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SB 0914

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Good Afternoon,

I am pleased to submit this paper summarizing initial results from our recent study of eight Maryland hospitals participating in the Maryland Emergency Department Surveillance (MD-EDDS) system funded by the Maryland Opioid Operational Command Center (OOCC) as a grant to CESAR at the University of Maryland in College Park. As the former Director of the Center for Substance Abuse Research, CESAR, I have worked with State and local agencies for more than 30 years to identify emerging drugs and to conduct needs assessments and program evaluations.

To help Maryland hospitals assess whether they needed to initiate testing for fentanyl, MD-EDDS gave 50 fentanyl dipstick tests to each of 14 hospitals to test urines that had already been tested by the hospital's laboratory for drugs other than fentanyl. The initial results from eight hospitals show that fentanyl was detected in specimens from all participating hospitals, none of which routinely test for fentanyl. Only 19% of the fentanyl positive specimens also tested positive for opiates like heroin and therefore would not have been detected by each hospital's standard opiate screens. Many of the specimens that contained fentanyl also contained cocaine.

Routine hospital testing for fentanyl is essential to track the opioid epidemic and to alert physicians and their patients that they are being exposed to fentanyl. Methadone treatment programs should also test for fentanyl to prevent turning away persons who test negative for opiates but might have used fentanyl. Details about the EDDS methodology and findings are provided in the attached report and on our website (<https://cesar.umd.edu/landing/EDDS>). I encourage you to review the MD-EDDS results as you consider this important legislation.

My colleague, Erin Artigiani, and I will be happy to answer any questions you may have about the MD-EDDS project. We can be reached at eartigiani@umd.edu or ewish@umd.edu.

Maryland Emergency Department Drug Surveillance (MD-EDDS) System: Summary of Initial Maryland Fentanyl Findings

March 3, 2023

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CESAR: Center for Substance Use, Addiction, and Health Research

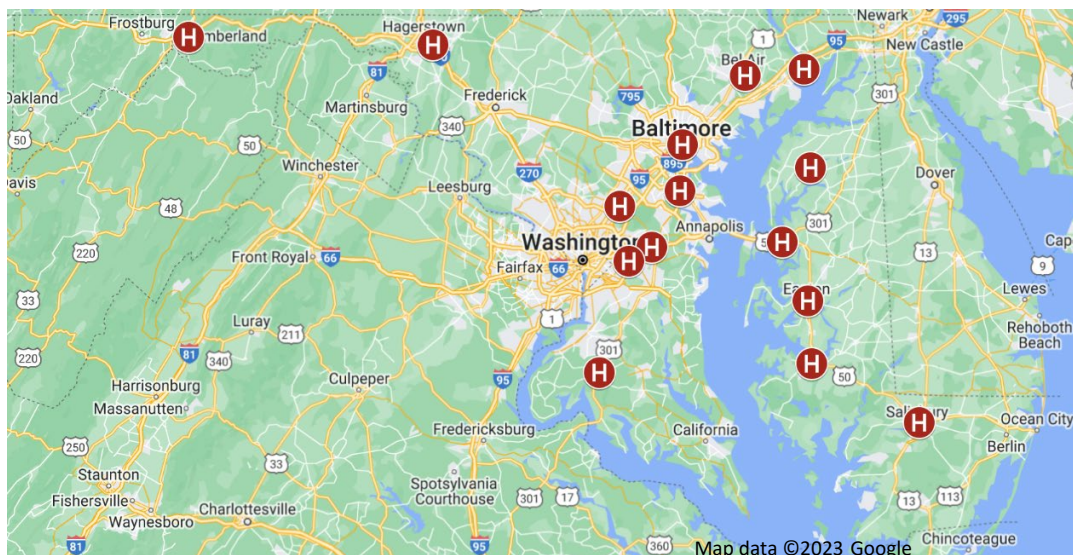
SUMMARY

The MD-EDDS research project has collected information critical to the discussion regarding HB0811/SB0914. Fentanyl is the leading cause of fatal opioid overdoses (MDH, June 2021), but most Maryland hospitals do not regularly test patients for exposure to fentanyl. MD-EDDS provided rapid urine fentanyl dipstick tests to eight Maryland hospitals that do not routinely test patients for the drug. The hospitals then tested 50 consecutive specimens that were selected from any unit of the hospital that tested positive for at least one drug on the hospital's standard urine screen. Fentanyl was detected in specimens from every study site. Only 19% of the fentanyl positive specimens also tested positive for opiates like heroin. These cases of fentanyl exposure may have been missed if the treating clinicians had relied solely on the results of the hospitals' routine tests. Specimens that tested positive for fentanyl were significantly more likely to test positive for cocaine (63% vs 24%, $p < .001$) and amphetamine (21% vs 9%, $p < .05$) than those negative for fentanyl, suggesting that patients may have been exposed to stimulants intentionally or unintentionally mixed with fentanyl. These initial findings demonstrate the need for fentanyl to be a part of the standard drug screen in healthcare facilities throughout Maryland.

MD-EDDS Overview

The State of Maryland's Opioid Operational Command Center (OOC) recently awarded the Center for Substance Use, Addiction and Health Research (CESAR) at the University of Maryland, College Park, with a grant to launch the first statewide EDDS program in the nation. MD-EDDS is working with 20 hospitals across the state (Figure 1). Hospitals were selected so that all areas of the state participated. MD-EDDS collects two types of data from each participating hospital: 1) a limited data set of hospital drug test results, demographic, and clinical information stored in patients' electronic health records (EHRs) for all patients treated in the ED for a drug overdose, and 2) fentanyl

Figure 1:



dipstick test results for 50 deidentified urine specimens where the specimen had tested positive for at least one drug on the hospital’s standard urine drug screen, see Limitations section for details. The quarterly EHR data are used to track trends in the urinalysis results for all drugs included in the hospital’s standard panel. The dipstick testing enables hospitals that do not currently test for fentanyl to determine if their routine testing is missing patient exposure to fentanyl. This report presents initial findings from the dipstick testing in eight hospitals. The EHR data and the results of the dipstick testing for all participating hospitals will be summarized in future reports.

Initial Fentanyl Dipstick Test Results

Fentanyl Detected in All Participating Maryland Hospitals. Fentanyl was detected in hospital positive specimens from all eight study sites. Fentanyl was detected in 2-24% of specimens in each hospital (Table 1) and in 12% of specimens across all sites. Only 19% of the fentanyl positive specimens also tested positive for opiates like heroin.

Table 1: Few Fentanyl Positive Specimens Had Also Tested Positive for Opiates by the Hospitals’ Screens
(50 specimens submitted by each hospital)^a

	Positive for Fentanyl by Dipstick	Of Specimens Positive for Fentanyl, also Positive for Opiates
UM* Shore Medical Center at Chestertown, Chestertown, MD	(n=50) 24%	(12) 8%
Meritus Medical Center, Hagerstown, MD	(50) 20%	(10) 30%
UM Baltimore Washington Medical Center, Glen Burnie, MD	(50) 14%	(7) **
UM Upper Chesapeake Medical Center, Bel Air, MD	(50) 14%	(7) **
UM Shore Medical Center at Cambridge, Cambridge, MD	(50) 12%	(6) **
UM Capital Region Medical Center, Largo, MD	(50) 6%	(3) **
UM Charles Regional Health Center, La Plata, MD	(50) 4%	(2) **
UM Shore Medical Center at Easton, Easton, MD	(50) 2%	(1) **
All Hospitals	(400) 12%	(48) 19%

^aConsecutive specimens were selected from any hospital unit that the hospital’s testing had found positive for at least one drug. Patients that were administered fentanyl as part of their medical care at the hospital were excluded.

*UM=University of Maryland **Too few cases to calculate meaningful statistics.

We found no statistically significant differences in the demographic characteristics of the patients with fentanyl positive or negative specimens. Both groups were a majority male and White. The average age of the patients who submitted the fentanyl positive specimens was 38.4 and the fentanyl negative specimens was 41.2.

Cocaine most frequent other drug found in fentanyl positive specimens. Cocaine was detected in 63% of the fentanyl positive specimens compared with 24% of the fentanyl negative specimens (p<.001, Table 2). Amphetamines and methadone were also more likely to be detected in fentanyl positive specimens. In contrast, marijuana was more likely to be detected in fentanyl negative specimens.

Table 2: Comparison of the Drugs Detected by the Hospital in Specimens that the Dipstick found Positive or Negative for Fentanyl
(N=400 specimens submitted by 8 hospitals)^a

Hospital Found Positive for:	Positive for Fentanyl by Dipstick (N=48) %	Negative for Fentanyl by Dipstick (N=352) %
Cocaine	63***	24***
Marijuana	(n=47) 43*	(n=350) 58*
Methadone	(n=39) 39***	(n=214) 8***
Benzodiazepines	27	21
Amphetamines	21*	9*
Opiates	19	10
Oxycodone	(n=26) 8	(n=224) 10
PCP	(n=29) 7	(n=221) 7
Barbiturates	4	5
Buprenorphine	(n=10) 0	(n=47) 9

^aConsecutive specimens were selected from any hospital unit that the hospital's testing had found positive for at least one drug. Patients that were administered fentanyl as part of their medical care at the hospital were excluded.

Hospitals include: UM Shore Medical Center at Chestertown (Chestertown, MD), Meritus Medical Center (Hagerstown, MD), UM Baltimore Washington Medical Center (Glen Burnie, MD), UM Upper Chesapeake Medical Center (Bel Air, MD), UM Shore Medical Center at Cambridge (Cambridge, MD), UMD Capital Region Medical Center (Largo, MD), UM Charles Regional Health Center (La Plata, MD), and UM Shore Medical Center at Easton (Easton, MD).

N's vary due to hospitals not testing for each drug.

*p<.05 by Chi-Square or Fisher's Exact Test; ***p<.001 by Chi-Square or Fisher's Exact Test.

Discussion

Fentanyl was detected in specimens from each of the eight hospitals that participated. None of the hospitals detailed in this initial report routinely test patients for fentanyl as part of their standard urine drug screen. Like most hospitals, they rely on an opiate screen to infer heroin use. This strategy might allow hospitals to also extrapolate this result to fentanyl use if most fentanyl users were also exposed to heroin. However, only 19% of the fentanyl positive specimens had tested positive by the hospitals' opiate screen, suggesting that many of these patients were not exposed to heroin. These results are consistent with an earlier study conducted in Baltimore that examined emergency department patients presenting with complaints of withdrawal, overdose, or requesting treatment for substance use. More than 80% of those patients tested positive for fentanyl by urine dipstick. Like the current study, less than half of those emergency department patients tested positive for opiates on the hospital's standard drug screen. After it was added to the standard drug screen at the University of Maryland Medical Center and University of Maryland: Midtown Campus, fentanyl was detected in patients nearly twice as often (80%-95%) as most other drugs (Dezman, MMWR, 2019). As with the current study, few of the fentanyl positive patients also tested positive for opiates. These three studies all show that the standard opiate screen used by most hospitals cannot substitute for fentanyl-specific testing.

We found that many of the fentanyl positive specimens contained stimulants, suggesting that cocaine and amphetamines may be intentionally or unintentionally mixed with fentanyl. These results are consistent with the rising number of fatal overdose deaths involving opioids and stimulants in Maryland (MDH, June 2021). Our findings also raise important questions for future research to understand how patients are being exposed to both stimulants and opioids and the types of treatment and recovery services they may most benefit from.

The new capacity of the MD-EDDS to collaborate with hospitals across Maryland, along with the national EDDS project, present a unique opportunity for EDDS to further monitor fentanyl exposure and its impact on public health across the country. For example, Dr. Roneet Lev, an emergency physician at Scripps Memorial Hospital in San Diego,

used EDDS findings to work with state legislators and local advocates to pass legislation (SB 864, “Tyler’s Law”) requiring all California hospitals to begin testing for fentanyl.

CESAR is conducting fentanyl dipstick testing with collaborating physicians in six additional hospitals in Maryland and will update these initial analyses as additional results are received.

Limitations of Dipstick Results

To reduce the burden to each hospital from the dipstick testing and to make the process rapid and feasible, CESAR researchers trained each hospital lab liaison to test 50 consecutive specimens submitted by any hospital unit for which the hospital’s routine urinalysis testing had detected one or more drugs. Our prior research indicated that fentanyl is most likely to be detected along with other drugs and we did not want to waste resources by testing specimens that had tested totally negative. For these reasons, our estimates of fentanyl positives from the dipstick test samples are higher than we might get by testing both positive and negative specimens from the hospital. On the other hand, our estimates may be lower than what would be obtained from specimens obtained solely from emergency department drug overdose patients. More precise estimates of fentanyl will require testing larger samples of specimens that can control for the above possibilities.

Acknowledgement

We would like to thank the administrators, physicians, and laboratory staff at each of our participating hospitals for their support in making this study possible.

Source

Source: Emergency Department Drug Surveillance (EDDS) system, Center for Substance Use, Addiction, And Health Research (CESAR), University of Maryland, College Park, 3/2/2023. <https://cesar.umd.edu/landing/EDDS>. MD-EDDS is supported by a grant awarded to CESAR by the Opioid Operational Command Center. The views presented here are those of CESAR and not necessarily those of the OOC, its Executive Director, or its staff.

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