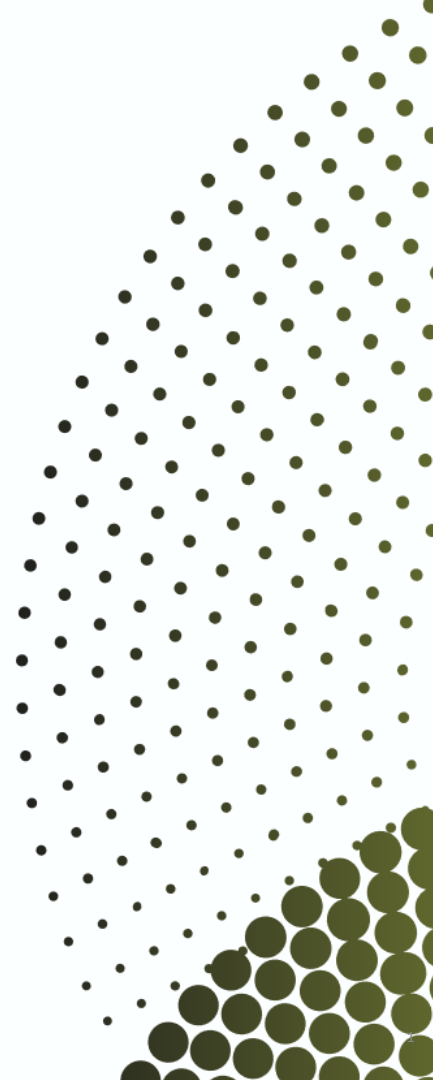


An Innovative Solution to Curb the Fentanyl Crisis

10 Dec. 2024

DEFENSE
DIAGNOSTICS



Speakers and Agenda



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Agenda

- Problem Statement
- Fentanyl Deaths in Oakland – Impacts All of Us
- Defent™ ONE Fentanyl Detection Device
- Traditional Test Strip Limitations
- Settlement Funds
- Awareness and Deployment Plan
- Call to Action
- Recommended Distribution Methods
- Q&A

The problem: fentanyl testing status quo isn't working

Fentanyl testing hasn't been widely adopted while this crisis grows, but covid yielded many best practices toward improving testing adoption...

- Defense Diagnostics Inc. (DDI) was borne out of the COVID pandemic: founders led an EUA-approved, CLIA-certified COVID testing lab and applied the learnings to create DDI
- Consumer driven, at-home testing market has evolved significantly post-pandemic
- Traditional test strips alone are neither sufficient nor effective for widespread adoption
- Defent™ ONE is a simple, more sensitive, lipstick-sized device for on-the-go, discreet testing
- Defent ONE is an FDA exempt Class 1 medical device available OTC that meets all requirements for similarly regulated FDA Class 1 medical devices



Limitations of traditional fentanyl test strips (FTS)

Traditional FTS are impractical to use, limiting market adoption

Randomized field study indicated users struggle to follow directions and use test strips correctly

1. Requires multiple supplies such as clean water and proper measuring components creating usage barriers and increased risk of inaccurate results
2. Limited portability due to fragile construction, needs to be used in a stationary and sterile environment
3. Poor design, relying heavily on user comprehension of directions
4. Field studies suggest only 10-20% of traditional FTS distributed are typically used, indicating usage challenges and wasted resources

3rd party usability study findings for each step of using an FTS (% failure)

- Step 1: 81% did not shake drug bag as required
- Step 2: 94% had difficulties gathering supplies
- Step 3: 75% failed to retrieve correct sample quantity
- Step 4: 73% struggled with proper test activation

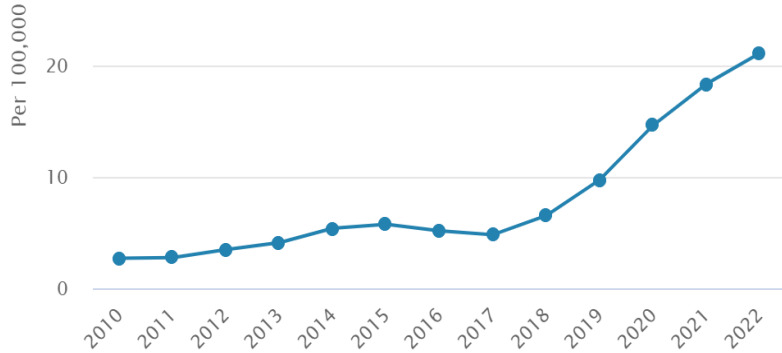
0% preferred FTS vs Defent ONE
100% preferred Defent ONE vs FTS



Fentanyl deaths occur in all Oakland districts

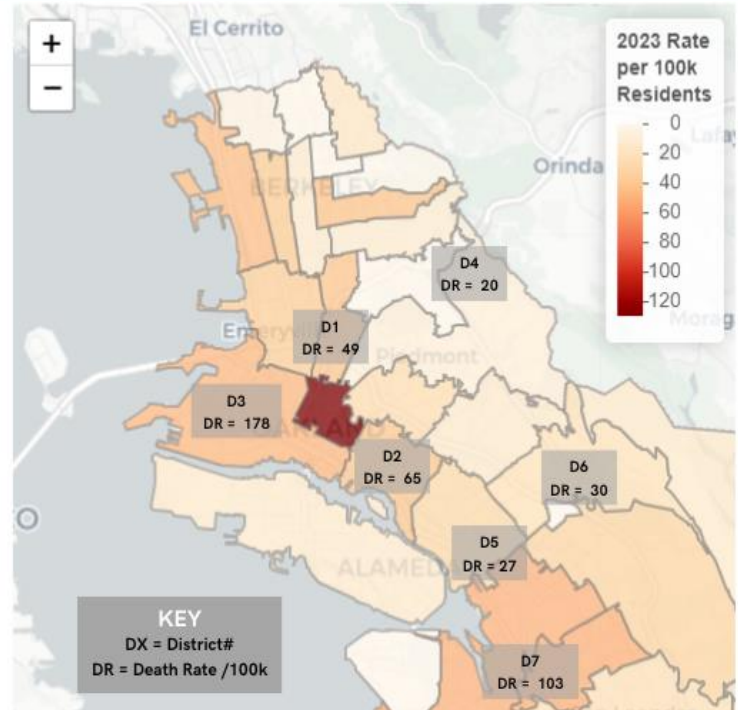
Fentanyl represents >80% of opioid deaths¹, and is likely underreported

Opioid Overdose Deaths, All Years
Oakland, CA 2022
Age-Adjusted rate per 100k residents²



Data Source National Vital Statistics System (NVSS), Centers for Disease Control and Prevention

Any-Opioid Related Overdose Deaths
Alameda County, Prelim. 2023³



1) CalMatters Fentanyl Statistics

2) Oakland CDC Data

3) Approximation based on Oakland redistricting tool 2022

Fatal and non-fatal overdose is a risk to all of us

This crisis impacts all ages, genders, races, occupations, and socioeconomic statuses, but some populations are at significantly higher risk of fatality

Between 2019-2021 in Alameda County¹:

- Males faced ~5x higher risk of fatal opioid overdose than females
- Black/African-Americans had >2x the opioid overdose mortality of Whites and 3x of Hispanics/Latinos
- In 2020 alone, 70% of overdose cases involved housed individuals
- This crisis is NOT just about those experiencing homelessness

Age-adjusted overdose rate in 2020 by occupation in the United States²:

OCCUPATION	RATE PER 100,000 WORKERS ▾
Construction and extraction	163
Food preparation and serving	118
Personal care and service	74
Transportation and material moving	71
Building and grounds cleaning	70

Introducing Defent™ ONE Fentanyl Detection Device

Simple, easy-to-use handheld device ensures broader adoption

Collect sample with integrated scoop



Open lid, insert scoop into device, close lid



Pull the pin to engage test



Wait 3 mins for result *



* Optional: Report a positive result via QR code

Benefits of Defent™ ONE



- Integrated supplies built-in; no additional resources are required
- Ensures consistent ratio, yielding highly accurate result w/o false positives
- Usable in all settings with lowest detection concentration of 15 ng/mL
- Detects 150+ fentanyl analogs w/o cross-reactivity to MDMA, diphenhydramine, etc.
- Study participants preferred Defent ONE's ease of use over traditional FTS in a randomized user trial conducted in San Francisco, 2024
- Unique anonymous opt-in data collection via QR code allows for reporting of positive fentanyl detection for incident heat mapping

Oakland has opioid settlement funds for this program

Designated funds have yet to be deployed for abatement and prevention

Schedule of Oakland Opioid Settlement Funds¹

Year	Received (\$K)	Forthcoming (\$K)
2022	1,094	
2023	510	
2024	709	
2025		744
2026		448
2027		448
2028		533
2029		551
2030		551
2031		478
2032		393
2033		393
2034		393
2035		393
2036		393
2037		393
2038		393
Subtotal	2,313	6,504

- Settlement funds received to date 2024: ~\$2.3 million
- Settlement funds spent on prevention: **\$0.0**
- Settlement funds forthcoming thru 2038: ~\$6.5 million
- Total settlement funds thru 2038¹: ~\$8.8 million

Oakland's current funding has been used primarily on the unhoused². These funds should also be used for overdose prevention and abatement for the broader population in Oakland, (e.g. fentanyl testing devices) as part of overall opioid intervention efforts³.

Call to action: Oakland deployment plan

Recommended Distribution	Annual Units Supplied	Description
Centralized Pickup Locations	7,500	DDI will stock and replenish devices for pickup at public and private sites across Oakland
Direct Street Distribution	4,500	DDI will distribute devices directly to the unhoused populations in Oakland
Online Ordering (USPS Mail Delivery)	3,000	DDI will offer a website for ordering devices to be delivered, inclusive of shipping and handling costs
Subtotal	15,000	Annual units of Defent One supplied



Contract Years	Devices / 1k Population	Annual Units Supplied	Annual Cost	3-Year Cost	3-Year Units Purchased
CY '25 – '28	34	15,000	\$200,000	\$600,000	45,000

3-Year Cost Includes:

- Defent ONE devices
- Project expenses (operational distribution, insurance, etc.)
- Training and education
- Awareness campaigns (social media, digital, targeted outreach)
- DDI's existing manufacturing capability can accommodate additional demand

Awareness plan for Oakland's program success

We will drive awareness through multiple channels to reach our audience

Examples of where and how this will work:

- Community outreach events and demonstrations (food banks, health clinics, farmers' markets, non-profits)
- Drug rehab centers, detox clinics, MAT providers etc.
- Collaborations with local businesses (bars, clubs, dispensaries)
- Youth-focused educational programs in schools and colleges
- Social media-driven awareness campaigns
- Public transportation advertising (BART, AC Transit)
- Geo-targeted digital marketing
- Etc.

Call to action: Oakland's distribution plan

Get devices into people's hands **ASAP!**

In-Person Distribution

- **7,500** annual devices available
 - Public pick-up sites (e.g., health departments, community centers)
 - Private pick-up sites (e.g., bars, music venues, liquor stores)
- **4,500** annual devices allocated toward unhoused communities
- Trained staff provide educational materials on the use of Defent ONE and fentanyl awareness



Online Distribution

- **3,000** annual devices allocated
- Our Oakland-specific platform will enable at-home delivery
- 5 devices will be the maximum available per person to ensure equitable distribution
- The platform features a mobile-friendly design and multi-language support