

## INJURY PREVENTION AND SAFETY Issue Brief

# How Can State and Local Health Departments Combat Antibiotic Resistant Superbugs?

## The Public Health Threat of Antibiotic Resistance

Antibiotic resistance has been described by the Centers for Disease Control and Prevention (“CDC”) as “one of the greatest public health challenges of our time.”<sup>1</sup> Antibiotic resistance refers to bacteria or fungi that have developed resistance to existing antibiotics.<sup>2</sup> Yearly in the U.S., there are more than 2.8 million antibiotic resistant infections resulting in greater than 35,000 deaths.<sup>3</sup> The CDC estimates that these infections result in hospitalization health care costs of \$4.6 billion annually.<sup>4</sup> This means total costs of resistant infections could be higher as the estimate does not consider post-discharge health care costs and societal costs associated with these infections.<sup>5</sup> Additionally, antibiotic use increased in light of the COVID-19 pandemic, even though COVID-19 is a virus which is not responsive to antibiotics.<sup>6</sup> A recent study found that 96% of patients hospitalized with COVID-19 were prescribed at least one antibiotic.<sup>7</sup> The study also found that a “disparity between the percentage of patients who received antibiotics and those who were diagnosed with bacterial infections indicates that some patients received antibiotics unnecessarily.”<sup>8</sup>

Antibiotic resistance disproportionately affects vulnerable individuals (e.g., the young, elderly, and immunocompromised).<sup>9</sup> This is because these groups receive more medical care, which increases their risk of healthcare-associated infections.<sup>10</sup> Every time an antibiotic is used, it can contribute to antibiotic resistance.<sup>11</sup> Therefore, appropriate use of antibiotics is necessary to prevent further resistance. While antibiotic resistance is a multi-faceted problem, the scope of this issue brief will focus on appropriate antibiotic use or “antibiotic stewardship.”<sup>12</sup> As noted by the CDC, “[a]t least 30% of antibiotics prescribed in the outpatient setting are unnecessary.”<sup>13</sup> Appropriate antibiotic use encompasses prescribing the right antibiotic when needed, in the right amount, and for the right length of time.<sup>14</sup> It is estimated that total inappropriate antibiotic use is close to 50% of all outpatient antibiotic prescriptions.<sup>15</sup> This issue brief provides resources and suggestions for state and local public health departments looking to address antibiotic resistance in their communities.



## Recommendations

Antibiotic resistance is a multi-faceted problem that calls for multi-faceted solutions. While there are many factors contributing to resistance, the scope of this issue brief is to improve antibiotic use and prescribing using antibiotic stewardship programs and other best practices. Stewardship and other best practices can be supported and fostered by both state and local governments or health departments.

### A. The Role of State Governments and Health Departments


State health departments are well-suited to support local statewide efforts regarding antibiotic resistance. These departments can use their platforms to disseminate existing resources provided by the CDC and other entities to medical providers, pharmacists, health care institutions, and patients. Additionally, they can provide state-sponsored educational programs and outreach. For example, Minnesota created a state “toolkit” to address antibiotic resistance and appropriate antibiotic prescribing,<sup>16</sup> along with various other practitioner and patient resources. The toolkit also includes a sample antibiotic stewardship plan for outpatient medical offices.<sup>17</sup> The Minnesota toolkit can be used as a model for other states looking to foster a commitment to appropriate antibiotic use. State health departments can also support funding of local stewardship and education programs. Moreover, state health departments have an important role to play in data analytics relating to antibiotic use and prescribing. Existing data can be obtained through CDC programs<sup>18</sup> and through the Global Antimicrobial Resistance Surveillance System.<sup>19</sup> This data can support various aspects of antibiotic stewardship – including noting high use antibiotic prescribers. Once a prescriber has been noted as high use, the CDC has a sample letter to provide to the prescriber.<sup>20</sup>

### B. The Role of Local Health Departments and Local Public Health Professionals

Local health departments and public health officials can support community-based efforts to prevent antibiotic resistance. Local departments can provide outreach and education specifically to primary care, urgent care, and emergency department prescribers. This outreach and education can be facilitated through existing resources regarding antibiotic resistance. Local health departments can also support the creation of antibiotic stewardship programs. Additionally, they can support and suggest “delayed prescribing” practices for practitioners. Delayed prescribing is typically used when a medical provider believes the illness is viral and will not respond to antibiotics.<sup>21</sup> Use of delayed prescribing encourages patients to wait a few days for symptom resolution prior to filling an antibiotic prescription.<sup>22</sup> Moreover, local public health departments and officials can also support patient-centered advocacy campaigns regarding appropriate prescribing. The CDC provides patient-centered resources for this purpose;<sup>23</sup> however, communications to local prescribers and patients from their trusted local health department may be more impactful than distribution from the federal government. Hence, local officials and departments can facilitate proper antibiotic usage through their existing relationships with practitioners and community members.

## Legislative Policy Solutions

While state and local health departments already have existing infrastructure to support antibiotic stewardship, there are multiple legislative policy solutions that could assist health departments in this mission. For example, states can ensure adequate funding for antibiotic resistance efforts and stewardship programs. Additionally,



state and local health departments should continue to seek funding through the CDC’s AR Solutions Initiative.<sup>24</sup> The AR Solutions Initiative invests in state and local governments “to detect, respect, contain, and prevent” antibiotic resistant infections in communities.<sup>25</sup> This also means that public health officials should ensure Congress continues to fund the AR Solutions initiative. In fiscal year 2016, Congressional funding for the Initiative was \$160 million; in 2020 funding was increased to \$170 million.<sup>26</sup> Moreover, state and local health departments can advocate that state legislatures require antibiotic resistance continuing education for physicians, physicians’ assistants, nurse practitioners, and pharmacists. Continuing education can also be required relating to health care-acquired infections for hospital-based practitioners, nurses, and other support staff. This continuing education can be tied in with licensing requirements such as is already done in some states for opioids<sup>27</sup> or child abuse.<sup>28</sup> For individual institutions wishing to implement such educational opportunities on their own, the CDC offers online training modules on antibiotic stewardship.<sup>29</sup>

Another opportunity that would require legislative authorization is expanding the scope of existing Prescription Drug Monitoring Programs (“PDMP”). PDMPs are powerful data-driven tools that allow for tracking and surveillance of prescriptions issued by prescribers. While traditionally used as a tool to fight the opioid crisis,<sup>30</sup> this tool can be expanded to also include antibiotic prescriptions. Nebraska already operates an all-prescription PDMP which allows for additional data analytics of all prescribing in the state.<sup>31</sup> Currently, all fifty states, the District of Columbia, Guam, and Puerto Rico have operational PDMPs, with most of these PDMPs only focusing on controlled substances.<sup>32</sup> By expanding the scope of PDMPs, they can fuel education and outreach efforts by state and local health departments relating to antibiotic use. Additionally, by including antibiotic prescriptions in PDMPs, antibiotic stewardship programs can be facilitated and supported by the increased antibiotic prescribing data.

## Conclusion

State and local governments play an important role in the fight against antibiotic resistance. The CDC provides a wide variety of resources that can assist with funding, education, and stewardship efforts. Antibiotic resistance is an issue area that requires sufficient on-the-ground support to local prescribers. Ensuring access to adequate data to support these efforts is also key. With adequate state and local resources, antibiotic stewardship programs can be fostered to promote appropriate use of antibiotics and ultimately stop the spread of resistant infections.

## Additional Resources

CTRS. DISEASE CONTROL & PREVENTION, *Antibiotic Use in the United States, 2020 Update: Progress and Opportunities*, (Nov. 30, 2020) <https://www.cdc.gov/antibiotic-use/stewardship-report/current.html>.

CTRS. DISEASE CONTROL & PREVENTION, THE CORE ELEMENTS OF OUTPATIENT ANTIBIOTIC STEWARDSHIP [https://www.cdc.gov/antibiotic-use/community/pdfs/16\\_268900-A\\_CoreElementsOutpatient\\_508.pdf](https://www.cdc.gov/antibiotic-use/community/pdfs/16_268900-A_CoreElementsOutpatient_508.pdf).

David Hyun, *What is Antibiotic Stewardship and How Does it Work?*, PEW CHARITABLE TRUSTS (Feb. 14, 2019) <https://www.pewtrusts.org/en/research-and-analysis/articles/2019/02/14/what-is-antibiotic-stewardship-and-how-does-it-work>.

FED. TASK FORCE ON COMBATING ANTIBIOTIC-RESISTANT BACTERIA, NATIONAL ACTION PLAN FOR COMBATTING ANTIBIOTIC-RESISTANT BACTERIA 2020-2025 (Oct. 2020) <https://aspe.hhs.gov/system/files/pdf/264126/CARB-National-Action-Plan-2020-2025.pdf>.

Guillermo V. Sanchez et al., *Core Elements of Outpatient Antibiotic Stewardship*, 65 MORBIDITY & MORTALITY WKLY. REP. 1 (2012) [https://www.cdc.gov/mmwr/volumes/65/rr/rr6506a1.htm?s\\_cid=rr6506a1\\_e](https://www.cdc.gov/mmwr/volumes/65/rr/rr6506a1.htm?s_cid=rr6506a1_e).

Larissa May et al., *MITIGATE Antimicrobial Stewardship Toolkit*, (Apr. 13, 2018) [https://qioprogram.org/sites/default/files/editors/141/MITIGATE\\_TOOLKIT\\_final\\_approved%281%29\\_508.pdf](https://qioprogram.org/sites/default/files/editors/141/MITIGATE_TOOLKIT_final_approved%281%29_508.pdf).

PEW CHARITABLE TRUSTS, NATIONAL SURVEY REVEALS BARRIERS TO OUTPATIENT ANTIBIOTIC STEWARDSHIP EFFORTS (Aug. 6, 2020) <https://www.pewtrusts.org/-/media/assets/2020/09/nationalsurveyrevealsbarriersoutpatientantibioticstewardshipefforts.pdf>.

QUALITY IMPROVEMENT ORGS., A FIELD GUIDE TO ANTIBIOTIC STEWARDSHIP IN OUTPATIENT SETTINGS (Jul. 2018) [https://qioprogram.org/sites/default/files/editors/141/C310\\_Field\\_Guide\\_20180730\\_FNL.pdf](https://qioprogram.org/sites/default/files/editors/141/C310_Field_Guide_20180730_FNL.pdf).

WA. DEP'T HEALTH, JUMPSTART STEWARDSHIP: IMPLEMENTING ANTIBIOTIC STEWARDSHIP IN AMBULATORY SETTINGS, (Nov. 2017) <https://www.doh.wa.gov/Portals/1/Documents/5000/JumpStartStewardshipAmbulatorySettings.pdf>.

## SUPPORTERS



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- <sup>1</sup> CTRS. DISEASE CONTROL & PREVENTION, ANTIBIOTIC RESISTANCE THREATS IN THE UNITED STATES 2019 3 (Dec. 2019) <https://www.cdc.gov/drugresistance/pdf/threats-report/2019-ar-threats-report-508.pdf> [hereinafter 2019 AR Threats].
- <sup>2</sup> CTRS. DISEASE CONTROL & PREVENTION, *About Antibiotic Resistance*, (Mar. 13, 2020) <https://www.cdc.gov/drugresistance/about.html>.
- <sup>3</sup> 2019 AR Threats, *supra* note 1, at 3.
- <sup>4</sup> CTRS. DISEASE CONTROL & PREVENTION, *Biggest Threats and Data*, (Mar. 2, 2021) <https://www.cdc.gov/drugresistance/biggest-threats.html>.
- <sup>5</sup> Richard E. Nelson et al., *National Estimates of Healthcare Costs Associated with Multidrug-Resistant Bacterial Infections Among Hospitalized Patients in the United States*, 72 CLINICAL INFECTIOUS DISEASES S17, S25 (2021).
- <sup>6</sup> PEW CHARITABLE TRUSTS, COULD EFFORTS TO FIGHT THE CORONAVIRUS LEAD TO OVERUSE OF ANTIBIOTICS? 2 (Mar. 2021) [https://www.pewtrusts.org/-/media/assets/2021/03/could\\_efforts\\_to\\_fight\\_coronavirus\\_lead\\_to\\_overuse\\_of\\_antibiotics\\_final.pdf](https://www.pewtrusts.org/-/media/assets/2021/03/could_efforts_to_fight_coronavirus_lead_to_overuse_of_antibiotics_final.pdf).
- <sup>7</sup> *Id.*
- <sup>8</sup> *Id.*
- <sup>9</sup> 2019 AR Threats, *supra* note 1, at 9.
- <sup>10</sup> *Id.*
- <sup>11</sup> *Id.* at 26.
- <sup>12</sup> *Id.* at 5.
- <sup>13</sup> CTRS. DISEASE CONTROL & PREVENTION, *Measuring Outpatient Antibiotic Prescribing*, (Oct. 14, 2020) <https://www.cdc.gov/antibiotic-use/community/programs-measurement/measuring-antibiotic-prescribing.html>.
- <sup>14</sup> *Id.*
- <sup>15</sup> *Id.*
- <sup>16</sup> MIN. DEP'T HEALTH, *Minnesota Antimicrobial Stewardship Program Toolkit for Outpatient Clinics*, (last visited Mar. 29, 2021) <https://www.health.state.mn.us/diseases/antibioticresistance/hcp/asp/out/index.html>.
- <sup>17</sup> MIN. DEP'T HEALTH, MINNESOTA SAMPLE ANTIBIOTIC STEWARDSHIP PLAN FOR OUTPATIENT CLINICS (Mar. 5, 2019) <https://www.health.state.mn.us/diseases/antibioticresistance/hcp/asp/out/outsampleplan.pdf>.
- <sup>18</sup> CTRS. DISEASE CONTROL & PREVENTION, *Tracking Threats Using Data*, (Feb. 26, 2021) <https://www.cdc.gov/drugresistance/biggest-threats/tracking.html>. CDC resources include the Antibiotic Resistance Laboratory Network, the Emerging Infections Program, the National Healthcare Safety Network, among others. *Id.*
- <sup>19</sup> WORLD HEALTH ORG., *Global Antimicrobial Resistance Surveillance (GLASS)*, (last visited Mar. 29, 2021) <https://www.who.int/glass/en/>.
- <sup>20</sup> CTRS. DISEASE CONTROL & PREVENTION, *Antibiotic Prescribing Editable Letter*, (last visited Mar. 29, 2021) <https://www.cdc.gov/antibiotic-use/community/pdfs/HEDIS-example-letter-2019-508.pdf>.
- <sup>21</sup> CTRS. DISEASE CONTROL & PREVENTION, *What is Delayed Prescribing?*, (last visited Mar. 29, 2021) [https://www.cdc.gov/antibiotic-use/community/pdfs/aaw/CDC-AU\\_RCx\\_Delayed\\_Prescribing\\_Ig\\_v9\\_508.pdf](https://www.cdc.gov/antibiotic-use/community/pdfs/aaw/CDC-AU_RCx_Delayed_Prescribing_Ig_v9_508.pdf).
- <sup>22</sup> *Id.*
- <sup>23</sup> See CTRS. DISEASE CONTROL & PREVENTION, *Patient and Healthcare Provider Information*, (Mar. 17, 2021) (providing various patient-centered educational resources regarding antibiotic resistance).
- <sup>24</sup> CTRS. DISEASE CONTROL & PREVENTION, *What CDC is Doing: AR Solutions Initiative*, (Oct. 28, 2020) <https://www.cdc.gov/drugresistance/solutions-initiative/index.html>.

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- <sup>25</sup> *Id.*
- <sup>26</sup> *Id.*
- <sup>27</sup> See, e.g., MED. SOC'Y V.A., *Free Opioid CE Courses*, (last visited Mar. 29, 2021) [https://www.msv.org/sites/default/files/opioid\\_ce\\_list.final\\_.pdf](https://www.msv.org/sites/default/files/opioid_ce_list.final_.pdf) (explaining Virginia's continuing education requirement of two hours relating to controlled substances for physician licensure renewal); see also *Pain Management and Opioid CME Requirements by State*, BD. VITALS (Jan. 9, 2021) <https://www.boardvitals.com/blog/pain-management-opioid-cme-requirements-by-state/> (providing an overview of state licensure requirements relating to pain management and opioid continuing education).
- <sup>28</sup> See, e.g. PA. DEP'T STATE, *Act 31 of 2014 Child Abuse Recognition and Reporting Continuing Education Providers*, (last visited Mar. 29, 2021) <https://www.dos.pa.gov/ProfessionalLicensing/BoardsCommissions/Pages/Act-31.aspx> (outlining state requirements for healthcare professionals to complete continuing education regarding child abuse).
- <sup>29</sup> CDC TRAIN, *CDC's Antibiotic Stewardship Training Series*, (last visited Mar. 29, 2021) [https://www.train.org/cdctrain/training\\_plan/3697](https://www.train.org/cdctrain/training_plan/3697). Additional continuing education and training resources can be located on the CDC's website. CTRS. DISEASE CONTROL & PREVENTION, *Continuing Education and Informational Resources*, (Jul. 8, 2020) <https://www.cdc.gov/antibiotic-use/community/for-hcp/continuing-education.html#healthcare-professionals>.
- <sup>30</sup> CTRS. DISEASE CONTROL & PREVENTION, *Prescription Drug Monitoring Programs*, (Jun. 10, 2020) <https://www.cdc.gov/drugoverdose/pdmp/states.html>.
- <sup>31</sup> Neb. Dep't Health & Hum. Servs., *Drug Overdose Prevention- PDMP Access* (2021) <https://dhhs.ne.gov/Pages/Drug-Overdose-Prevention-PDMP-Access.aspx> (explaining that beginning January 1, 2018, the state PDMP began tracking all dispensed prescriptions).
- <sup>32</sup> PRESCRIPTION DRUG MONITORING PROGRAM & TRAINING & TECH. ASSISTANCE, *State PDMP Programs and Contacts*, (last visited Mar. 29, 2021) <https://www.pdmpassist.org/State>.