper way to understand the result is that 50,000 people plus or minus X percent (the margin for error) will get sick.

The margin for error – X – is inversely correlated with the size of the sample. That is, the more people involved in the study, the more precise your results will be, and

the smaller X will be. But if you do not have enough people in your study, your results will have a much larger margin of error. Thus, if you survey only 100 people and find that 5 of them got sick, this five percent positive finding is less reliable, and needs to be understood as a broad range of possible illness rates, ranging far above and far below 5 percent. X, the percentage margin for error, is necessarily very large. If you survey only 10 people, your results are essentially meaningless.

For this same reason, very little can reliably be concluded from negative results based on a small sample. There may be a small but significant percentage of the population that is becoming ill from the risk being screened for, but too small a sample may well miss all such people merely by chance. In other words, if approximately 50 out of every 1,000 people are getting sick, but you survey only 100 of those 1,000 people, there is a substantial possibility that you will not find among those random 100 even one of the 50 in 1,000 who are actually getting sick.

Compounding the problem of sample size is the problem of risk subcategories, which effectively reduce the sample size even further. If one surveys 1,000 people, but those people are subject to varying levels and variants of the risk being screened for, then you really have a much smaller sample of each risk category. Taking the example of the sunbathers again, if you screen 1,000 sunbathers for ill effects, but only 30 of those are actually going out for long periods without sunscreen, you really do not have a large enough sample to determine the risk specifically of going out for long periods without sunscreen. You may end up with a negative result for your overall sample of 1,000, but it will be because the very real risk of sunscreen-free sunbathing will be diluted by the much larger sample of people exposed to only very minimal risk.

All of these issues with sample size appear to be present in the CHEERS epidemiological study being conducted with respect to recreational users of the CAWS. First off, the University of Illinois at Chicago ("UIC") School of Public Health, which is conducting the study for MWRD, has reported difficulty enrolling study participants, so as to require an additional outlay of funds to try to attract more. In the 2007 season, 811 eligible participants were enrolled in the study overall, less than 10% of the desired sample size of over 9,000. Results from a sample group of this size would need to be interpreted with a very significant margin of error.

More importantly, the study participants represent a broad range of recreational uses, which vary greatly in terms of the associated risk. The study is enrolling those engaged in all manner of secondary contact use – including kayaking, canoeing, rowing, fishing, and other activities that do not involve full-body contact. These activities differ greatly in the likelihood that a participant will end up swallowing a mouthful of contaminated water, which is the primary exposure pathway for waterborne pathogens. It is quite unlikely (although certainly possible) that a power boater will fall into the water, but far more likely that a kayaker will. Thus, to determine the risk of kayaking, one needs to separate out the much smaller sub-group of kayakers and look specifically at their illness rate. Even that subgroup may be too broadly defined, as the real relevant risk category is kayakers who fall in the water. It is unknown at this time how many of each

subcategory of recreational users have enrolled in the study, but it is safe to say that the number of kayakers (and canoers, also at higher risk) is substantially less than the overall number of study participants.

Similarly, since sewage-related waterborne pathogens are more dangerous for sensitive populations such as children, those sensitive populations need to be considered as a risk subgroup. Thus, for example, even if there are a substantial number of overall participants, if there are only a few children involved in the study, it will not provide an adequate basis to assess the specific risk of these pathogens for children.

The number of study participants who have actually fallen out of their boats is presumably far smaller even than that, so small as to be a meaningless sample. The same may be said for the number of children who actively participate in kayaking (of course, the number of children who fall in will be an even smaller, if not nonexistent, subset). While one might be inclined to interpret that fact as an indication that falling out of kayaks and canoes is not very likely, and/or that children do not really kayak much, such an interpretation would be inappropriate. The fact that during the limited course of one study, looking at only a relatively small group of users, most of them were adults who were able to stay in their boats does not mean the risk is not there. Over the course of years, a small but substantial number of people – some of them children – are likely to have such accidents. And it is entirely possible that the people having them may more likely be beginning or occasional kayakers, who may be more likely to fall in but less likely to enroll in an epidemiological study of river users. It is impossible to know one way or the other at the present time who will fall out of their kayaks in future years and how often. But the very nature of that uncertainty suggests that risks due to secondary contact recreation will be extremely difficult to characterize in a single epidemiologic study.

B. Asymptomatic infections

The CHEERS epidemiological study is based upon self-reported symptoms of illness. That is, recreational users are asked to fill out a questionnaire describing any symptoms of illness. This works well with types of pathogens that cause symptoms in most or all of people who are infected by them. It does not work as well, however, for pathogens that infect a large number of people asymptotically, and make only a small fraction of infected people actually sick.

Many of the more harmful and prevalent types of waterborne pathogens associated with sewage-contaminated wastewater are in the latter category, *i.e.*, they can infect large numbers of people but actually result in illness in only a small number of them. Infections with these pathogens can thus spread asymptotically to many different people before one of those – perhaps several degrees removed from the person who originally contracted the pathogen from contaminated wastewater – actually becomes ill.

Thus, survey results may reflect very few illnesses among recreational users, or even none at all – a negative epidemiologic result. But that does not mean that there was no risk of infection to those recreational users. Many of them may very well have become infected, but it is not they themselves facing the risk of illness. It is the people who are in contact with them – their families and perhaps others – and the people in contact with those people, and so on down the line. An epidemiological study such as the one being performed on the CAWS will, quite simply, not reflect this chain of infection.

C. Varying conditions

The level of sewage-related waterborne pathogens varies widely over time and distance. The levels of any given pathogen will vary with such ever-changing factors as water temperature, sunlight, and distance from the source. Each of these factors may affect different pathogens in a different manner. For instance, some pathogens survive much longer and hence can be harmful further downstream than others. Some pathogens may be more sensitive to temperature than others.

Thus, it is entirely possible that there is a set of conditions in which the pathogen levels will be very dangerous – e.g., a hot day with no sunlight near the pathogen source – but there will be no way to know from the results of the epidemiological study how many, if any, participants were actually exposed to those conditions. Once again, this factor has the potential to create false negative results. The recreators who encountered the more hazardous conditions may report higher levels of illness, while those who encountered the less hazardous conditions will report lower levels of illness; and the results from the two groups will effectively cancel each other out.

D. Multiple causes of symptoms

As an overall matter, it is very difficult to conduct epidemiological research concerning illnesses that have multiple causes. That problem is very much in place with respect to the CAWS study.

The types of waterborne pathogens associated with sewage frequently cause diarrhea and stomach upset, and occasionally fever. These types of symptoms are, of course, extremely common. Millions of cases of diarrhea, fever, and vomiting occur every year in this country that having nothing to do with waterborne pathogens. All of these symptoms have dozens of potential causes. Thus, it is an extreme challenge to try to separate out water recreation as a cause of any of them – it is looking a needle in a haystack.

As an example, assume that 1 of every 100 recreators became ill as a result of their activity in the CAWS. With thousands of such exposures each year, even this low rate would be a substantial public health hazard with many cases of preventable illness. During the course of the study, with 3000 people in the CAWS group, and 3000 in the control group, there would be an additional 30 cases of illness in the CAWS group. However, there would be a background rate of illness due to all the other causes in both

groups. Among the general population, you would expect about 10 of every 100 people to develop GI symptoms in a given month; in other words, 300 people would be sick in each group for reasons having nothing to do with their exposure to CAWS. So you would need to find those additional 30 cases out of 330. But for at-risk populations, such as children, the problem is worse, since they have a higher rate of background illness. For this important group, the needle is a little bigger, but the haystack is much bigger.

E. Differing behavior in contaminated waters

It is important to note that when the risk under study can be changed by the individual, and it is known or suspected to be hazardous, the magnitude of that risk is likely to be underestimated in an epidemiological study because people may conduct themselves more cautiously in hazardous conditions and self-limit their risk. Here, the public is generally aware that the CAWS waters contain pathogens that pose a risk of infection. Those using the water recreationally are likely being more careful to avoid contact with the water. This may be especially true when water conditions are thought to be ore hazardous (e.g., immediately after a heavy rain).

Thus, at best, the CAWS epidemiology study is measuring the risk of illness to people who use the water in a conservative manner – e.g., who refrain from rolling their kayaks, take extra precautions not to fall out of their boats, and decline to engage in water fights with their companions. It does not measure the risk to the public of the sort of free-wheeling splashing around that takes place in water bodies known to be fundamentally clean, such as Lake Michigan. When secondary contact recreators know that a body of water is suitable for swimming, they will be inherently much more likely to want to get wet in it.

IV. Conclusions

I am deeply committed to scientific inquiry, particularly epidemiology. I therefore applaud the joint efforts of MWRD and UIC School of Public Health to conduct an epidemiological study of the CAWS to help assess the risks to users. I believe this study, which is ambitious, well-conceived, and generally well-designed, is likely to yield useful information about potential health risks of water recreation. I look forward to the results of the study, as I am personally very interested in the impact of undisinfected sewage on public health, an interest reflected in my own recent research.

However, I believe it would be a serious mistake to delay disinfection of the CAWS any longer pending the outcome of this study. Its results, no matter what they are, will be inconclusive the first time around – particularly if those results are negative, given the severe limitations in the significance of negative epidemiological results in a study of this nature.

The fact of the matter is, epidemiological research is simply not an adequate tool to inform a decision concerning CAWS disinfection. The risks to users of the CAWS are not uniform for all users. Rather, this is a situation where there are potentially severe

risks to a small but significant subcategory of users (i.e., those who accidentally swallow water, and sensitive populations such as children). For the reasons I have described, it is extremely difficult, if not impossible, to isolate a large enough sample of the most at-risk subcategories and obtain meaningful risk statistics for them. Rather, the problem of waterborne pathogens in the CAWS needs to be understood as a situation that we know is inherently dangerous, and that is bound over time to result in severe injury to someone even if that injury cannot be captured in the narrow window of a scientific study.

Imagine approaching an intersection with four traffic signals in your direction: three of them are red and one is not working. To continue driving through the intersection would be incredibly reckless. Even if the fourth signal turned green, it would be foolish to ignore the overwhelming evidence of the other three signals. That is the situation here: we have several strong warning signs about the risks of recreation in the CAWS, and it makes no sense to continue full speed ahead with undisinfected water in hopes that an isolated green light might eventually appear.

Epidemiology has its limits, and the CAWS study is bumping up against them. I believe that sound science and public health policy call for promptly disinfecting WWTP effluent as IEPA has proposed, and as virtually every other major city in the country already does.



Marc H. Gorelick, M.D.

EXHIBIT 1

updated: May 5, 2008

CURRICULUM VITAE

Marc Harris Gorelick, MD, MSCE
Professor of Pediatrics (Emergency Medicine)
Chief, Section of Emergency Medicine

Office Address: Section of Emergency Medicine
Children's Corporate Center Suite 550
PO Box 1997
999 N. 92nd St.
Milwaukee, WI 53201-1997
(414) 266-2648 (phone)
(414) 266-2635 (FAX)

E-Mail: mgorelic@mcw.edu

Home Address: 537 N. 67th St.
Wauwatosa, WI 53213
(414) 771-8367

Place of Birth: New York, NY

Citizenship: USA

Education: 1983 A.B. Princeton University (history)
1987 M.D. Duke University
1996 M.S.C.E. University of Pennsylvania (clinical epidemiology)

Postgraduate Training:

1987-90 Pediatric Residency (PL-1 - PL-3)
Children's National Medical Center
Washington, DC
1990-91 Chief Pediatric Resident
Children's National Medical Center
Washington, DC
1991-94 Fellow, Pediatric Emergency Medicine
Children's Hospital of Philadelphia
Philadelphia, PA

Faculty Appointments:

1990-91 Clinical Instructor in Pediatrics

George Washington University School of Medicine
Washington, DC

1991-94 Instructor in Pediatrics

University of Pennsylvania School of Medicine

1994-98 Assistant Professor of Pediatrics

University of Pennsylvania School of Medicine

1995-98 Assistant Professor of Epidemiology

University of Pennsylvania School of Medicine

1996-98 Assistant Professor of Emergency Medicine

University of Pennsylvania School of Medicine

1994-98 Senior Scholar

Center for Clinical Epidemiology and Biostatistics

University of Pennsylvania School of Medicine

1998- 2000 Assistant Professor of Pediatrics

Jefferson Medical College

1998- 2000 Adjunct Assistant Professor of Epidemiology

University of Pennsylvania School of Medicine

1998- 2000 Adjunct Scholar

Center for Clinical Epidemiology and Biostatistics

University of Pennsylvania School of Medicine

2000- 2004 Associate Professor of Pediatrics (Emergency Medicine)

Medical College of Wisconsin

2001- 2004 Associate Professor of Epidemiology

Medical College of Wisconsin

2004-present Professor of Pediatrics (Emergency Medicine)

Medical College of Wisconsin

2004-2006 Professor of Epidemiology

Medical College of Wisconsin

2006- present Professor of Population Health

Medical College of Wisconsin

Administrative Appointments:

1996-98 Co-Director of Research, Division of Emergency Medicine

Children's Hospital of Philadelphia

1998- 2000 Director of Research, Division of Emergency Medicine

A. I. duPont Hospital for Children

2000-present Chief, Section of Pediatric Emergency Medicine

Medical College of Wisconsin

2000-2006 Medical Director, Emergency Department

Jon Vice Endowed Chair in Pediatric Emergency Medicine

Children's Hospital of Wisconsin

2006-present Associate Director, Children's Research Institute

2007-present

Hospital Staff Privileges

1994-1998 Children's Hospital of Philadelphia
Philadelphia, PA
1998-2000 AI duPont Hospital for Children
Wilmington, DE
2000-present Children's Hospital of Wisconsin
Milwaukee, WI

Specialty Boards and Certification:

<u>Board Certified</u>	<u>Issue Date</u>	<u>Expiration</u>
American Board of Pediatrics	11/1990	12/2011
ABP-Subboard of Pediatric Emergency Medicine	8/1994	12/2008

<u>Certificates</u>	<u>Issued by</u>	<u>Issue Date</u>	<u>Expiration</u>
PALS	AHA	1990	2007
ATLS	ACS	1990	2007

<u>Licensure</u>	<u>Number</u>	<u>Issue Date</u>	<u>Expiration</u>
Wisconsin	42366-020	7/21/2000	10/31/2009
Delaware	0005352	6/1998	inactive
Pennsylvania	MD-044060-L	4/1991	inactive
District of Columbia	17815	1/1990	inactive

Awards and Honors:

Teaching Awards (includes both group and individual awards):

1992 Jean A. Cortner Divisional Teaching Award (to the Division of Emergency Medicine) for Excellence in and Commitment to Resident Education
1994 Jean A. Cortner Divisional Teaching Award (to the Division of Emergency Medicine) for Excellence in and Commitment to Resident Education
1995 Jean A. Cortner Divisional Teaching Award (to the Division of Emergency Medicine) for Excellence in and Commitment to Resident Education
1996 Jean A. Cortner Divisional Teaching Award (to the Division of Emergency Medicine) for Excellence in and Commitment to Resident Education
1998 Jean A. Cortner Divisional Teaching Award (to the Division of Emergency Medicine) for Excellence in and Commitment to Resident Education
1999 AI duPont Hospital for Children Housestaff Divisional Teaching Award (to the Division of Emergency Medicine)
2000 AI duPont Hospital for Children Faculty Teaching Award
2003 Faculty Teaching Award in Pediatrics, Department of Emergency Medicine, Medical College of Wisconsin

Other Awards:

1983 Phi Beta Kappa

1985-86 Eugene Stead Research Scholarship
1987 Alpha Omega Alpha
2001 Best Faculty Research Presentation, Ninth Annual Emergency Medicine
Research Forum, Medical College of Wisconsin
2003 Clinician's Clinician Award, Department of Pediatrics, Medical College of
Wisconsin
2006,2007 Best Doctors in America®
2006 Outstanding Reviewer, *Academic Emergency Medicine*

Membership in Professional Societies:

Ambulatory Pediatric Association
Pediatric Emergency Medicine Special Interest Group
American Academy of Pediatrics
Section on Pediatric Emergency Medicine
PEM Collaborative Research Committee
American College of Emergency Physicians
Society for Academic Emergency Medicine
Society for Pediatric Research

Editorial Positions:

1993- 1998 Reviewer, Pediatric Emergency Care
1996- present Reviewer, Pediatrics
1997- present Evidence Based Emergency Medicine Task Force, Annals of Emergency
Medicine
1998-2003 Reviewer, Annals of Emergency Medicine
1998- present Editorial Board, Pediatric Emergency Care
1999- present Reviewer, Pharmacoepidemiology and Drug Safety
2001-present Associate Editor, PEM Database On-Line (<http://www.pem-database.org>)
2002-present Reviewer, Archives of Pediatric and Adolescent Medicine
2003-present Reviewer, Journal of Pediatrics
2003-present Consulting Editor, Annals of Emergency Medicine
2004-present Reviewer, JAMA
2004-present Reviewer, Academic Emergency Medicine
2005-present Editorial Board, Ambulatory Pediatrics

Regional/Local Appointed Leadership and Committee Positions

Wisconsin Chapter AAP
2002-2005 co-Chair, Committee on Pediatric Emergency Medicine

National Elected/Appointed Leadership and Committee Positions

American Academy of Pediatrics

- 2000-present Member, Review Committee, Ken Graff Young Investigator Award
- 2000-2005 Chair, Pediatric Emergency Medicine Collaborative Research Committee, Section of Emergency Medicine
- 2004-present Member, Executive Committee, Section of Emergency Medicine
- 2006 Editor, Section of Emergency Medicine 25th Anniversary Commemorative Booklet

American Board of Pediatrics

- 2003-present Member, Sub-Board of Pediatric Emergency Medicine
- 2005-present Chair, Credentials Committee, Sub-Board of Pediatric Emergency Medicine

Pediatric Emergency Care Applied Research Network

- 2001-present Member, Steering Committee
- Chair, Grants and Publications Committee

Grant Review Positions

- 1996-97 Consultant/Ad Hoc Reviewer, Colciencias (National Program for Health Science and Technology, Colombia)
- 2001 Consultant/Ad Hoc Reviewer, Alberta Children's Hospital Foundation
- 2003 Consultant/Ad Hoc Reviewer, Maternal Child Health Bureau, Emergency Medical Services for Children Program
- 2008 Consultant/Ad Hoc Reviewer, Hospital for Sick Children Foundation

Data Safety and Monitoring Boards

- 2003-2006 DSMB member. The effectiveness of oral dexamethasone for acute bronchiolitis: A multicenter randomized controlled trial. (Maternal and Child Health Bureau/HRSA R40MC04298-01-00).

Research Grants, Contracts, Awards, Projects (direct costs only):

Title: Performance of clinical signs in the diagnosis of dehydration in children
Source: *Emergency Medicine Foundation*
Role: Principal Investigator
Dates: 7/1/1994-6/30/1995
Amount: \$9680

Title: Cost-effective ED screening for UTI in febrile children
Source: *Bureau of Maternal and Child Health, Health Resources and Services Administration*
Role: Co-principal investigator
Dates: 10/1/1994-9/30/1997

Amount: \$330,827 (MCJ 420648)

Title: Predicting need for hospitalization in acute childhood asthma.
Source: *Bureau of Maternal and Child Health, Health Resources and Services Administration*
Role: Principal Investigator
Dates: 10/1/1997-3/31/2000
Amount: \$364,599 (R40 MC00097)

Title: PEAT: Pediatric Emergency Assessment Tool.
Source: *Nemours Foundation*
Role: Principal Investigator
Dates: 1/1/1999-6/30/2000
Amount: \$17,489

Title: Asthma Education in the Emergency Department
Source: *Nemours Foundation*
Role: Principal Investigator
Dates: 7/1/1999-6/30/2001
Amount: \$4349

Title: Predictors of Patient Complaints in a Pediatric Emergency Department
Source: *Nemours Foundation*
Role: Co-Principal Investigator
Dates: 7/1/1999-6/30/2000
Amount: \$5474

Title: PEAT: Pediatric Emergency Assessment Tool
Source: *Agency for Health Care Research and Quality*
Role: Principal Investigator
Dates: 10/1/2000-9/30/2002
Amount: \$50,000 (R03-HS11395)

Title: Emergency Department Allies: Managing Pediatric Asthma (ED ALLIES)
Source: Robert Wood Johnson Foundation
Role: Co-Investigator
Dates: 10/1/2001-9/30/2004
Amount: \$875,000

Title: Emergency Medical Services for Children (EMSC) Network Development Demonstration Project
Source: Maternal and Child Health Bureau (subcontract from UC Davis)
Grant #: U03MC00001
Role: site Principal Investigator (15% effort)
Dates: 10/1/2001-9/30/2008
Amount: \$971,438

Title: Childhood Head Trauma: A Neuroimaging Decision Rule
Source: Maternal and Child Health Bureau (subcontract from UC Davis)
Role: site Principal Investigator (5% effort)
Dates: 12/1/03-11/30/06
Amount: \$50,088

Title: Developing a Diagnosis Grouping System for Child Emergency
Department Visits
Source: Maternal and Child Health Bureau (subcontract from Children's Hospital
of Philadelphia)
Grant #: H34 MC02457-01-00
Role: site Principal Investigator (5% effort)
Dates: 3/1/04-2/28/07
Amount: \$22,476

Title: Predicting Cervical Spine Injury (CSI) In Children: A Multi Centered,
Case Control Analysis
Source: Maternal and Child Health Bureau (subcontract from Washington
University)
Grant #: H34 MC03472-01-00
Role: site Principal Investigator (2% effort)
Dates: 3/1/04-4/28/07
Amount: \$6,250

Title: Occurrence of acute diarrheal illness in children following release of
undertreated and partially treated sewage into Lake Michigan
Source: Children's Research Institute
Role: Principal Investigator (20% effort)
Dates: 5/1/2006-10/30/2007
Amount: \$69,995

Title: Defining Quality Performance Measures for Pediatric Emergency Care
Source: Maternal and Child Health Bureau (subcontract from Children's Hospital
of Philadelphia)
Grant #: H34MC02547
Role: site Principal Investigator (5% effort)
Dates: 9/1/07-8/31/10
Amount: \$36,666

Title: Institutional National Research Service Award/ Academic Fellowship in
Primary Care Research
Source: Health Resources and Services Administration
Grant #: HRSA 2-T32-PE-10030-11
PI: Linda N. Meurer, MD, MPH
Role: Research Faculty (prn FTE)

Dates: 7/1/2008 – 6/30/2011
Total funds: \$1,191,581 (\$364,116 annual direct costs)

Invited Lectures/Workshops/Presentations/Site Visits:

International:

Date: 9/1996
Title: Predicting Clinical Outcomes – Pitfalls and Promises
Location: Third Annual LatinCLEN Scientific Assembly, Huatulco, Mexico

Date: 7/1997
Title: Análisis de decisiones (Decision Analysis)
Location: Curso Modular de Epidemiología Clínica y Bioestadística, Universidad Javeriana, Bogotá, Colombia

Date: 7/1997
Title: Análisis de datos en experimentos clínicos (Data Analysis In Randomized Clinical Trials)
Location: Curso Modular de Epidemiología Clínica y Bioestadística, Universidad Javeriana, Bogotá, Colombia

Date: 7/1997
Title: Lectura crítica de experimentos clínicos (Critical Reading Of Clinical Trials)
Location: Curso Modular de Epidemiología Clínica y Bioestadística, Universidad Javeriana, Bogotá, Colombia

Date: 3/1998
Title: Emergency Management Of Seizures In Children
Location: Emergency Care in Pediatrics, Salzburg Medical Seminars, Salzburg, Austria

Date: 3/1998
Title: Acute Childhood Asthma: Update On Management
Location: Emergency Care in Pediatrics, Salzburg Medical Seminars, Salzburg, Austria

Date: 3/1998
Title: Burns and Smoke Inhalation
Location: Emergency Care in Pediatrics, Salzburg Medical Seminars, Salzburg, Austria

Date: 3/1998
Title: Evaluation and Management of Dehydration in Children

Location: Emergency Care in Pediatrics, Salzburg Medical Seminars, Salzburg, Austria

Date: 6/2002
Title: Pediatric cardiac cases: issues in diagnosis and management
Location: Emergency Medicine Between the Continents, Reykjavik, Iceland

Date: 6/2002
Title: Issues in management of acute childhood wheezing
Location: Emergency Medicine Between the Continents, Reykjavik, Iceland

Date: 6/2002
Title: Minor head trauma in infants and children
Location: Emergency Medicine Between the Continents, Reykjavik, Iceland

Date: 6/2002
Title: Common pediatric infections
Location: Emergency Medicine Between the Continents, Reykjavik, Iceland

Date: 3/2007
Title: The Emergency Department in the Continuum of Asthma Care
Location: Grand Rounds, Hopital Ste. Justine, Montreal, Canada

Date: 3/2007
Title: Anatomy of a Research Career
Location: 9th Annual Canadian PEM Fellows' Conference, Mont Tremblant, Quebec

Date: 4/2008
Title: Pediatric Minor Head Injury: Who Needs a Head CT?
Location: 12th Annual Spring Conference on Pediatric Emergencies, Symposia Medicus, Barbados

Date: 4/2008
Title: Fever in the Era of Pneumococcal Vaccine
Location: 12th Annual Spring Conference on Pediatric Emergencies, Symposia Medicus, Barbados

Date: 4/2008
Title: Contemporary Management of Pediatrics Respiratory Emergencies
Location: 12th Annual Spring Conference on Pediatric Emergencies, Symposia Medicus, Barbados

Date: 4/2008
Title: Challenging Cases from the Pediatric Emergency Department
Location: 12th Annual Spring Conference on Pediatric Emergencies, Symposia Medicus, Barbados

National:

Date: 4/1994
Title: Burn Injury In Children
Location: Emergency Care of the Very Ill Child, Orlando, FL

Date: 4/1994
Title: Evaluation Of The Child With Altered Mental Status
Location: Emergency Care of the Very Ill Child, Orlando, FL

Date: 4/1994
Title: Emergency Evaluation And Management Of Seizures In Children
Location: Emergency Care of the Very Ill Child, Orlando, FL

Date: 5/1995
Title: Don't Believe Everything You Read -- Teaching Housestaff And Students To Read With A Critical Eye
Location: Annual Meeting of the Ambulatory Pediatric Association, Seattle, WA

Date: 5/1995
Title: Caught In The Crossfire: Preventing Further Injury To Pediatric Victims Of Violence
Location: Annual Meeting of the Ambulatory Pediatric Association, Seattle, WA

Date: 6/1995
Title: Evaluation And Management Of Dehydration In Children
Location: Emergency Care of the Very Ill Child, Hilton Head, SC

Date: 6/1995
Title: Evaluation Of The Child With Altered Mental Status
Location: Emergency Care of the Very Ill Child, Hilton Head, SC

Date: 3/1996
Title: Randomized Clinical Trials In Pediatric Emergency Medicine
Location: Third Annual Pediatric Emergency Medicine Fellows' Conference, Miami, FL

Date: 3/1997
Title: Randomized Clinical Trials In Pediatric Emergency Medicine
Location: Fourth Annual Pediatric Emergency Medicine Fellows' Conference, Miami, FL

Date: 6/1997

Title: Evaluation And Management Of Dehydration In Children
Location: Emergency Care of the Very Ill Child, Hilton Head, SC

Date: 6/1997
Title: Burn Injury In Children
Location: Emergency Care of the Very Ill Child, Hilton Head, SC

Date: 6/1997
Title: Evaluation And Management Of Dehydration In Children
Location: Emergency Care of the Very Ill Child, Hilton Head, SC

Date: 6/1997
Title: Acute Asthma In Children: An Update On Management
Location: Emergency Care of the Very Ill Child, Hilton Head, SC

Date: 3/1998
Title: Non-experimental Study Designs in Pediatric Emergency Medicine
Location: Fifth Annual Pediatric Emergency Medicine Fellows' Conference, Washington, DC

Date: 6/1998
Title: Evaluation And Management Of Dehydration In Children
Location: Emergency Care of the Very Ill Child, Hilton Head, SC

Date: 6/1998
Title: Acute Asthma In Children: An Update On Management
Location: Emergency Care of the Very Ill Child, Hilton Head, SC

Date: 4/1999
Title: Non-Experimental Studies In Pediatric Emergency Medicine
Location: Sixth Annual National PEM Fellow's Conference, Los Angeles, CA

Date: 4/2000
Title: Burns And Smoke Inhalation
Location: Pediatric Emergency Medicine 2000, Orlando, FL

Date: 4/2000
Title: Asthma And Bronchiolitis: An Update On Management
Location: Pediatric Emergency Medicine 2000, Orlando, FL

Date: 4/2000
Title: The Dehydrated Child
Location: Pediatric Emergency Medicine 2000, Orlando, FL

Date: 5/2000

Title: Consent And Confidentiality: Teaching Housestaff To Respect The Rights Of Others
Location: Annual Meeting of the Ambulatory Pediatric Association, Boston, MA

Date: 3/2001
Title: Severity of Illness Measures in PEM
Location: EMSC Outcomes Research Conference, Reston, VA

Date: 4/2001
Title: UTI in Children
Location: Pediatric Emergency Medicine 2001, Orlando, FL

Date: 4/2001
Title: Asthma And Bronchiolitis: An Update On Management
Location: Pediatric Emergency Medicine 2001, Orlando, FL

Date: 4/2001
Title: The Dehydrated Child
Location: Pediatric Emergency Medicine 2001, Orlando, FL

Date: 4/2001
Title: Consent And Confidentiality: Teaching Housestaff To Respect The Rights Of Others
Location: Annual Meeting of the Association of Pediatric Program Directors, Baltimore, MD

Date: 4/2002
Title: UTI in Children
Location: Ninth Annual Clinical Advances in Pediatric Emergency Medicine, St. Louis, MO

Date: 4/2002
Title: The Role of the ED in Asthma Prevention and Control
Location: Ninth Annual Clinical Advances in Pediatric Emergency Medicine, St. Louis, MO

Date: 11/2002
Title: Evaluation and Management of Dehydration in Children
Location: American Medical Seminars, Review and Update of Pediatric Emergency Medicine, Sarasota, FL

Date: 11/2002
Title: Bronchiolitis and Croup
Location: American Medical Seminars, Review and Update of Pediatric Emergency Medicine, Sarasota, FL

Date 11/2002
Title: Pediatric Asthma I: Update on Acute Management
Location: American Medical Seminars, Review and Update of Pediatric Emergency Medicine, Sarasota, FL

Date 11/2002
Title: Pediatric Asthma II: The ED in the Continuum of Asthma Care
Location: American Medical Seminars, Review and Update of Pediatric Emergency Medicine, Sarasota, FL

Date 11/2002
Title: Evaluation of the Child with Altered Mental Status
Location: American Medical Seminars, Review and Update of Pediatric Emergency Medicine, Sarasota, FL

Date 11/2002
Title: Head Trauma in Infants and Young Children
Location: American Medical Seminars, Review and Update of Pediatric Emergency Medicine, Sarasota, FL

Date 11/2002
Title: Visual Diagnosis
Location: American Medical Seminars, Review and Update of Pediatric Emergency Medicine, Sarasota, FL

Date 11/2002
Title: The Year in Review: Selections from the Literature
Location: American Medical Seminars, Review and Update of Pediatric Emergency Medicine, Sarasota, FL

Date 11/2002
Title: Pediatric Presentations of Cardiac Disease
Location: American Medical Seminars, Review and Update of Pediatric Emergency Medicine, Sarasota, FL

Date 11/2002
Title: Approach to the Poisoned Child
Location: American Medical Seminars, Review and Update of Pediatric Emergency Medicine, Sarasota, FL

Date 5/2003
Title: William Bradford Visiting Professor
Location: Children's Mercy Hospital, Kansas City, MO

Date 8/2003
Title: Anatomy of a Research Career

Location: AAP Pediatric Emergency Medicine Leadership Conference, Albuquerque, NM

Date 8/2003

Title: Obtaining Research Funding

Location: AAP Pediatric Emergency Medicine Leadership Conference, Albuquerque, NM

Date 1/2004

Title: Evaluation and Management of Dehydration in Children

Location: American Medical Seminars, Review and Update of Pediatric Emergency Medicine, Sarasota, FL

Date 1/2004

Title: Bronchiolitis and Croup

Location: American Medical Seminars, Review and Update of Pediatric Emergency Medicine, Sarasota, FL

Date 1/2004

Title: Pediatric Asthma : Update on Acute Management

Location: American Medical Seminars, Review and Update of Pediatric Emergency Medicine, Sarasota, FL

Date 1/2004

Title: Fever in the Infant and Toddler

Location: American Medical Seminars, Review and Update of Pediatric Emergency Medicine, Sarasota, FL

Date 1/2004

Title: Evaluation of the Child with Altered Mental Status

Location: American Medical Seminars, Review and Update of Pediatric Emergency Medicine, Sarasota, FL

Date 1/2004

Title: Pediatric Abdominal Emergencies

Location: American Medical Seminars, Review and Update of Pediatric Emergency Medicine, Sarasota, FL

Date 1/2004

Title: Visual Diagnosis

Location: American Medical Seminars, Review and Update of Pediatric Emergency Medicine, Sarasota, FL

Date 1/2004

Title: The Year in Review: Selections from the Literature

Location: American Medical Seminars, Review and Update of Pediatric Emergency Medicine, Sarasota, FL

Date 1/2004

Title: Pediatric Presentations of Cardiac Disease

Location: American Medical Seminars, Review and Update of Pediatric Emergency Medicine, Sarasota, FL

Date 1/2004

Title: Approach to the Poisoned Child

Location: American Medical Seminars, Review and Update of Pediatric Emergency Medicine, Sarasota, FL

Date 2/2004

Title: The Year in Review: Selections from the Literature

Location: PEM 2004, Park City, UT

Date 2/2004

Title: Pediatric Presentations of Cardiac Disease

Location: PEM 2004, Park City, UT

Date 2/2004

Title: Looking Out For Number 1: Screening For UTI In Febrile Young Children

Location: PEM 2004, Park City, UT

Date: 3/2004

Title: Obtaining Research Funding

Location: 10th Annual National PEM Fellowship Conference, St. Louis, MO

Date: 3/2005

Title: The Emergency Department in the Continuum of Asthma Care

Location: Grand Rounds, Children's Hospital Medical Center, Cincinnati, OH

Date 4/2005

Title: Evaluation and Management of Dehydration in Children

Location: American Medical Seminars, Review and Update of Pediatric Emergency Medicine, Sarasota, FL

Date 4/2005

Title: Bronchiolitis and Croup

Location: American Medical Seminars, Review and Update of Pediatric Emergency Medicine, Sarasota, FL

Date 4/2005

Title: Pediatric Asthma : Update on Acute Management

Location: American Medical Seminars, Review and Update of Pediatric Emergency Medicine, Sarasota, FL

Date 4/2005

Title: Fever in the Infant and Toddler

Location: American Medical Seminars, Review and Update of Pediatric Emergency Medicine, Sarasota, FL

Date 4/2005

Title: Evaluation of the Child with Altered Mental Status

Location: American Medical Seminars, Review and Update of Pediatric Emergency Medicine, Sarasota, FL

Date 4/2005

Title: Pediatric Abdominal Emergencies

Location: American Medical Seminars, Review and Update of Pediatric Emergency Medicine, Sarasota, FL

Date 4/2005

Title: Visual Diagnosis

Location: American Medical Seminars, Review and Update of Pediatric Emergency Medicine, Sarasota, FL

Date 4/2005

Title: The Year in Review: Selections from the Literature

Location: American Medical Seminars, Review and Update of Pediatric Emergency Medicine, Sarasota, FL

Date 4/2005

Title: Pediatric Presentations of Cardiac Disease

Location: American Medical Seminars, Review and Update of Pediatric Emergency Medicine, Sarasota, FL

Date 4/2005

Title: Medicolegal Issues in Pediatric Emergency Medicine

Location: American Medical Seminars, Review and Update of Pediatric Emergency Medicine, Sarasota, FL

Date 9/2005

Title: The Emergency Department in the Continuum of Asthma Care

Location: Helen L. DeRoy Distinguished Visiting Professor, Children's Hospital of Michigan, Detroit, MI

Date 9/2005

Title: Fever in the Infant and Toddler

Location: Pediatric Grand Rounds, Children's Hospital of Michigan, Detroit, MI

Date 10/2005
Title: Visual Diagnosis
Location: 21st Annual Conference on Pediatric Emergencies, Symposia Medicus, Kawai, Hawaii

Date 10/2005
Title: Pediatric Minor Head Injury: Who Needs a Head CT?
Location: 21st Annual Conference on Pediatric Emergencies, Symposia Medicus, Kawai, Hawaii

Date 10/2005
Title: Fever in the Era of Pneumococcal Vaccine
Location: 21st Annual Conference on Pediatric Emergencies, Symposia Medicus, Kawai, Hawaii

Date 10/2005
Title: Contemporary Management of Pediatrics Respiratory Emergencies
Location: 21st Annual Conference on Pediatric Emergencies, Symposia Medicus, Kawai, Hawaii

Date 3/2006
Title: Evaluation and Management of Dehydration in Children
Location: American Medical Seminars, Review and Update of Pediatric Emergency Medicine, Sarasota, FL

Date 3/2006
Title: Bronchiolitis and Croup
Location: American Medical Seminars, Review and Update of Pediatric Emergency Medicine, Sarasota, FL

Date 3/2006
Title: Pediatric Asthma : Update on Acute Management
Location: American Medical Seminars, Review and Update of Pediatric Emergency Medicine, Sarasota, FL

Date 3/2006
Title: Fever in the Infant and Toddler
Location: American Medical Seminars, Review and Update of Pediatric Emergency Medicine, Sarasota, FL

Date 3/2006
Title: Evaluation of the Child with Altered Mental Status
Location: American Medical Seminars, Review and Update of Pediatric Emergency Medicine, Sarasota, FL

Date 3/2006
Title: Pediatric Abdominal Emergencies
Location: American Medical Seminars, Review and Update of Pediatric Emergency Medicine, Sarasota, FL

Date 3/2006
Title: Visual Diagnosis
Location: American Medical Seminars, Review and Update of Pediatric Emergency Medicine, Sarasota, FL

Date 3/2006
Title: Evidence-Based Pediatric Emergency Medicine: A Practical Approach for Clinicians
Location: American Medical Seminars, Review and Update of Pediatric Emergency Medicine, Sarasota, FL

Date 3/2006
Title: Pediatric Presentations of Cardiac Disease
Location: American Medical Seminars, Review and Update of Pediatric Emergency Medicine, Sarasota, FL

Date 3/2006
Title: Medicolegal Issues in Pediatric Emergency Medicine
Location: American Medical Seminars, Review and Update of Pediatric Emergency Medicine, Sarasota, FL

Date 4/2006
Title: Urinary Tract Infections in Children
Location: Pediatric Emergency Medicine 2006: Advances and Controversies for the Clinician, Orlando, FL
www.pedseducation.org/online_education/20061102/index.html

Date 4/2006
Title: Altered Mental Status
Location: Pediatric Emergency Medicine 2006: Advances and Controversies for the Clinician, Orlando, FL
www.pedseducation.org/online_education/20061109/index.htm

Date 4/2006
Title: Non-traumatic Abdominal Emergencies
Location: Pediatric Emergency Medicine 2006: Advances and Controversies for the Clinician, Orlando, FL
www.pedseducation.org/online_education/20060903/index.htm

Date 4/2006

Title: Developing Valid and Relevant Outcome Measures for Pediatric
Emergency Medicine
Location: Pediatric Academic Societies Annual Meeting, San Francisco, CA

Date: 2/2007
Title: Research on a Budget
Location: 14th Annual PEM Fellows Conference, Miami, FL

Date: 3/2007
Title: Evaluation and Management of Dehydration in Children
Location: American Medical Seminars, Review and Update of Pediatric Emergency
Medicine, Sarasota, FL

Date: 3/2007
Title: Bronchiolitis and Croup
Location: American Medical Seminars, Review and Update of Pediatric Emergency
Medicine, Sarasota, FL

Date: 3/2007
Title: Pediatric Asthma : Update on Acute Management
Location: American Medical Seminars, Review and Update of Pediatric Emergency
Medicine, Sarasota, FL

Date: 3/2007
Title: Fever in the Infant and Toddler
Location: American Medical Seminars, Review and Update of Pediatric Emergency
Medicine, Sarasota, FL

Date: 3/2007
Title: Evaluation of the Child with Altered Mental Status
Location: American Medical Seminars, Review and Update of Pediatric Emergency
Medicine, Sarasota, FL

Date: 3/2007
Title: Pediatric Abdominal Emergencies
Location: American Medical Seminars, Review and Update of Pediatric Emergency
Medicine, Sarasota, FL

Date: 3/2007
Title: Common Acute dermatologic Problems in Children
Location: American Medical Seminars, Review and Update of Pediatric Emergency
Medicine, Sarasota, FL

Date: 3/2007
Title: Psychiatric and Behavioral Emergencies iin Children

Location: American Medical Seminars, Review and Update of Pediatric Emergency Medicine, Sarasota, FL

Date 3/2007

Title: Pediatric Presentations of Cardiac Disease

Location: American Medical Seminars, Review and Update of Pediatric Emergency Medicine, Sarasota, FL

Date 3/2007

Title: Emergencies in the Office: Being Prepared to Stabilize and Transfer

Location: American Medical Seminars, Review and Update of Pediatric Emergency Medicine, Sarasota, FL

Date 3/2008

Title: Evaluation and Management of Dehydration in Children

Location: American Medical Seminars, Review and Update of Pediatric Emergency Medicine, Sarasota, FL

Date 3/2008

Title: Bronchiolitis and Croup

Location: American Medical Seminars, Review and Update of Pediatric Emergency Medicine, Sarasota, FL

Date 3/2008

Title: Pediatric Asthma : Update on Acute Management

Location: American Medical Seminars, Review and Update of Pediatric Emergency Medicine, Sarasota, FL

Date 3/2008

Title: Fever in the Infant and Toddler

Location: American Medical Seminars, Review and Update of Pediatric Emergency Medicine, Sarasota, FL

Date 3/2008

Title: Evaluation of the Child with Altered Mental Status

Location: American Medical Seminars, Review and Update of Pediatric Emergency Medicine, Sarasota, FL

Date 3/2008

Title: Pediatric Abdominal Emergencies

Location: American Medical Seminars, Review and Update of Pediatric Emergency Medicine, Sarasota, FL

Date 3/2008

Title: Common Acute dermatologic Problems in Children

Location: American Medical Seminars, Review and Update of Pediatric Emergency Medicine, Sarasota, FL

Date 3/2008

Title: Psychiatric and Behavioral Emergencies in Children

Location: American Medical Seminars, Review and Update of Pediatric Emergency Medicine, Sarasota, FL

Date 3/2008

Title: Pediatric Presentations of Cardiac Disease

Location: American Medical Seminars, Review and Update of Pediatric Emergency Medicine, Sarasota, FL

Date 3/2008

Title: Emergencies in the Office: Being Prepared to Stabilize and Transfer

Location: American Medical Seminars, Review and Update of Pediatric Emergency Medicine, Sarasota, FL

Regional:

Date: 2/1995

Title: Evaluation And Management Of Dehydration In Children

Location: York Hospital, York, PA

Date: 5/1996

Title: Evaluation And Management Of Dehydration In Children

Location: Burlington Memorial Hospital, Mt. Holly, NJ

Date: 10/1996

Title: Pediatric Trauma

Location: York Hospital, York, PA

Date: 4/1999

Title: Pediatric Asthma And Bronchiolitis: The Latest From The Literature

Location: Pennsylvania ACEP Scientific Assembly, Harrisburg, PA

Date: 2/2001

Title: Looking Out For Number 1: Screening For UTI In Febrile Young Children

Location: Grand Rounds, Department of Emergency Medicine, Christ Hospital, Oak Lawn, IL

Date: 2/2001

Title: Evaluation and Management of Dehydration in Children

Location: Grand Rounds, Department of Emergency Medicine, Christ Hospital, Oak Lawn, IL

Date: 10/2001

Title: Looking Out For Number 1: Screening For UTI In Febrile Young Children
Location: Pediatric Emergencies in the New Millenium, Wisconsin Dells, WI

Date: 10/2001
Title: Asthma And Bronchiolitis: An Update On Management
Location: Pediatric Emergencies in the New Millenium, Wisconsin Dells, WI

Date: 10/2002
Title: Update on Bronchiolitis
Location: Pediatric Emergency Medicine: Challenges and Controversies, Wisconsin Dells, WI

Date: 10/2002
Title: Cardiac Emergencies
Location: Pediatric Emergency Medicine: Challenges and Controversies, Wisconsin Dells, WI

Date: 10/2002
Title: Evaluation and Management of Dehydration in Children
Location: Pediatric Emergency Medicine: Challenges and Controversies, Wisconsin Dells, WI

Date: 12/2002
Title: Bronchiolitis: Management Update
Location: Grand Rounds, Appleton Medical Center, Appleton, WI

Date: 1/2003
Title: Evaluation and Management of Dehydration in Children
Location: 33rd Annual Winter Refresher Course for Family Practice, Waukesha, WI

Date: 10/2004
Title: Fever in the Infant and Toddler
Location: Pediatric Emergency Medicine: Challenges and Controversies, Wisconsin Dells, WI

Date: 10/2004
Title: Pediatric Presentations of Cardiac Disease
Location: Pediatric Emergency Medicine: Challenges and Controversies, Wisconsin Dells, WI

Date: 10/2004
Title: Pediatric Abdominal Emergencies
Location: Pediatric Emergency Medicine: Challenges and Controversies, Wisconsin Dells, WI

Date: 11/2004

Title: Looking out for Number 1: Screening For UTI In Febrile Young Children
Location: Pediatric Grand Rounds, Condell Medical Center, Libertyville, IL

Date: 2/2005
Title: Update in Management of Bronchiolitis
Location: St. Therese Medical Center, Waukegan, IL

Date: 6/2005
Title: Severity of illness measures for pediatric emergency care.
Location: University of Chicago Grand Rounds, Chicago, IL

Local:

Date: 11/1993
Title: Burn Injury In Children
Location: Intensive Course in Pediatric Emergency Medicine, Philadelphia, PA

Date: 11/1993
Title: Workshop on Acute Asthma
Location: Intensive Course in Pediatric Emergency Medicine, Philadelphia, PA

Date: 11/1994
Title: Burn Injury In Children
Location: Intensive Course in Pediatric Emergency Medicine, Philadelphia, PA

Date: 11/1994
Title: Fluid and Electrolyte Workshop
Location: Intensive Course in Pediatric Emergency Medicine, Philadelphia, PA

Date: 11/1995
Title: Burn Injury In Children
Location: Intensive Course in Pediatric Emergency Medicine, Philadelphia, PA

Date: 11/1995
Title: Fluid and Electrolyte Workshop
Location: Intensive Course in Pediatric Emergency Medicine, Philadelphia, PA

Date: 11/1996
Title: Acute Asthma In Children: An Update On Management
Location: Intensive Course in Pediatric Emergency Medicine, Philadelphia, PA

Date: 11/1996
Title: Fluid and Electrolyte Workshop
Location: Intensive Course in Pediatric Emergency Medicine, Philadelphia, PA

Date: 7/1997
Title: Primer on Research Funding

Location: Fundamentals of Clinical Research, Allegheny University of the Health Sciences, Philadelphia, PA

Date: 11/1997

Title: Acute Asthma In Children: An Update On Management

Location: Intensive Course in Pediatric Emergency Medicine, Philadelphia, PA

Date: 11/1997

Title: Fluid and Electrolyte Workshop

Location: Intensive Course in Pediatric Emergency Medicine, Philadelphia, PA

Date: 7/1998

Title: Primer on Research Funding

Location: Fundamentals of Clinical Research, Allegheny University of the Health Sciences, Philadelphia, PA

Date: 11/1998

Title: Asthma And Bronchiolitis: An Update On Management

Location: Intensive Course in Pediatric Emergency Medicine, Philadelphia, PA

Date: 11/1998

Title: Fluid and Electrolyte Workshop

Location: Intensive Course in Pediatric Emergency Medicine, Philadelphia, PA

Date: 1/1999

Title: Acute Asthma In Children: An Update On Management

Location: Pediatric Advanced Practice Nurse program, University of Pennsylvania School of Nursing, Philadelphia, PA

Date: 3/1999

Title: Looking Out For Number 1: Screening For UTI In Febrile Young Children

Location: Grand Rounds, AI duPont Hospital for Children, Wilmington, DE

Date: 4/1999

Title: Looking Out For Number 1: Screening For UTI In Febrile Young Children

Location: Grand Rounds, Department of Family Medicine, Jefferson Medical College, Philadelphia, PA

Date: 10/1999

Title: The Role Of The ED In Asthma Prevention

Location: STAR Program Community Forum, Albert Einstein Medical Center, Philadelphia, PA

Date: 11/1999

Title: Evaluation And Management Of Dehydration In Children

Location: Intensive Course in Pediatric Emergency Medicine, Philadelphia, PA

Date: 11/1999

Title: Management Of The Febrile Young Child: Panel Discussion

Location: Intensive Course in Pediatric Emergency Medicine, Philadelphia, PA

Date: 1/2000

Title: Acute Asthma In Children: An Update On Management

Location: Pediatric Advanced Practice Nurse program, University of Pennsylvania School of Nursing, Philadelphia, PA

Date: 10/2000

Title: Looking Out For Number 1: Screening For UTI In Febrile Young Children

Location: Grand Rounds, Department of Pediatrics, Children's Hospital of Wisconsin, Milwaukee, WI

Date: 3/2001

Title: Short term outcomes of acute asthma in children

Location: Department of Pediatrics research conference, Children's Hospital of Wisconsin, Milwaukee, WI

Date: 4/2001

Title: Short term outcomes of acute asthma in children

Location: Keynote Address, 9th Annual EM Research Day, Medical College of Wisconsin, Milwaukee, WI

Date: 11/2001

Title: An ounce of prevention: how do we keep asthmatics out of the ED?

Location: Starkey Davis Conference, Milwaukee, WI

Date: 6/2005

Title: Effectively diagnosing and treating "bellyaches" and appendicitis

Location: Editor's Choice Conference, Milwaukee, WI

Date: 6/2006

Title: Dealing with common office emergencies

Location: Editor's Choice Conference, Milwaukee, WI

Administrative Activities:

Children's Hospital of Wisconsin

Trauma Multidisciplinary Committee

Trauma Peer Review/QI Committee

Joint Patient Care Committee

Department of Medicine Patient Care Committee

Emergency Department Multidisciplinary Committee (co-chair)
Physician Quality Advisory Committee

Children's Research Institute
Scientific Advisory and Policy Committee
Clinical Research Subcommittee (co-chair)

Medical College of Wisconsin
Search Committee, Department of Surgery Chair
Injury-related Research and Education Advisory Committee
Department of Pediatrics Clinical Research Strategic Planning Committee (co-chair)
Department of Pediatrics Mentorship Task Force

Children's Specialty Group
Group Practice Committee
Finance Committee (co-chair)
Radiology Chief Search Committee

Medical College of Wisconsin Teaching Activities:

Medical Student Education:

2000-present	MS III pediatric rotation – supervision/bedside teaching of junior medical students assigned to ED as part of their pediatric rotation
2000-present	MS IV pediatric emergency medicine elective – supervision/bedside teaching of senior medical students doing elective rotation in PEM at CHW

Resident/Fellow Education:

2000-present	Resident clinical rotations – supervision/bedside teaching of residents in pediatrics, emergency medicine, and family medicine rotating in the ED at CHW.
2000-present	Resident core lecture series in PEM – provide clinical lectures 2-4 times per year for pediatric residents at CHW and emergency medicine residents at Froedtert Hospital
2000-present	Fellow core lecture series – provide 8-10 lectures per year for pediatric emergency medicine fellows, on clinical, administrative, and research issues
2002-2005	Introduction to Research Design – serve as faculty for course (small group discussion leader and occasional lectures), run by

- the Program in Epidemiology, for fellows from the entire MCW system
- 2003-present Curriculum in Evidence-Based Medicine – serve as co-coordinator of curriculum in evidence-based medicine for PEM fellows; includes providing 2-3 lectures per year and supervising a fellow on an EBM project
- 2003-present Pediatrics Joint Fellowship Curriculum – provide lectures in statistical analysis and research design for fellows in Dept. of Pediatrics
- 2005-present Pediatric Resident Journal Club – faculty facilitator for monthly PL-2 journal club

Faculty Development/Continuing Medical Education:

- 2000-present Pediatric Emergency Medicine Update – established and serve as co-director for regional CME program offered annually in the Wisconsin Dells, featuring faculty from the Section of Pediatric Emergency Medicine

MCW Students, Residents, Fellows, and Faculty Mentored:

- 2000-present David Brousseau – associate professor
ongoing mentorship of research projects as junior faculty member;
named mentor for Clinical Research Scholars Program
- 2000-present Kenneth Yen –assistant professor
research mentor during fellowship; thesis advisor for Master of
Science in Epidemiology; ongoing mentorship of research projects
as junior faculty member
- 2001-2003 Duane Jensen – fellow
research mentor during fellowship
- 2001-present Molly Stevens – assistant professor
ongoing mentorship of research projects as junior faculty member
- 2001-2004 David Blackwell – fellow
research mentor during fellowship
- 2001-2004 Maria Kwok – fellow
research mentor during fellowship
- 2004-2007 Ryan Casper – fellow

	research mentor during fellowship; thesis advisor for Master of Science in Epidemiology
2004-present	Lisa Uherick – fellow research co-mentor during fellowship
2004-2007	Corey Philpot – fellow research co-mentor during fellowship
2006-present	Sabreen Akhter – fellow research co-mentor during fellowship
2007-present	Frank Petruzella – fellow research mentor during fellowship

MCW Scholarship Oversight Committees:

2004-2007	Greg Rebella, Emergency Medicine
2004-2007	Lisa Uherick, Emergency Medicine
2004-2007	Corey Philpot, Critical Care
2006-2007	Ryan Casper, Allergy/Immunology
2006-present	Sabreen Akhter, Emergency Medicine
2007-present	Frank Petruzella, Emergency Medicine

Bibliography:**Refereed Journal Publications/Original Papers:**

1. **Gorelick MH**, Bishop GA, Haughton G, Pisetsky DS. Cyclosporine inhibition of CH series murine B-cell lymphomas. *Cellular Immunology* 107: 219-226, 1988.
2. **Gorelick MH**, Owen WC, Seibel N, Reaman GR. Lack of association between neutropenia and the incidence of bacteremia associated with indwelling central venous catheters in febrile pediatric cancer patients. *Pediatr Infect Dis J* 10: 506-510, 1991.
3. **Gorelick MH**, Powell CM, Rosenbaum KR, Saal HM, Conry J, Fitz CR. Progressive occlusive cerebrovascular disease in a patient with neurofibromatosis type 1. *Clin Pediatr* 31: 313-315, 1992. (Selected for *1993 Year Book of Neurology and Neurosurgery*. Philadelphia: Mosby-Year Book, Inc.)
4. **Gorelick MH**, Shaw KN, Baker MD. Effect of ambient temperature on capillary refill in healthy children. *Pediatrics* 1993;92:699-702.
5. **Gorelick MH**, Baker MD. Epiglottitis in children 1979-1992: effects of *Haemophilus influenzae* type b immunization. *Arch Pediatr Adolesc Med* 1994;148:47-50.

6. **Gorelick MH**, Shaw KN, Murphy KO. Validity and reliability of clinical signs in the diagnosis of dehydration in children. *Pediatrics* 1997;99(5):e6. (URL: <http://www.pediatrics.org/cgi/content/full/99/5/e6>)
7. **Gorelick MH**, Shaw KN, Murphy KO, Baker MD. Effect of fever on capillary refill time. *Pediatr Emerg Care* 1997;13:305-7. (Selected for 1998 Yearbook of Pediatrics. Philadelphia: Mosby-Year Book, Inc.)
8. Shaw KN, McGowan KL, **Gorelick MH**, Schwartz JS. Screening for UTI in infants in the ED: which test is best? *Pediatrics* 1998; 101(6):e1. (URL: <http://www.pediatrics.org/cgi/content/full/101/6/e1>)
9. Shaw KN, **Gorelick MH**, McGowan KL, McDaniel-Yakscoe N, Schwartz JS. Prevalence of UTI in febrile young children in the emergency department. *Pediatrics* 1998;102:e15 (URL: <http://www.pediatrics.org/cgi/content/full/102/2/e15>)
10. Fein JA, Callahan JM, Boardman CR, **Gorelick MH**. Predicting the need for topical anesthetic in the pediatric emergency department. *Pediatrics* 1999; 104(2):e19 (URL: <http://www.pediatrics.org/cgi/content/full/104/2/e19>)
11. **Gorelick MH**, Shaw KN. Screening tests for UTI in children: a meta-analysis. *Pediatrics* 1999; 104(5):e1 (URL: <http://www.pediatrics.org/cgi/content/full/104/5/e54>)
12. **Gorelick MH**, Shaw KN. Clinical decision rule to identify young febrile children at risk for UTI. *Archives of Pediatrics and Adolescent Medicine* 2000;154:386-390.
13. Macartney KK, **Gorelick MH**, Manning ML, Hodinka RL, Bell LM. Nosocomial respiratory syncytial virus infections: the cost-effectiveness and benefit of infection control. *Pediatrics* 2000;106:520-526.
14. Kost S, Cronan K, **Gorelick M**, Arruca J. Ambulance use by high-acuity patients in a pediatric emergency department. *Am J Emerg Med* 2000;18:679-682.
15. **Gorelick MH**, Lee C, Cronan K, Kost K, Palmer K. Pediatric emergency assessment tool (PEAT): a risk-adjustment measure for pediatric emergency patients. *Acad Emerg Med* 2001;8:156-162.
16. Stevens MW, **Gorelick MH**. Short term outcomes after acute treatment of pediatric asthma. *Pediatrics* 2001;107:1357-1362
17. **Gorelick MH**, Stevens MW, Schultz TR. Comparability of acute asthma severity assessments by parents and respiratory therapists. *Arch Pediatr Adolesc Med*. 2002;156:1199-1202
18. **Gorelick MH**, Hoberman A, Kearney D, Wald EW, Shaw KN. Validation of a decision rule identifying febrile young girls at high risk for urinary tract infection. *Pediatr Emerg Care* 2003;19:162-164.
19. Stevens MW, **Gorelick MH**, Schultz T. Interrater agreement in the clinical evaluation of acute pediatric asthma. *J Asthma* 2003;40:311-315.
20. Shaw KN, Ruddy RM, **Gorelick MH**. Pediatric emergency department directors' benchmarking survey: fiscal year 2001. *Pediatr Emerg Care* 2003;19:143-147.

21. Yen K, Kim M, Stremski E, **Gorelick MH**. The effect of ethnicity and race on the use of pain medications in children with long bone fractures in the emergency department. *Ann Emerg Med* 2003;42:41-47.
22. **Gorelick MH**, Scribano PV, Stevens MW, Schultz TR. Construct validity and responsiveness of the Child Health Questionnaire in children with acute asthma. *Ann Asthma Allerg Immunol* 2003;90:622-628.
23. The Pediatric Emergency Care Applied Research Network. The Pediatric Emergency Care Applied Research Network (PECARN): Rationale, Development, and First Steps. *Acad Emerg Med* 2003; 10: 661-668.
24. **Gorelick MH**, Stevens MW, Schultz TR, Scribano PV. Difficulty in obtaining peak expiratory flow measurements in children with acute asthma. *Pediatr Emerg Care* 2004 20: 22-26.
25. **Gorelick MH**, Stevens MW, Schultz TR, Scribano PV. Performance of a novel clinical score, the Pediatric Asthma Severity Score (PASS), in the evaluation of acute asthma. *Acad Emerg Med* 2004;11:10-18.
26. Brousseau DC, Bergholte J, **Gorelick MH**. The effect of prior interactions on emergency department visits for nonurgent conditions. *Arch Pediatr Adolesc Med* 2004;158:78-82.
27. Beckmann KR, Melzer-Lange MD, **Gorelick MH**. Emergency department management of sexual transmitted infections in US adolescents: results from the National Hospital Ambulatory Medical Care Survey. *Ann Emerg Med* 2004;43:333-338.
28. Brousseau DC, Meurer JR, Isenberg ML, Kuhn EM, **Gorelick MH**. The association between infant continuity of care and pediatric emergency department utilization. *Pediatrics* 2004;113:738-741
29. **Gorelick MH**, Brousseau DC, Stevens MW. Validity and responsiveness of a brief asthma-specific quality of life instrument in children with acute asthma. *Ann Asthma Allerg Immunol* 2004; 92:47-51.
30. Jensen DM, Brousseau DC, Tumpach EA, **Gorelick MH**. Intervention to improve interobserver agreement in the assessment of children with pharyngitis. *Pediatr Emerg Care* 2005;21:238-241.
31. **Gorelick MH**, Yen K, Yun HJ. Effect of an in-room registration system on emergency department length of stay. *Ann Emerg Med* 2005;45:128-133.
32. Yen K, Karpas A, Pinkerton HJ, **Gorelick MH**. Inter-examiner reliability in physical examination of pediatric patients with abdominal pain. *Arch Pediatr Adolesc Med* 2005; 159:373 - 376.
33. **Gorelick MH**, Alpern ER, Alessandrini EA. A system for grouping presenting complaints: the Pediatric Emergency Reason for Visit Clusters (PERC). *Acad Emerg Med* 2005; 12:723-731.
34. Bandyopadhyay S, Hennes H, **Gorelick MH**, Wells RG, Walsh-Kelly CM. Serum neuron-specific enolase as a predictor of short-term outcome in children with closed traumatic brain injury. *Acad Emerg Med* 2005;12:732-738.

35. **Gorelick MH**, Alpern ER, Singh T, Snowdon D, Holubkov R, Dean JM, for the Pediatric Emergency Care Applied Research Network. Availability of pediatric emergency visit data from existing data sources. *Acad Emerg Med* 2005; 12: 1195-1200.
36. Fein JA, **Gorelick MH**. The decision to use topical anesthetic for IV insertion in the pediatric ED. *Acad Emerg Med* 2006;13:264-268.
37. **Gorelick MH**, Meurer J, Walsh-Kelly C, Brousseau DC, Cohn J, Kuhn E, Grabowski L, Kelly K. Controlled trial of two emergency department-based follow-up interventions to improve asthma outcomes in children. *Pediatrics* 2006;117:S127-S134.
38. Kelly KJ, Walsh-Kelly C, Christenson P, Rogalinski S, **Gorelick MH**, Barthell EN, Grabowski L. Emergency Department Allies: a Web-based multihospital pediatric asthma tracking system. *Pediatrics* 2006;117:S63-S70.
39. Kwok M, **Gorelick MH**, Walsh-Kelly C, Grabowski L, Kelly K. National Asthma Education and Prevention Program severity classification as a measure of disease burden in children with acute asthma. *Pediatrics* 2006;117:S71-S77.
40. Drendel AL, Brousseau DC, **Gorelick MH**. Pain assessment for pediatric patients in the emergency department. *Pediatrics* 2006;117:1511-8.
41. **Gorelick MH**, Yen K. The kappa statistic was representative of empirically-observed inter-rater agreement for physical findings. *J Clin Epidemiol* 2006;59:859-861.
42. **Gorelick MH**. Bias arising from missing data in predictive models. *J Clin Epidemiol* 2006;59:1115-23
43. Alpern ER, Stanley RM, **Gorelick MH**, Donaldson A, Knight S, Teach SJ, Singh T, Mahajan P, Goepp JG, Kuppermann N, Dean JM, Chamberlain JM for the Pediatric Emergency Care Applied Research Network. Epidemiology of a Pediatric Emergency Medicine Research Network: The Pediatric Emergency Care Applied Research Core Data Project. *Pediatr Emerg Care* 2006;22:689-699.
44. Blackwell CD, **Gorelick MH**, Holmes JF, Bandyopadhyay S, Kuppermann N. Pediatric head trauma: changes in use of computed tomography in emergency departments in the United States over time. *Ann Emerg Med* 2007;49:320-324.
45. Mistry R, Stevens MW, **Gorelick MH**. Outcomes of febrile children discharged from the emergency department. *Pediatr Emerg Care* 2007;23:617-623.
46. **Gorelick MH**, Alessandrini EA, Cronan K, Shults J. Revised Pediatric Emergency Assessment Tool [RePEAT]: a severity index for pediatric emergency care. *Acad Emerg Med* 2007;14:316-323.
47. Stevens MW, Scribano PV, Shultz TR, **Gorelick MH**. Screening for short-term outcomes of acute asthma in children. *Ann Asthma Allergy Immunol* 2007;98:432-439.
48. Philpot C, Day S, Marcdante K, **Gorelick MH**. Pediatric interhospital transport: diagnostic concordance and hospital mortality. *Pediatr Crit Care Med* 2007 [accepted for publication]
49. Redman R, Nenn C, Eastwood D, **Gorelick MH**. ED visits for diarrheal illness increased after release of undertreated sewage. *Pediatrics* 2007;120:e1472-1475.

50. Yen K, Riegert A, **Gorelick MH**. Derivation of the DIVA score: a clinical prediction rule for identification of children with difficult IV access. *Pediatr Emerg Care* 2008;24:143-147.
51. **Gorelick MH**, Scribano PV, Stevens MW, Schultz TR, Shults J. Predicting need for hospitalization in acute pediatric asthma. *Pediatr Emerg Care* 2008 [accepted for publication]

Books, Chapters, Reviews:

1. **Gorelick MH**, Klein BL, Einhorn A. Iron poisoning. *Emergency Pediatrics* 4: 98-9, 1991.
2. **Gorelick MH**. Thermal injury, in Schwartz W, ed. *Clinical Handbook of Pediatrics*. Baltimore: Williams and Wilkins, 1995; 629-634.
3. **Gorelick MH**. Abdominal masses, in Schwartz W, ed. *Clinical Handbook of Pediatrics*. Baltimore: Williams and Wilkins, 1995; 68-73.
4. **Gorelick MH**. Abdominal masses, in Barkin R (ed.): *Pediatric Emergency Medicine: Concepts and Clinical Practice*. 2nd ed. St. Louis: Mosby-Year Book Inc., 1997: 795-797.
5. **Gorelick MH**. Gastric emptying, in Dieckmann R, Fiser D, Selbst S, eds.: *Illustrated Textbook of Pediatric Emergency and Critical Care Procedures*. St Louis: Mosby-Year Book, Inc., 1997; 557-562.
6. **Gorelick MH**. Gastrointestinal decontamination, in Dieckmann R, Fiser D, Selbst S, eds.: *Illustrated Textbook of Pediatric Emergency and Critical Care Procedures*. St Louis: Mosby-Year Book, Inc., 1997; 563-566.
7. **Gorelick MH**. Dialysis and hemofiltration, in Dieckmann R, Fiser D, Selbst S, eds.: *Illustrated Textbook of Pediatric Emergency and Critical Care Procedures*. St Louis: Mosby-Year Book, Inc., 1997; 567.
8. Shaw KN, **Gorelick MH**. Burn management, in Henretig FM, King C, eds. *Textbook of Pediatric Emergency Procedures*. Baltimore: Williams and Wilkins, 1997; 1189-1198.
9. Maller J, **Gorelick MH**. ED monitoring devices, in Henretig FM, King C, eds. *Textbook of Pediatric Emergency Procedures*. Baltimore: Williams and Wilkins, 1997; 33-38.
10. Loiselle, J, **Gorelick MH**. Dehydration, in Schwartz MW, ed. *Pediatric Primary Care: A Problem Oriented Approach*, 3rd ed. Philadelphia: Mosby- Year Book, Inc., 1997; 409-415.
11. **Gorelick MH**. Neurologic emergencies, in Fleisher GR, Ludwig S, eds. *Textbook of Pediatric Emergency Medicine*, 4th ed. Baltimore: Williams and Wilkins, 1999; 701-723.
12. **Gorelick MH**. Dehydration, in Schwartz MW, ed. *The Five Minute Pediatric Consult*. 2nd ed. Baltimore: Williams and Wilkins, 2001; 308-309.
13. Shaw KN, **Gorelick MH**. Urinary tract infection. *Pediatr Clin North Am* 1999;46:1111-1124.

14. Shaw KN, **Gorelick MH**. Fever as a sign of UTI. *Clin Pediatr Emerg Med* 2000;1:117-123.
15. **Gorelick MH**, Singh SB. Respiratory emergencies. *Pediatric Emergency Medicine Secrets*. Philadelphia: Hanley and Belfus, Inc., 2001; 241-252.
16. Yen K, **Gorelick MH**. Ultrasound Applications for the Pediatric Emergency Department: Review of current literature. *Pediatr Emerg Care* 2002;18:226-234.
17. **Gorelick MH**. Rapid IV rehydration in the emergency department: a systematic review. PEM-Database.Org [PEM Web site]. Available at: http://researchinpem.homestead.com/files/rapid_iv_hydration_23.07.doc. Accessed 8/5/02
18. **Gorelick MH**. Dehydration, in Schwartz MW, ed. *The Five Minute Pediatric Consult*. 3rd ed. Baltimore: Williams and Wilkins, 2003; 308-309.
19. Kwok MY, Kim MK, **Gorelick MH**. Evidence-based approach to the diagnosis of appendicitis in children. *Pediatr Emerg Care* 2004;20:690-698.
20. **Gorelick MH**, Blackwell CD. Neurologic emergencies, in Fleisher GR, Ludwig S, eds. *Textbook of Pediatric Emergency Medicine*, 5th ed. Baltimore: Lippincott Williams and Wilkins, 2005;759-782.
21. **Gorelick MH**. Thermal injury, in Schwartz W, ed. *Clinical Handbook of Pediatrics*. 3rd ed. Baltimore: Williams and Wilkins, 2003; 629-634.
22. **Gorelick MH**. Abdominal masses, in Schwartz W, ed. *Clinical Handbook of Pediatrics*. 3rd ed. Baltimore: Williams and Wilkins, 2003; 68-73.
23. **Gorelick MH**. Dehydration, in Schwartz MW, ed. *The Five Minute Pediatric Consult*. 4th ed. Baltimore: Lippincott Williams and Wilkins, 2005; 316-317.
24. Mistry R, **Gorelick MH**. Urinary tract infection, in Baren J, Rothrock SG, Brennan JA, Brown L, eds. *Pediatric Emergency Medicine*. Philadelphia: Saunders, 2007;299-305.
25. Yen K, **Gorelick MH**. Strategies to improve flow in the pediatric emergency department. *Pediatr Emerg Care* 2007;23:745-749.
26. Yen K, **Gorelick MH**. ED monitoring devices, in Henretig FM, King C, eds. *Textbook of Pediatric Emergency Procedures*. 2nd ed. Baltimore: Williams and Wilkins, 2007;32-38.
27. Shaw KN, **Gorelick MH**. Burn management, in Henretig FM, King C, eds. *Textbook of Pediatric Emergency Procedures*. 2nd ed. Baltimore: Williams and Wilkins, 2007:1070-1079.
28. **Gorelick MH**, ed. Fluids and electrolytes, in Zaoutis LB, Chiang VW, eds. *Comprehensive Pediatric Hospital Medicine*. Philadelphia: Mosby Elsevier, 2007;291-307.
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2. Rosenberg NM, section editor. **Gorelick MH**, Scribano PV, Teach SJ, discussants. Controversies in pediatric emergency medicine: what you see is not always what you get (or want). *Pediatr Emerg Care* 1999;15:294-297.
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Abstracts:

1. **Gorelick MH**, Shaw KN, Murphy KO, Baker MD. Effect of fever on capillary refill time. (Presented at the Ambulatory Pediatric Association annual meeting, San Diego, May 1995).
2. **Gorelick MH**, Shaw KN, Murphy KO. Validity and reliability of clinical signs in the diagnosis of dehydration in children. (Presented at the Ambulatory Pediatric Association annual meeting, Washington, DC, May 1996, and the Society for Academic Emergency Medicine annual meeting, Denver, 1996).
3. Shaw KN, **Gorelick MH**, McGowan KL, McDaniel-Yakscoe N, Schwartz JS. Prevalence of urinary tract infection and occult bacteremia in febrile young children in the emergency department. (Presented at the Pediatric Academic Societies' annual meeting, Washington, DC, May 1996, and the Society for Academic Emergency Medicine annual meeting, Denver, May 1996).
4. Shaw KN, McGowan KL, **Gorelick MH**, Schwartz JS. Screening for urinary tract infection in young febrile children in the emergency department: which test is best?. (Presented at the Pediatric Academic Societies' annual meeting, Washington, DC, May 1996, and the Society for Academic Emergency Medicine annual meeting, Denver, May 1996).
5. **Gorelick MH**, Shaw KN, Schwartz JS. Cost-effective screening for UTI in febrile young girls. (presented at the Pediatric Academic Societies' annual meeting, Washington DC,

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6. Shaw KN, **Gorelick MH**, McGowan KA, Boardman C, Schwartz JS. Predicting UTI in febrile young children in the emergency department. [abstract] (presented at the Pediatric Academic Societies' annual meeting, Washington DC, May 1997, and the Society for Academic emergency Medicine annual meeting, Washington DC, May 1997).
7. Stevens M, **Gorelick MH**. Short-term outcomes after outpatient therapy in acute pediatric asthma. (presented at the Pediatric Academic Societies' annual meeting, Washington DC, May 1997, and the Society for Academic Emergency Medicine annual meeting, Washington DC, May 1997).
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14. **Gorelick MH**, Stevens MW, Schultz TR. Difficulty in obtaining peak flow measurements in children with acute asthma. *Pediatr Res* 2001;49:457A. (Presented at the Annual Meeting of the Pediatric Academic Societies, Baltimore, MD, April 2001)
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51. Redman R, Nenn C, Eastwood D, **Gorelick MH**. ED visits for diarrheal illness increased after release of undertreated sewage. *E-PAS* 2006:59:3135.8 (Presented at the Annual Meeting of the Pediatric Academic Societies, San Francisco, CA, April 2006.)
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55. Yen K, Shane EL, Pawar SS, Schwendel ND, Zimmanck RJ, **Gorelick MH**. Time and motion study in a pediatric emergency department (PED) before after computer physician order entry (CPOE). *E-PAS* 2007:618055.8 (Presented at the Annual Meeting of the Pediatric Academic Societies, Toronto, Ontario, May 2007.)
56. **Gorelick MH**, Atabaki S, Hoyle JD, Dayan PS, Holmes JF, Holubkov R, Monroe D, Callahan J, Kuppermann N and PECARN. Interobserver agreement in assessment of clinical variables in children with blunt head trauma. *E-PAS* 2007:618412.4 (Presented at the Annual Meeting of the Pediatric Academic Societies, Toronto, Ontario, May 2007, and the Annual Meeting of the Society for Academic Emergency Medicine, Chicago, IL, May 2007.)
57. **Gorelick MH**, Wagner D, McLellan S. Validation of a questionnaire to evaluate water exposures in children. *E-PAS* 2007:618407.21 (Presented at the Annual Meeting of the Pediatric Academic Societies, Toronto, Ontario, May 2007.)
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59. Weisgerber M, Lye P, Gedeit R, Bakalarski D, Xiang Q, **Gorelick MH**. Early factors predictive of prolonged hospital stay for infants with bronchiolitis. E-PAS 2007:615888.12 (Presented at the Annual Meeting of the Pediatric Academic Societies, Toronto, Ontario, May 2007.)
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61. Alessandrini EA, Alpern ER, Chamberlain JM, **Gorelick MH**. Developing a diagnosis-based severity classification system for use in emergency medical systems for children. E-PAS 2007:616710.5 (Presented at the Annual Meeting of the Pediatric Academic Societies, Toronto, Ontario, May 2007.)
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63. Uherick LA, **Gorelick MH**, Biechler R, Melzer-Lange MD. A clinical trial of emergency department-based booster seat education. E-PAS 2007:617909.19 (Presented at the Annual Meeting of the Pediatric Academic Societies, Toronto, Ontario, May 2007.)
64. Kelly BT, **Gorelick MH**, Brousseau DC, Drendel AL. An intervention to improve analgesic administration in the pediatric emergency department. E-PAS 2007:616313.35 (Presented at the Annual Meeting of the Pediatric Academic Societies, Toronto, Ontario, May 2007.)
65. Nelsen LM, Norquist JM, Zhu X, Gurner DM, **Gorelick MH**. Measuring severity of acute asthma in pediatric patients. (To be presented at the Annual Meeting of the American Academy of Allergy, Asthma, and Immunology, Philadelphia, PA, March 16, 2008)
66. Stanley RM, Hoyle J, Dayan PS, Atabaki SM, Lee L, Lillis KA, **Gorelick MH**, Holubkov R, Holmes JF, Kuppermann N, for the PECARN TBI Study Group. Practice pattern variation in head CT use in children with minor blunt head trauma evaluated in the emergency department (ED): Is there an association with physician training? E-PAS2008:634845.5 (Presented at the Annual Meeting of the Pediatric Academic Societies, Honolulu, HI, May 2008.)
67. Drendel AL, **Gorelick MH**, Lyon R, Weisman SJ, Kim MK. Ibuprofen vs. acetaminophen with codeine for the outpatient treatment of arm fracture pain. E-PAS2008:636425.2 (Presented at the Annual Meeting of the Pediatric Academic Societies, Honolulu, HI, May 2008.)
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Media Contacts:

- "Diagnosing UTI in Children," Reuters Health News, November 1999
- "Sledding Safety," Wilmington News Journal, February 2000
- "Scooter Injuries", WITI-TV 6, Milwaukee, 9/7/2000
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- "Newborn Safe Harbor Legislation", WUWM-FM, Milwaukee, 2/5/2001
- "Newborn Safe Harbor Legislation", WISN-TV12, Milwaukee, 4/2/2001
- "Dog Bite Injuries", WUWM-FM, Milwaukee, 1/21/02
- "Summer injuries," WITI-TV 6, Milwaukee, 6/5/2002
- "Playground safety," WTMJ-TV 4, Milwaukee, 7/2/2002
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- "Emergency: A No-Panic Guide to Saving Your Child's Life", Parenting, 5/2006
- "Top Ways to Keep Your Children out of the Emergency Room," Toy Tips, 1/2007.

EXHIBIT 2

BIOGRAPHICAL SKETCH

Marc H. Gorelick

Education: Princeton University: AB, History, 1983
Duke University: M.D., 1987
University of Pennsylvania School of Medicine: MSCE (Clinical Epidemiology), 1995

House Staff and Fellowship Training: Children's National Medical Center, Washington, DC 1987-1991 Internship (1987-88), Residency (1988-90) and Chief Residency (1990-91) in Pediatrics. Children's Hospital of Philadelphia, 1991-1994, Fellowship in Pediatric Emergency Medicine.

Faculty Positions: Instructor, Department of Pediatrics, George Washington University School of Medicine, 1990-91. Instructor, Department of Pediatrics, University of Pennsylvania School of Medicine, 1991-1994. Assistant Professor, Departments of Pediatrics and Epidemiology, University of Pennsylvania School of Medicine, 1994-1998. Senior Scholar, Center for Clinical Epidemiology and Biostatistics, University of Pennsylvania School of Medicine, 1994-98. Assistant Professor, Department of Pediatrics, Thomas Jefferson University School of Medicine, 1998-2000. Adjunct Assistant Professor, Departments of Epidemiology, University of Pennsylvania School of Medicine, 1998-2000. Associate Professor, Departments of Pediatrics and Epidemiology, Medical College of Wisconsin, 2000-2004.

Current Positions: Professor, Departments of Pediatrics and Population Health, Medical College of Wisconsin, 2004-present. Chief, Section of Emergency Medicine, Department of Pediatrics, 2000-present. Jon E. Vice Chair in Pediatric Emergency Medicine, Children's Hospital of Wisconsin, 2000-present. Associate Director, Children's Research Institute, 2007-present.

Society Memberships: Ambulatory Pediatric Association, American Academy of Pediatrics, American College of Emergency Physicians, Society for Academic Emergency Medicine, Society for Pediatric Research.

Leadership Positions: Member, Subboard of Pediatric Emergency Medicine, American Board of Pediatrics. Editorial Boards: Ambulatory Pediatrics, Annals of Emergency Medicine (consulting editor), Pediatric Emergency Care. Member, Executive Committee, Section of Emergency Medicine, American Academy of Pediatrics. Member, Steering Committee, Pediatric Emergency Care Applied Research Network.

Research Interests: Short-term outcomes of acute care (especially for asthma); clinical effectiveness (especially development of clinical prediction rules, evaluation and management of acute gastroenteritis); environmental health.

Epidemiology Teaching Experience: University of Pennsylvania: Course developer and director, Advanced Topics in Clinical Epidemiology (elective course for Master of Science in Clinical Epidemiology Program); taught in Critical Appraisal workshop for MSCE students. Jefferson Medical College: developed and taught course in Evidence-Based Medicine for senior pediatric residents. Medical College of Wisconsin: Annual Introduction to Research Design seminar for pediatric fellows; taught in Protocol Development course for MCW fellows and junior faculty

Epidemiology Research Experience: Over 50 peer-reviewed original research publications in different areas of clinical epidemiology, including case-control and cohort studies, controlled clinical trials, and meta-analyses. Some representative publications include:

Gorelick MH, Shaw KN, Murphy KO. Validity and reliability of clinical signs in the diagnosis of dehydration in children. *Pediatrics* 1997;99(5):e6.

Gorelick MH, Shaw KN. Clinical decision rule to identify young febrile children at risk for UTI. *Archives of Pediatrics and Adolescent Medicine* 2000;154:386-390.

Gorelick MH, Brousseau DC, Stevens MW. Validity and responsiveness of a brief asthma-specific quality of life instrument in children with acute asthma. *Ann Asthma Allerg Immunol* 2004; 92:47-51.

Gorelick MH, Meurer J, Walsh-Kelly C, Brousseau DC, Cohn J, Kuhn E, Grabowski L, Kelly K. Controlled trial of two emergency department-based follow-up interventions to improve asthma outcomes in children. *Pediatrics* 2006;117:S127-S134.

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Gorelick MH, Yen K. The kappa statistic was representative of empirically-observed inter-rater agreement for physical findings. *J Clin Epidemiol* 2006;59:859-861.

Gorelick MH, Alessandrini EA, Cronan K, Shults J. Revised Pediatric Emergency Assessment Tool [RePEAT]: a severity index for pediatric emergency care. *Acad Emerg Med* 2007;14:316-323.

Redman R, Nenn C, Eastwood D, **Gorelick MH**. ED visits for diarrheal illness increased after release of undertreated sewage. *Pediatrics* 2007;120:e1472-1475.

Gorelick MH, Wagner D, McLellan S. Validation of a questionnaire to evaluate water exposures in children. E-PAS 2007:618407.21 [abstract; manuscript submitted for publication].

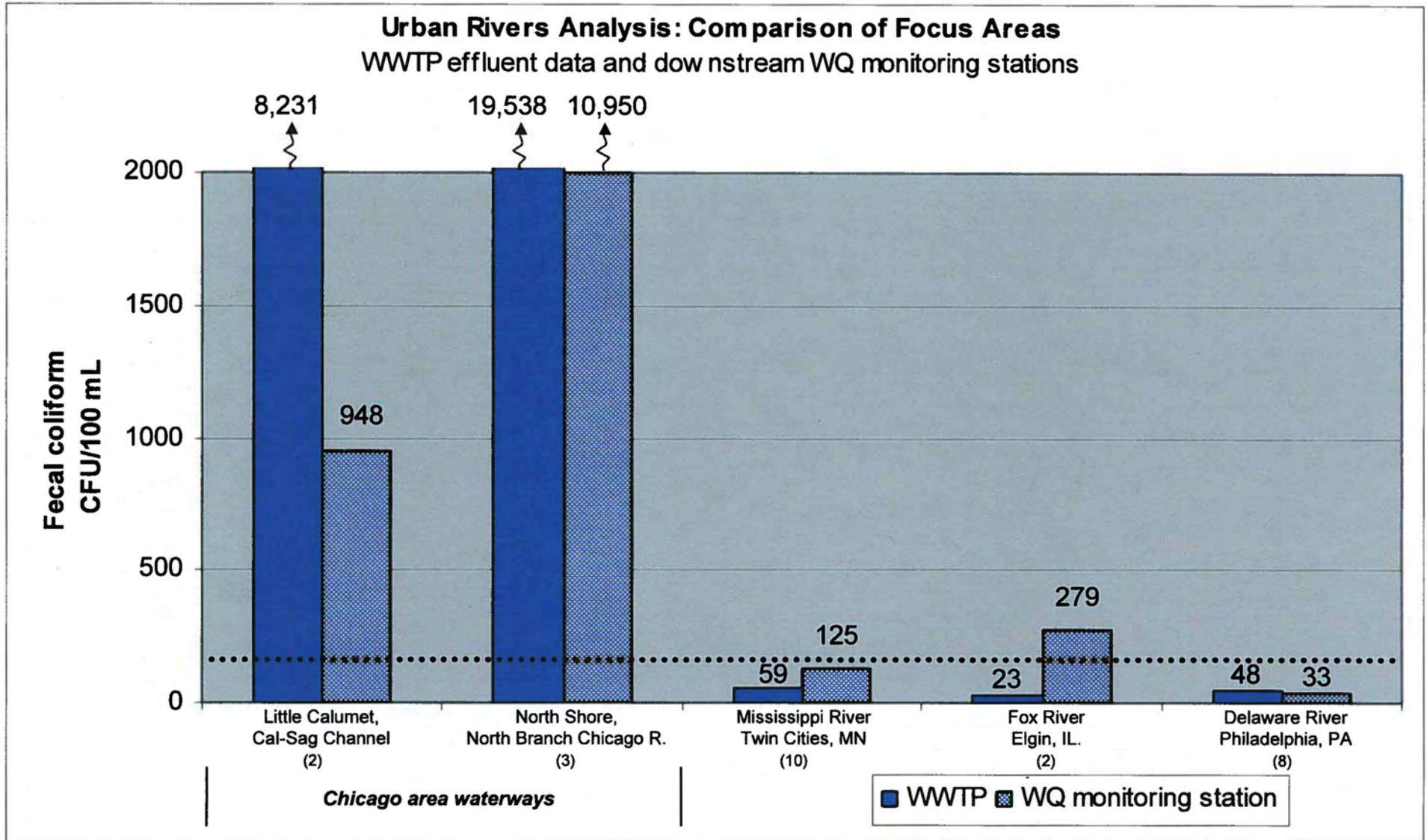
Current research activities include:

Epidemiology of Diarrheal Illness in Children (funding from Children's Research Institute). Nested case-control study of approximately 1600 children to evaluate association between water exposures and diarrheal illness.

Childhood Head Trauma: A Neuroimaging Decision Rule (funding from HRSA/Maternal and Child Health Bureau). Multicenter, prospective cohort study to develop and validate a predictive model for intracranial injury in children with mild blunt head trauma.

Symptom Duration In Infants Evaluated In The Emergency Department With First-Time Bronchiolitis (funding from MCW Clinical and Translational Science Institute). Prospective cohort study to define the natural history of acute bronchiolitis in infants.

EXHIBIT 3



Illinois Water Quality Standards:



General Use

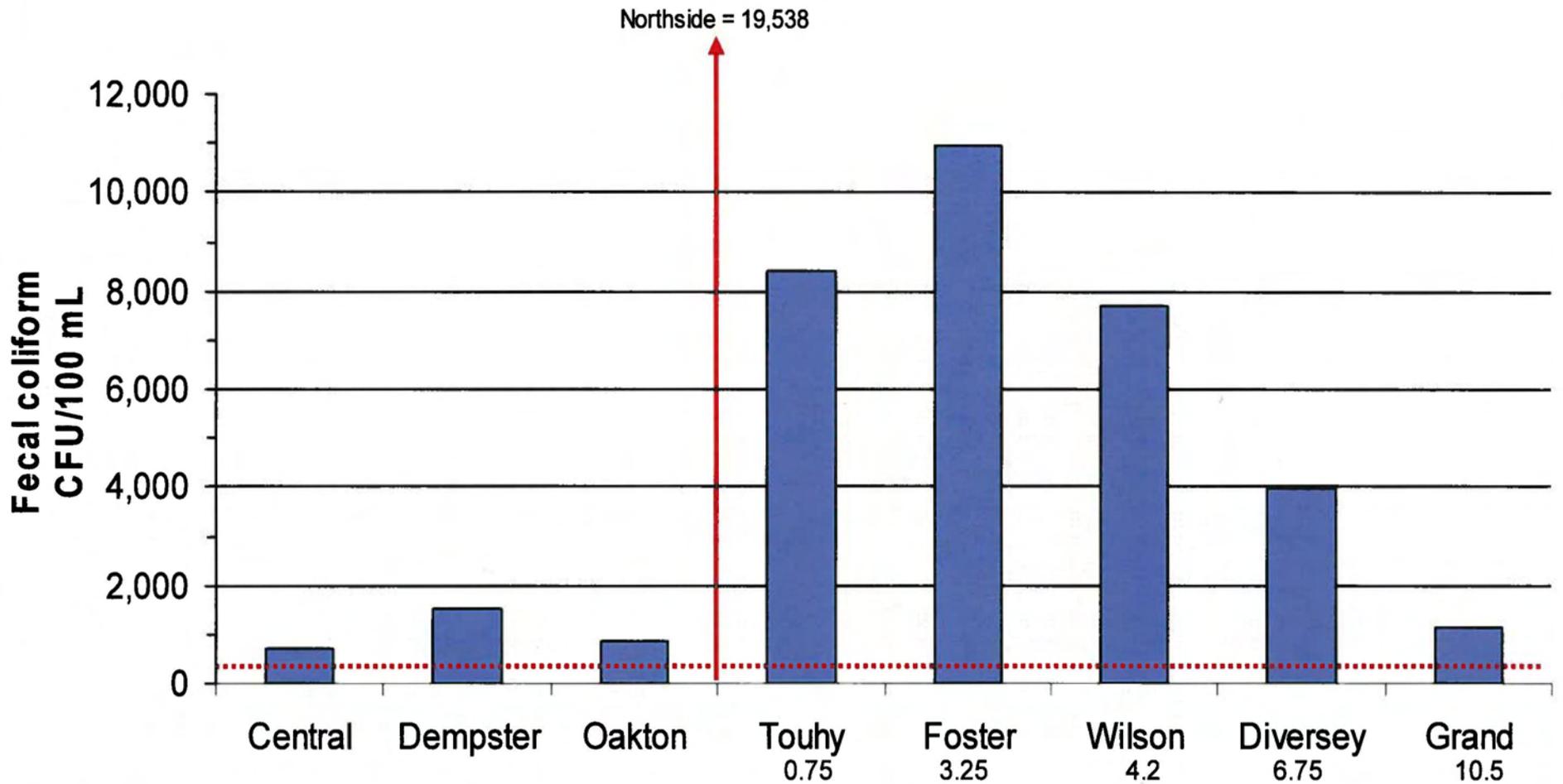
Fecal coliform:
30 day geometric mean 200 per 100mL limit



Note: WWTP results – effluent; WQ station results – ambient

- Fecal coliform monitoring results are expressed in the number of colony forming units (CFU) per 100mL
- Samples were taken monthly, May-October
- (#) – Distance downstream of monitoring station from WWTP

North Shore Channel and North Branch Chicago River Ambient May to October 2002 Geometric Mean Fecal Coliform



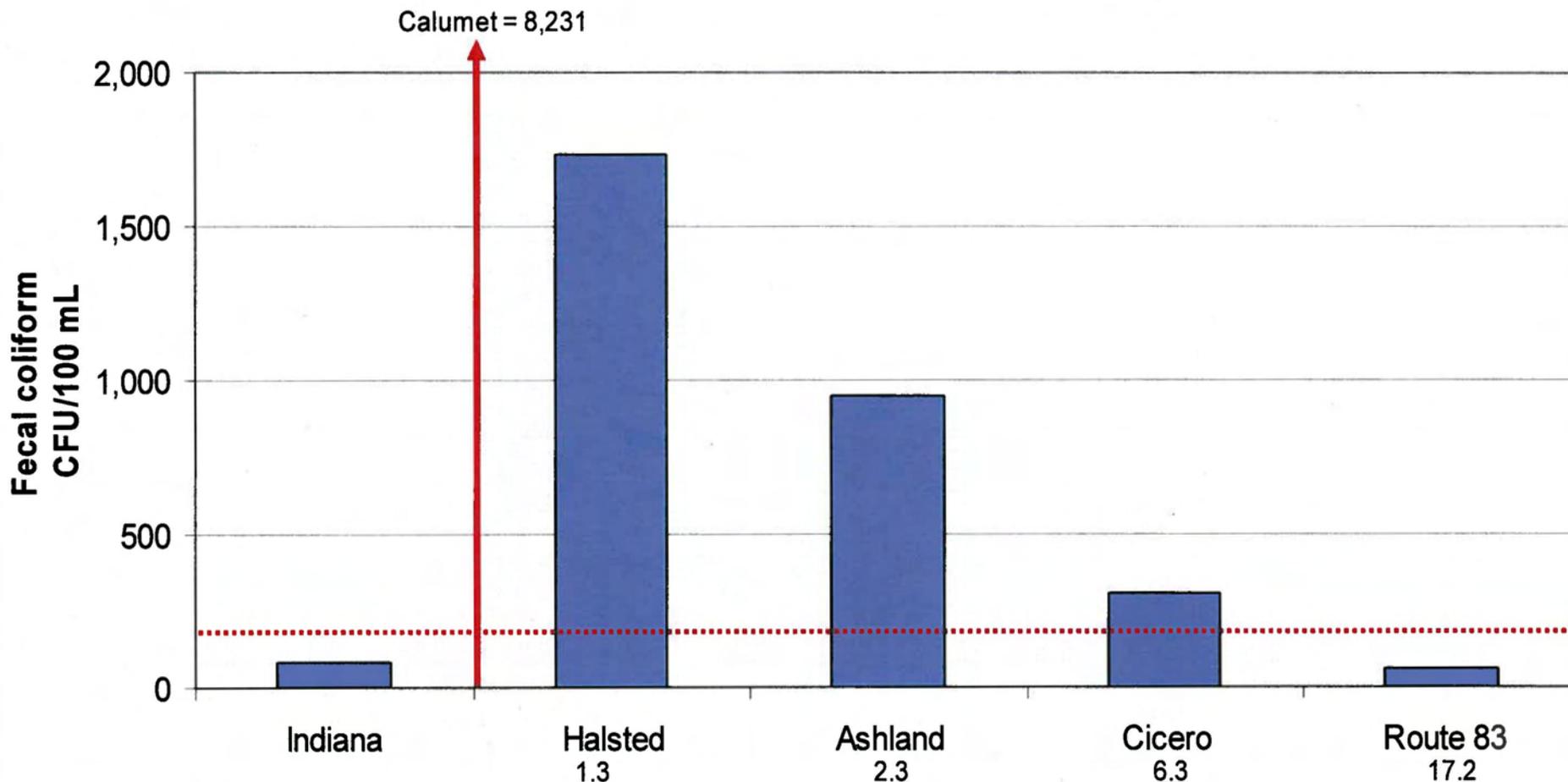
Source: MWRDGC

Sampled Monthly

..... General Use 30 day geometric mean 200 per 100mL limit

- Distance downstream of monitoring station from WWTP

Little Calumet River and Cal-Sag River May to October 2002 Geometric Mean Fecal Coliform

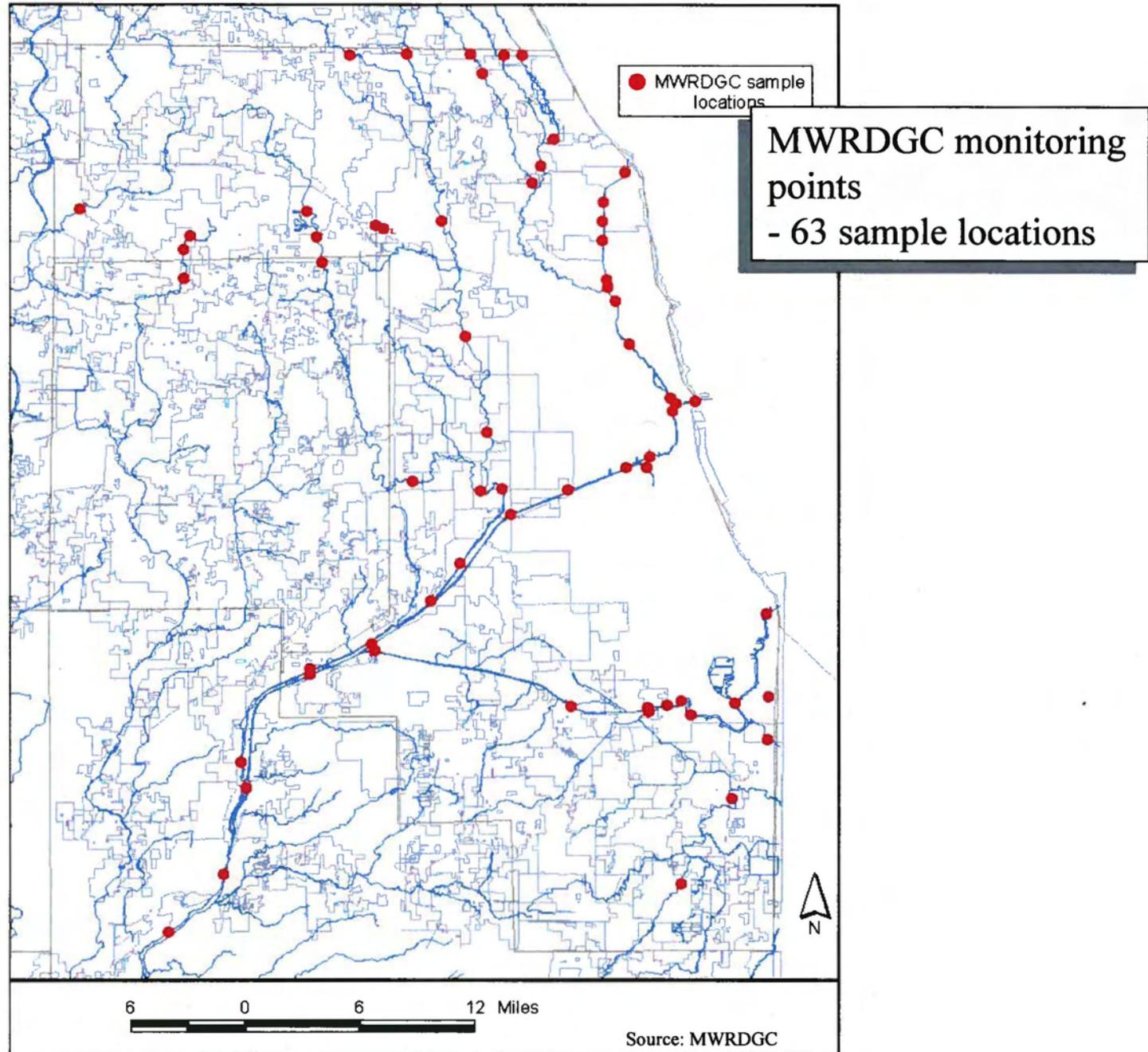


Source: MWRDGC

Sampled Monthly

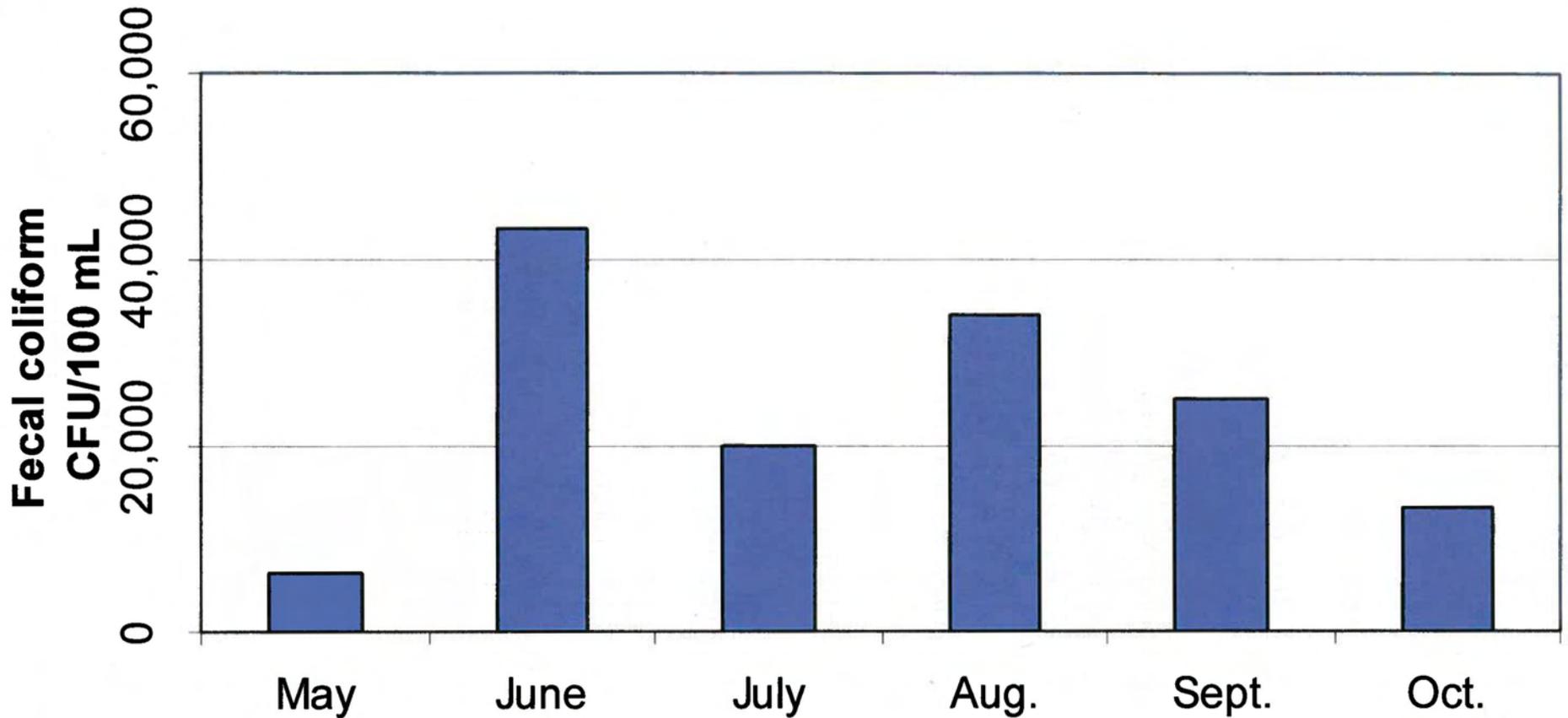
..... General Use 30 day geometric mean 200 per 100mL limit

- Distance downstream of monitoring station from WWTP



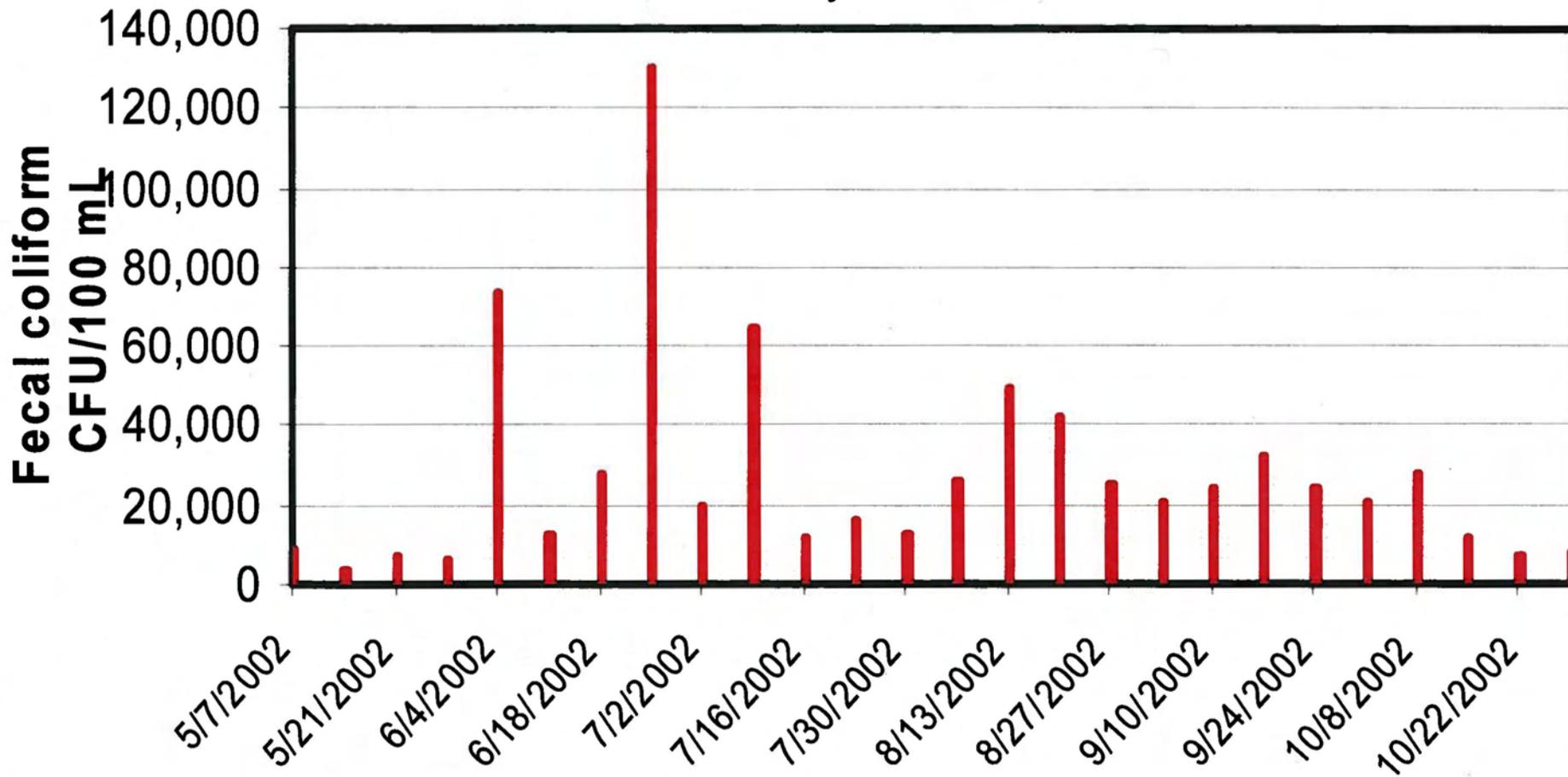
Northside WRP Effluent May to October 2002

Geometric Mean Fecal Coliform



Source: MWRDGC

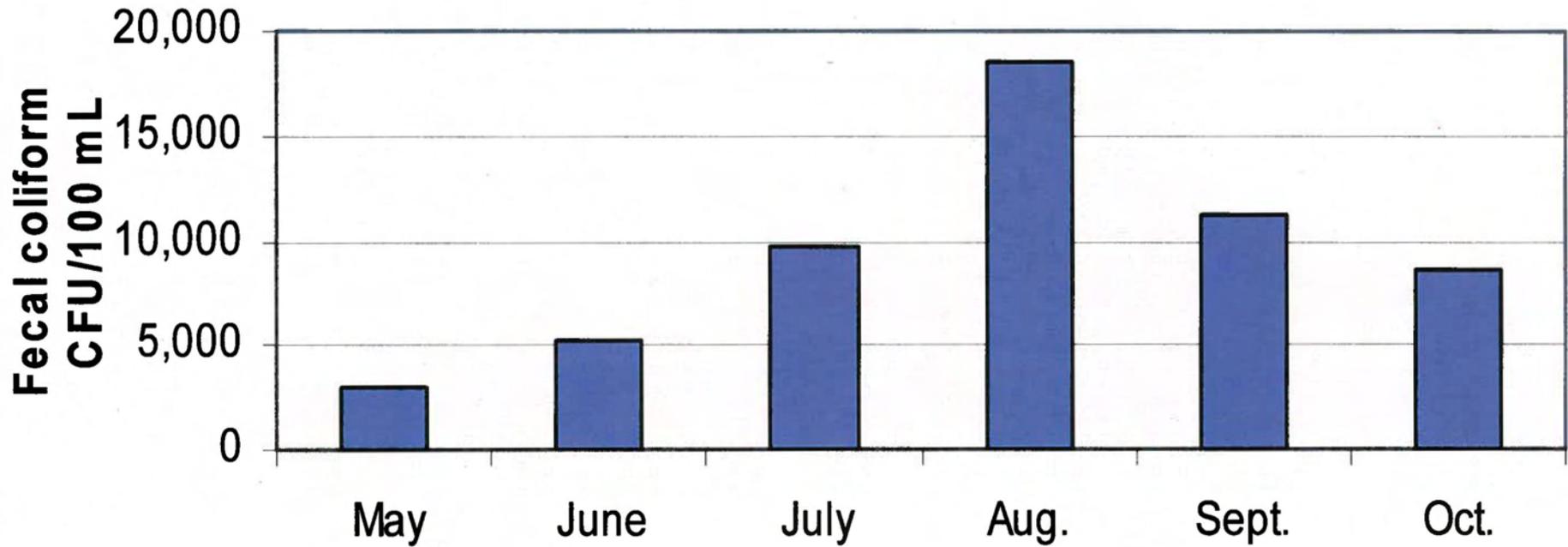
Northside WRP Effluent Fecal Coliform May to October 2002



Source: MWRDGC. Samples collected weekly.

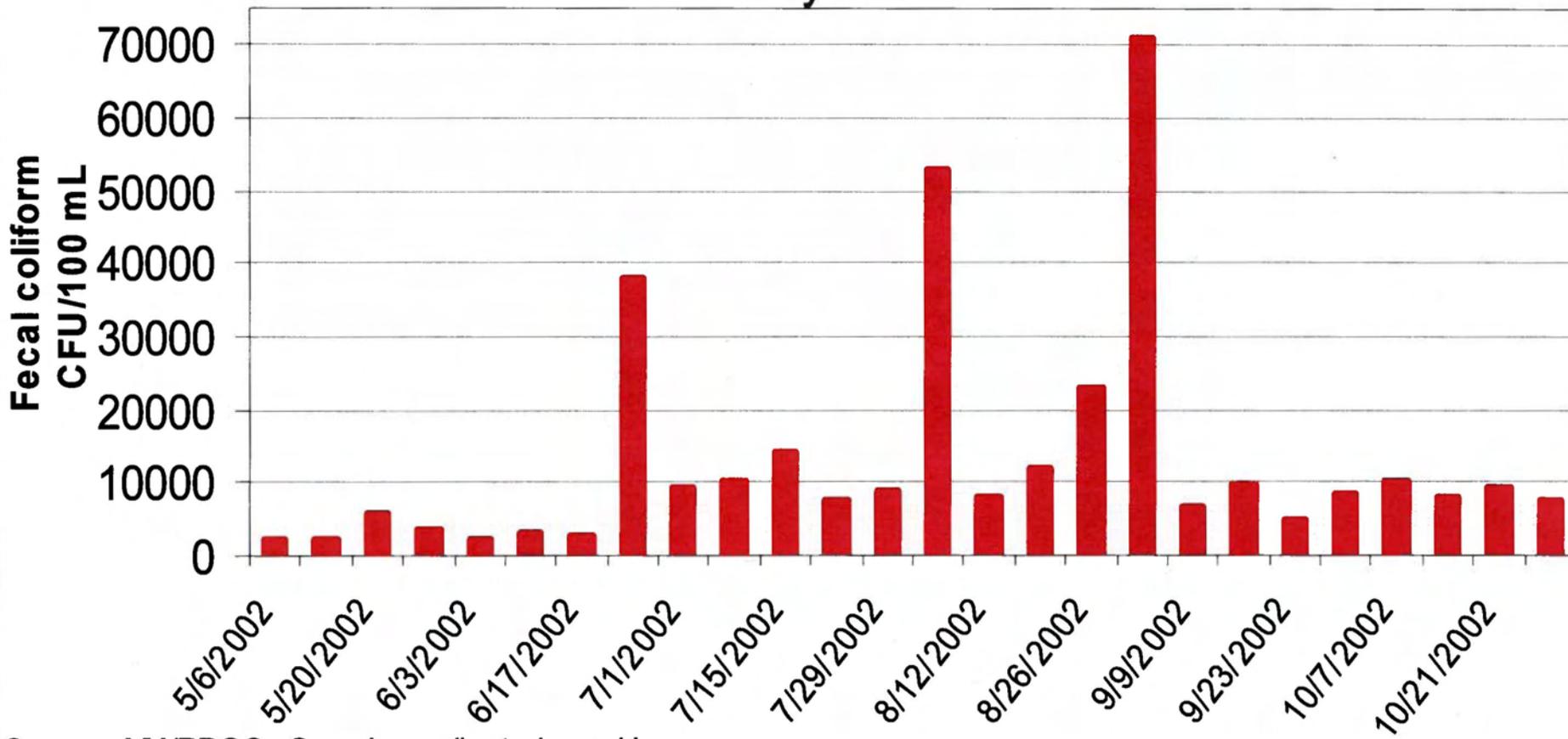
Calumet WRP Effluent May to October 2002

Geometric Mean Fecal Coliform



Source: MWRDGC

Calumet WRP Effluent Fecal Coliform May to October 2002



Source: MWRDGC. Samples collected weekly.