CHALLENGING THE USE OF ALGORITHM-DRIVEN DECISION-MAKING IN BENEFITS DETERMINATIONS AFFECTING PEOPLE WITH DISABILITIES

OCTOBER 2020

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Special thanks to the staff at the National Health Law Program, and participants in the Symposium on the Use of AI in Benefits Determinations hosted at Georgetown Law in January 2020.

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Bradley Ledgerwood is a thirty-nine-year-old white resident of rural Arkansas, active in his county's Republican committee, who has served as an alderman for the tiny town of Cash for more than half of the past decade.[1] He also has cerebral palsy that significantly impacts his mobility, requiring assistance from others to perform daily tasks like eating, dressing, and moving from one position to another. Ledgerwood's parents, Ann and David, provide the care he needs, benefiting from part of Arkansas' state Medicaid program that provides for in-home care for people with disabilities, including care by family members as an alternative to institutionalization.

The Arkansas Department of Human Services previously covered the cost for 56 hours of care by Ledgerwood's parents each week, based on a nurse's assessment of his needs. After the state adopted a new algorithm-driven resource allocation tool, Ledgerwood's paid hours were slashed from 56 hours per week to only 32, though his condition had not changed. The funds would no longer cover the cost of Ledgerwood's mother providing his care, and Bradley and his family began to think, reluctantly, about whether he would have to live in a nursing facility because of the reduced in-home services. "That would destroy my life," Bradley Ledgerwood told *The Washington Post*.[2]

I. Executive Summary[3]

Governments are increasingly turning to algorithms to determine whether and to what extent people should receive crucial benefits for programs like Medicaid, Medicare, unemployment, and Social Security Disability. Billed as a way to increase efficiency and root out fraud, these algorithm-driven decision-making tools are often implemented without much public debate and are incredibly difficult to understand once underway. Reports from people on the ground confirm that the tools are frequently reducing and denying benefits, often with unfair and inhumane results.

Benefits recipients are challenging these tools in court, arguing that flaws in the programs' design or execution violate their due process rights, among other claims. These cases are some of the few active courtroom challenges to algorithm-driven decision-making, producing important precedent about people's right to notice, explanation, and other

1 *See generally,* Catherine Rampell, *The threat Trump poses that gets almost no attention,* Wash. Post (Jul. 3, 2017), https://www.washingtonpost.com/opinions/the-threat-trump-poses-that-gets-almost-no-attention/2017/07/03/151908f8-602d-11e7-8adc-fea80e32bf47_story.html; Hope Kesselring, *The People vs Artificial Intelligence*, Medium (Nov. 3, 2018), https://medium.com/@hopekesselring70/the-people-vs-artificial-intelligence-d1a5cef33add; Jiayue Liao, *Bradley Ledgerwood's Fight*, Delta Digital News Service (Dec. 20, 2016), https://deltanewsservice.com/2016/12/20/deltayou-bradley-ledgerwoods-fight/; *Arkansas Department of Human Services v. Bradley Ledgerwood*, 530 S.W.3d 336, 339-340 (Ark. 2017) .

2 Rampell (2017), *supra* n. 1.

3 Find the plain language version of this paper at: https://cdt.org/insights/what-happens-when-computer-programs-automatically-cut-benefits-that-disabled-people-rely-on-to-survive.

procedural due process safeguards when algorithm-driven decisions are made about them.[4] As the legal and policy world continues to recognize the outsized impact of algorithm-driven decision-making in various aspects of our lives, public benefits cases provide important insights into how such tools can operate; the risks of errors in design and execution; and the devastating human toll when tools are adopted without effective notice, input, oversight, and accountability.

This report analyzes lawsuits that have been filed within the past 10 years arising from the use of algorithm-driven systems to assess people's eligibility for, or the distribution of, public benefits. It identifies key insights from the various cases into *what went wrong* and analyzes the legal arguments that plaintiffs have used to challenge those systems in court. It draws on direct interviews with attorneys who have litigated these cases and plaintiffs who sought to vindicate their rights in court – in some instances suing not only for themselves, but on behalf of similarly situated people. The attorneys work in legal aid offices, civil rights litigation shops, law school clinics, and disability protection and advocacy offices. The cases cover a range of benefits issues and have netted mixed results.

People with disabilities experience disproportionate and particular harm because of unjust algorithm-driven decision-making, and we have attempted to center disabled people's stories and cases in this paper. As disabled people fight for rights inside and outside the courtroom on a wide range of issues, we focus on litigation and highlight the major legal theories for challenging improper algorithm-driven benefit denials in the U.S.

The good news is that in some cases, plaintiffs are successfully challenging improper adverse benefits decisions with Constitutional, statutory, and administrative claims. But like other forms of civil rights and impact litigation, the bad news is that relief can be temporary and is almost always delayed. Litigation must therefore work in tandem with the development of new processes driven by people who require access to public assistance and whose needs are centered in these processes. We hope this contribution informs not only the development of effective litigation, but a broader public conversation about the thoughtful design, use, and oversight of algorithm-driven decision-making systems.

II. Overview: What are Algorithms, and How Are They Used in Benefit Determinations?

An algorithm is a process or series of steps designed to answer a question, make a decision, or carry out a task, often in domains that would traditionally have been handled by humans. Although they are often math- or rules-based, algorithms are not neutral

4 *See generally* AI Now Institute, Litigating Algorithms: Challenging Government Use of Algorithmic Decision Systems 7-9 (2018), https://ainowinstitute.org/litigatingalgorithms.pdf (hereinafter AI Now Litigating Algorithms Report).

decision-makers. Subjective human judgments dictate the purpose, design, and function of an algorithm and influence its outcomes.

In other words, an algorithm is an if-then operation that works like a flowchart, where the operation is designed to respond in specific ways depending on the information entered. For instance, the most basic questions to decide if a person should be eligible for unemployment insurance might be simply: (1) "Is this person unemployed?" and (2) "Was the person laid off, or are they eligible for unemployment payments under a different category?" If a person has become unemployed *and* they belong to one of the groups eligible for unemployment insurance coverage, then they have met basic eligibility requirements to proceed to the next step.

This sort of decision-making is standard in benefits determinations. Without the assistance of a computerized algorithm, it may take the form of nurses or social workers performing in-depth assessments or simply asking questions based on a predetermined list. In some instances, determinations may be formulaic and in others, there may be significant discretion granted to administrators.

An increasing number of states are turning to more automated algorithm-driven assessment and decision-making, relying on tools that quickly process multiple data inputs to evaluate whether a person needs assistance and how much they should receive.[5] These tools have also evolved beyond assessing eligibility requirements. They may be used to flag benefits recipients who appear to be defrauding the system,[6] or used in the context of health care, to determine how to distribute funding based on the type and amount of care some people should receive.[7]

State governments have adopted algorithm-driven decision-making to assess disabled people's eligibility for home- and community-based services (HCBS) under Medicaid, which is the focus of this report. HCBS programs help disabled people perform activities of daily living in their own homes instead of in institutions.[8] Because the federal government does not mandate the use of any particular needs assessment tool to evaluate how much help a person requires to perform activities of daily living, a variety of tools are used across

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5 *See* Appendix B for a chart of each state's use of algorithm-informed assessment and decision-making tools in public benefits. *See also Artificial Intelligence: Societal and Ethical Implications: Hearing Before the H. Comm. on Sci., Space, and Tech.,* 116th Cong. 1 (2019) (written testimony of Meredith Whittaker, AI Now Institute, New York University) https://ainowinstitute.org/062619-whittaker-house-testimony.pdf ("Government agencies are increasingly using AI and algorithmic systems to assess beneficiaries of social services and manage benefit allocation.").

6 Michele Gilman, *Did a Failed Algorithm Drive Welfare Recipients To Suicide?*, The National Interest (Feb. 18, 2020), https://nationalinterest.org/blog/buzz/did-failed-algorithm-drive-welfare-recipients-suicide-124691; Michele Gilman, *AI algorithms intended to root out welfare fraud often end up punishing the poor instead*, The Conversation (Feb. 14, 2020, 8:45 AM), https://theconversation.com/ai-algorithms-intended-to-root-out-welfare-fraud-often-end-up-punishing-the-poor-instead-131625 (reporting on Michigan's MiDAS system, which in 2013 made roughly 48,000 fraud accusations against unemployment insurance recipients – a five-fold increase from the prior system. A state review later determined that 93% of the fraud determinations were wrong.)

7 Eliza Strickland, *Racial Bias Found in Algorithms That Determine Health Care for Millions of Patients*, IEEE Spectrum (Oct. 24, 2019, 8:23 PM), https://spectrum.ieee.org/the-human-os/biomedical/ethics/racial-bias-found-in-algorithms-that-determine-health-care-for-millions-of-patients.

8 *Home & Community Based Services*, Medicaid.gov, https://www.medicaid.gov/medicaid/home-community-based-services/index.html (last visited Feb. 17, 2020).

the U.S.[9] Some are not automated, requiring a human to manually perform every step from assessment through determination of eligibility and budgets. The tools that are automated reduce or remove human review or rely on large-scale data analysis to make predictions. Some automated tools are developed by the state, while others are developed and often customized by third-party vendors.

An Idaho budget allocation tool subject to ongoing litigation serves as a useful example of how states may deploy such tools.[10] In 2011, Idaho adopted a new program to assess recipients' approved budgets for HCBS under Medicaid. Under the program, a person would travel to a medical assessment center where an Independent Assessment Provider (IAP) would complete a proprietary form that scored the person's need for assistance in feeding, toileting, dressing, and other functions. The IAP would manually enter that data into a digital Budget Tool, which, in turn, automatically calculated an Assigned Budget Amount for those reported needs based on data held in a proprietary database. An Assigned Budget Amount could only be increased if program managers found that the person required it for their "health and safety" – an undefined term that led to significant cuts to people's individualized budgets and lengthy and difficult appeals.

A closer look at Idaho's tool reflected substantially flawed design and execution. At trial, the judge found that the Budget Tool was developed based on a small, unrepresentative data set.[11] Additionally, IAPs had to record and then transfer large quantities of data, resulting in what the judge called a "high likelihood of human error." Although Idaho knew that the Budget Tool needed to be recalibrated annually to appropriately assess current costs, Idaho did not do that. The state agency did not provide people with a copy of the proprietary assessment form or allow them to access all of the form or its results. And Idaho had no process in place to audit whether budgets assigned by the tool accurately met peoples' needs. As we discuss below, these failures in Idaho's design and implementation proved to be unconstitutional.

Idaho's HCBS tool is not unique.[12] As explored further in this report, algorithm-driven decision-making tools deployed to make benefits determinations in other states have used faulty and unreliable data, added eligibility criteria not required by law, and produced

9 As of 2016, about 28 states used "off the shelf" tools, including the interRAI Home Care Assessment System and the Supports Intensity Scale. See MACPAC, *Chapter 4: Functional Assessments for Long-Term Services and Supports*, in Report to Congress on Medicaid and CHIP 68 (2016), https://www.macpac.gov/wp-content/uploads/2016/06/Functional-Assessments-for-Long-Term-Services-and-Supports.pdf.

10 *See* K.W. v. Armstrong, 180 F.Supp.3d 703 (D.Idaho, 2016).

11 *Id.* at 714-16

12 *See generally* Virginia Eubanks, Automating Inequality: How High-Tech Tools Profile, Police, and Punish the Poor (St. Martin's Press 2018); Matthias Spielkamp, Brigitte Alfter, Nicolas Kayser-Bril, Kristina Penner, Sarah Fischer, & Ralph Müller-Eiselt, Automating Society: Taking Stock of Automated Decision-Making in the EU (Algorithm Watch and Bertelsmann Stiftung 2019), available at https://algorithmwatch.org/wp-content/uploads/2019/02/Automating_Society_Report_2019.pdf; The Senate Community Affairs References Committee, Design, scope, cost-benefit analysis, contracts awarded and implementation associated with the Better Management of the Social Welfare System initiative (2017, Commonwealth of Australia Parliament House); Jacob Mchangama & Hin-Yan Liu, *The Welfare State Is Committing Suicide by Artificial Intelligence*, Foreign Policy (Dec. 25, 2018, 1:00 AM), https://foreignpolicy.com/2018/12/25/the-welfare-state-is-committing-suicide-by-artificial-intelligence/ (describing Danish government use of artificial intelligence in national welfare program).

results based solely on disability diagnoses (i.e. expected needs typically associated with a diagnosis) rather than a person's *actual* needs.

Problems such as these illustrate the potential harmful effects of algorithm-driven decision-making tools, and the need for careful oversight. Algorithmic tools are trained to make correlative associations between certain traits based on generalizations and patterns, for example by assessing someone's needs based on the average needs of people with the same clinical diagnosis.[13] They may also prevent agencies from asking follow up or clarifying questions, depriving people of the opportunity to provide other relevant information that is not encompassed in the algorithm's calculations. As some plaintiffs have shown, the data underlying an algorithm's assessment of the appropriate cost of care may be unrealistic, based on outdated, unrepresentative, or otherwise flawed data. As a result, algorithm-driven decision-making may fail to account for a person's individual needs or the realistic financial support they need to cover their costs of care. Systems that rely on algorithm-driven needs assessments often make it challenging for beneficiaries to adequately challenge those decisions. The results can be devastating for their independence and quality of life.

The unique risks posed by algorithm-driven decision-making tools requires special attention by state officials considering adopting an algorithm-driven benefits determination tool. These vulnerabilities may give rise to legal liability if states do not thoroughly address the problems and potential flaws.

III. Legal Theories for Challenging Algorithm-driven Decision-making in Benefits that Discriminates Against Disabled People

In the past ten years, advocates have brought several major challenges to algorithm-driven decision-making in the context of public benefits. In each of these cases, people receiving some form of state-funded benefit lost their benefits, either completely or partially, with inadequate notice or no notice at all.

Legal challenges to these benefits reductions have focused largely on the following arguments:

- Algorithm-driven decision-making can violate constitutional or statutory due process rights. Individuals are entitled to notice, a right to challenge decisions, decision-making that is not arbitrary, and ascertainable standards in a decision regarding their government-issued benefits.

13 *See* Sonia Katyal, *Private Accountability in the Age of Artificial Intelligence*, 66 UCLA L. Rev. 54, 70-74 (2019) (explaining how algorithms are trained on bias and reinforce bias through correlations and categorizations).

- A state agency's adoption of new algorithm-driven decision-making programs without public notice and explanation may violate a federal law or equivalent state laws known as the Administrative Procedure Act.

- Benefits cuts caused by algorithm-driven decision-making can jeopardize the community integration mandate under the Americans with Disabilities Act.

- Proprietary claims should not prevent beneficiaries from accessing the information necessary to understand and challenge decisions made about them.

A. Algorithm-driven decision-making can violate due process rights.

In 2011-2012, attorney Richard Eppink at the ACLU of Idaho began receiving call after call from people who discovered that the state had slashed their Medicaid benefits but had no idea why.[14] Other advocates and lawyers across the state soon began receiving the same kinds of calls from people worried about what would happen to them or their children without the care hours or dollars they had previously received.

Eppink and other advocates filed suit against the state. The case became a class action, involving more than 4,000 Idaho residents with intellectual and developmental disabilities.[15] One of those residents was Larkin Seiler, an engineering firm employee and self-advocacy leader who has cerebral palsy. Seiler needs substantial physical and communication support that he currently gets from his wife, Jennifer Magelky Seiler, but should be receiving from paid long-term support workers. Idaho's Medicaid program reduced Seiler's annual budget for home and community support from $52,000 in 2007 to only $28,000 by 2012.

Litigation in this case revealed that the state started cutting people's benefits based on a formula captured in an Excel spreadsheet that the state refused to share. Idaho's algorithm used flawed and incomplete data to make predictions of beneficiaries' likely needs and cost of care. The data was inconsistent for different parts of the state and riddled with statistical flaws. In Eppink's words, the court decided that "the formula itself was so bad that it was unconstitutional—violated due process—because it was effectively producing arbitrary results for a large number of people."[16]

14 Interview by Kimberly McKarin with Richard Eppink, Attorney, ACLU of Idaho (Mar. 6, 2020).
15 *See* K.W. v. Armstrong, 180 F.Supp.3d 703, 706 (D.Idaho, 2016); Jay Stanley, *Pitfalls of Artificial Intelligence Decisionmaking Highlighted In Idaho ACLU Case*, ACLU Free Future (Jun. 2, 2017, 1:30 PM), https://www.aclu.org/blog/privacy-technology/pitfalls-artificial-intelligence-decisionmaking-highlighted-idaho-aclu-case.
16 Stanley, *supra* n.15 (quoting Richard Eppink).

The Supreme Court case *Goldberg v. Kelly* provides the framework by which courts analyze whether the termination of government benefits violates a person's right to due process under the Fourteenth Amendment of the U.S. Constitution.[17] When "the means to obtain essential food, clothing, housing, and medical care"[18] are at stake, the Court held, recipients of welfare benefits are entitled to "timely and adequate notice detailing the reasons for termination," and a "pre-termination hearing" that provides an opportunity for the benefits recipient to present evidence and confront adverse witnesses.[19] The same rationale that Goldberg applies to termination of benefits applies to their reduction as well: benefits may not be reduced before recipients receive notice and the opportunity to be heard.[20]

Plaintiffs alleging that their rights have been deprived without these steps can leverage both the Fourteenth Amendment right to due process and statutory rights to due process guaranteed by statutes governing assistance programs, such as the Medicaid Act and the Supplemental Nutrition Assistance Program (SNAP) Act.[21] Statutory due process challenges are sometimes analyzed together with Constitutional due process challenges, though the exact rights guaranteed by each are not necessarily the same.[22]

In recent litigation, advocates have had some success establishing that benefits determinations made by algorithm-driven systems violated Constitutional and /or statutory due process rights. These successful arguments typically fall into one or more of these categories:

1. The state provided beneficiaries insufficient notice explaining why their assessment and the tool's analysis led to a reduction in benefits.

2. Errors in the model and its implementation produced results that were so unreliable as to make the ultimate determinations arbitrary, in violation of due process rights.

3. Use of algorithm-driven decision-making can violate people's right to a fair hearing.

4. Inaccessible algorithms can violate people's right to ascertainable standards in a decision affecting their government-issued benefits.

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17 Goldberg v. Kelly, 397 U.S. 254, 264 (1970) (distinguishing the termination of welfare benefits from termination of employment or other assistance, where "termination of aid pending resolution of a controversy over eligibility may deprive an eligible recipient of the very means by which to live while he waits").

18 *Id.*

19 *Id.* at 267-68.

20 *See e.g.*, Rosas v. McMahon, 945 F.2d 1469, 1473-74 (9th Cir.1991) ("[T]he effect of Goldberg v. Kelly is to preclude the government from reducing or terminating benefits before notice and hearing; the status quo is preserved while the question of entitlements is fought out.").

21 Medicaid Act, 42 U.S.C. § 1396a.; Supplemental Nutrition Assistance Program, 7 U.S.C. § 2020.

22 *See generally* Jane Perkins, *Q&A: Due Process & Medicaid Notice & Hearing Standards*, National Health Law Program, Mar. 4, 2016, https://healthlaw.org/resource/qa-due-process-medicaid-notice-hearing-standards/ (outlining statutory and constitutional due process differences applying to Medicaid notice and hearing requirements). *See also Waskul v. Washtenaw County Community Mental Health*, 221 F.Supp.3d 913 (E.D.Mich. 2016) (Plaintiffs argued violations of both Constitutional due process protections and Social Security Act due process protections as basis for a preliminary injunction; the court ruled against them on both grounds); *Dolic v. Missouri Dep't of Soc. Servs.*, 493 S.W.3d 22, 29-32 (Mo. Ct. App. 2016) (analyzing whether a notice to beneficiary regarding overpayment and mandatory repayments was sufficient under both the Medicaid Act and Fourth Amendment takings clause).

Use of algorithm-driven decision-making can violate notice requirements.

In general, courts have found that under the "notice" requirements of due process, state agencies must explain to benefits recipients why their benefits or eligibility status has changed. For instance, the Ninth Circuit has articulated, "due process requires notice that gives an agency's reason for its action in sufficient detail that the affected party can prepare a responsive defense."[23] However, the standard to satisfy the notice requirement varies between courts.

According to some courts, notice need only explain how beneficiaries' information resulted in the decision, without requiring that the notices disclose the use of algorithm-driven decision-making tools.[24] For example, in Idaho, a court instructed the state to inform beneficiaries of the reasons for any budget reduction, including what scores the evaluator assigned to a person's needs, and what aspects of the person's life the evaluator actually observed to assign those scores. The court, however, did not require the state to specifically mention the algorithmic-driven budget tool used to analyze the evaluator's scores.[25]

Similarly, a West Virginia court approved a notice that includes "a short, clear explanation for how the budget was calculated," and if applicable, why the budget changed from the prior year.[26] The notice in this case had to explain what information from the assessment or supporting documentation led to any budget change and any policy-based limits, but the notice did not have to refer to the new tool used to calculate the budget.[27] For denials or reductions, the notice to beneficiaries had to describe the documentation the panel reviewed and the information they used to make their decision.[28]

Other courts require notice to also inform beneficiaries about the use of algorithm-driven decision-making tools, while limiting the amount of detail required in a state's notice about its new processes.[29] For example, in Arkansas, a court held that, to be legally sufficient, a notice must clearly explain the specific factors that determined the decision to cut an individual person's benefits, including references to the relevant items on the health assessment used by the algorithm-driven decision-making system.[30] However, the court found that notice need not provide exhaustive explanation about how the involved algorithms are designed and applied.

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23 Barnes v. Healy, 980 F.2d 572, 579 (9th Cir. 1992) (citing *Goldberg*, 397 U.S. at 267-68).

24 *See* K.W. v. Armstrong, 180 F.Supp.3d 703, 706 (D.Idaho, 2016) (Mar. 2016); Michael T. v. Crouch, 2018 U.S. Dist. LEXIS 49598, at *23-24, *34-37 (S.D. W. Va. Mar. 26, 2018); *see also* Houston Federation of Teachers, Local 2415 v. Houston Independent School District, 251 F.Supp.3d 1168 (S.D.Tex., 2017).

25 K.W. v. Armstrong, 180 F.Supp.3d at 719-20.

26 Michael T. v. Crouch, 2018 U.S. Dist. LEXIS 49598, at *23.

27 *Id.* at 21-23.

28 *Id.* at 26.

29 See Excerpted Transcript of Trial (Court's Rulings from the Bench), *Estate of Ethel Jacobs v. Gillespie*, No. 3:16-CV-119-DPM, at *6-7 (E.D. Ark. Oct. 28, 2016) (explaining that adequate notice requires explanation for benefits reduction with a reasonable degree of specificity).

30 *Id.* See also Order, Jacobs v. Gillespie, No. 3:16-CV-119-DPM, (E.D. Ark. November 1, 2016) (requiring notice that is "as specific as reasonably practicable" when explaining the reasons for the benefits reduction "with specific references (as applicable) to the beneficiary's ArPath assessment, the beneficiary's Resource Utilization Group, and the ARChoices system, including the algorithm").

Flaws in a system's design and implementation may make it so unreliable as to be arbitrary and in violation of due process requirements.

In some cases, courts have found that errors in the design of an algorithm-driven decision-making tool or its implementation make the tool's decisions so unreliable as to be unconstitutionally arbitrary. A determination is arbitrary if it is made in a manner that fails to fairly and consistently apply articulated eligibility standards and regulations, leaving the determination to the state's discretion.[31] The state must instead make determinations according to "ascertainable standards"— written standards that provide enough detail about the determination procedure and the tools involved to assess whether the determination was fair.[32]

Idaho's budget tool, for example, was developed using a very limited set of data to inform the tool's estimated cost of services for particular medical needs, resulting in inaccurate and exclusionary determinations.[33] The court observed that the algorithm-driven decision-making tool relied on assessors to manually transcribe each client's assessment data from numerous pages into the tool, creating a high likelihood of data entry errors.[34] Beyond this, the court also found that the state failed to annually recalculate the budget allocations granted by the tool, to check whether beneficiaries had been assigned insufficient budgets, or to check whether beneficiaries had their budgets reduced arbitrarily.[35]

A needs assessment tool used in Oregon is currently being challenged under the same theory that the Idaho court articulated. In the pending case *C.S. v. Saiki*, plaintiffs argue that the state's tool used to determine peoples' benefits under Oregon's developmental disabilities services program improperly embedded an undisclosed formula that automatically determined how many hours of care a person would need, without allowing the assessor to provide further information or make changes.[36] The formula at issue in this case produced significantly varying results that were not consistent with people's relative level of needs. The formula was also not available for public scrutiny. The plaintiffs argue that, "[t]aken together, the opacity of the formula for calculating benefits and the aberrant results, where clients with the same or increased needs saw service reductions, violates both procedural and substantive due process."[37]

By failing to articulate and abide by existing standards, courts may conclude that states used their own discretion to deprive people of benefits to which they are entitled. Where

31 *See* White v. Roughton, 530 F.2d 750, 754 (7th Cir. 1976).

32 "Due process further requires that decisions regarding entitlements to government benefits must be made according to 'ascertainable standards' that are applied in a rational and consistent manner." Pressley Ridge Schools, Inc. v. Stottlemyer, 947 F. Supp. 929, 940 (S.D.W. Va. 1996). *See also* Mayer v. Wing, 922 F. Supp. 902, 911 (S.D.N.Y 1996) (citing *Holmes v. New York City Housing Authority*, 398 F. 2d 262, 265 (2d Cir. 1968), where the court found that the state violated due process by failing to use "fair and orderly" procedures and standards that showed that the decision was not simply an abuse of state discretion).

33 *See* K.W. v. Armstrong, 180 F.Supp.3d 703, 711 (D.Idaho 2016) (explaining that, out of an already small set of 3,512 participant records, the state's budget tool was built using only the 733 records that it found to be complete and reliable).

34 *Id.* at 716-17 (describing how data from approximately 17 pages is transferred onto 2 worksheets but referring to a total of 3 worksheets entered into the budget tool).

35 *Id.* at 712.

36 *See* Plaintiff's Motion for Preliminary Injunction, C.S. v. Saiki, No. 6:17-cv-00564-MC, at *4-7 (D.Or. Apr. 10, 2017).

37 Id. at 8-9.

this level of harm does occur, beneficiaries struggle to gather the information they need to know whether they have a valid claim they should pursue.

Use of algorithm-driven decision-making can violate people's right to a fair hearing.

In addition to notice, Courts have long recognized that due process also requires agencies to provide individuals whose property interests are at stake with the opportunity to be heard "at a meaningful time and in a meaningful manner" prior to an adverse state action.[38] The use of increasingly automated systems raises challenging questions around how this standard should apply.

Court opinions vary as to how and when to afford the right to be heard. Some courts require human review of the algorithmic output before deprivation. For example, in *Michael T. v. Crouch*, the court recognized that one of West Virginia's steps toward overcoming "due process injustices" was to allow for people to immediately report any errors they noticed in their budget calculation to the state for review before having to appeal.[39]

One court requires that people receive the help they need to pursue appeals. In *K.W. v. Armstrong*, the court found that people can only mount an effective appeal if they understand the reasons for their denial, have written standards to reference, and have appropriate help.[40] Importantly, the judge found that, at least for people with developmental disabilities, a meaningful opportunity for appeal included the right to an effective counsel or another appropriate advocate to help them with their appeal and the right to have the state cover the cost of the advocate's labor.[41]

Inaccessible algorithms can violate people's right to ascertainable standards.

People have a specific due process right to ascertainable standards, which provide them enough information to challenge a one-sided determination that deprives them of their private interests.[42] While notice is primarily about informing a person that their benefits are going to be denied or changed, ascertainable standards are about explaining why and how that determination was made. Some courts have found that opaque algorithm-driven decision-making can violate this requirement.

In West Virginia, the state kept secret the exact factors used and the weight assigned to each factor in its Medicaid HCBS algorithm, in addition to the overall methodology for

38 See Goldberg v. Kelly, 397 U.S. 254, 267-69 (1970) (citing *Armstrong v. Manzo*, 380 U.S. 545, 552 (1965)).
39 *See* Michael T. v. Crouch, No. 2:15-cv-09655, 2018 U.S. Dist. LEXIS 49598, at *35 (S.D. W. Va. Mar. 26, 2018).
40 *See* K.W. v. Armstrong, 180 F.Supp.3d 703, 714 ("An appeal is complex under any circumstances but is especially challenging here because the participants receive no explanation for the denial, have no written standards to refer to for guidance, and often have no family member, guardian, or paid assistance to help them").
41 *Id.* at 715-16 ("The Court will order that IDHW submit a plan to ensure that all participants receive a commitment from a suitable representative to assist the participant before proceeding to informal review and taking any action to confirm a budget reduction produced by the budget tool")
42 *See* American-Arab Anti-Discrimination Committee v. Reno, 70 F.3d 1045, 1069 (9th Cir. 1995) (stating that the use of undisclosed information violates due process because it maintains a "one-sided determination of facts decisive of rights," increasing the risk that erroneous deprivations of people's private interests will be left uncorrected).

determining the budget allocated to program participants.[43] The court found that the plaintiffs could not show that they would be irreparably harmed if the state continued to use the algorithm when plaintiffs could not even "meaningfully challenge" it.[44] Its decision did not suggest "that the substance of the benefits determinations for Plaintiffs is impermissible under the Due Process Clause."[45] Rather, due process required that the state provide transparency and enough information to allow beneficiaries to evaluate the process used to inform their individualized budgets.[46]

In a similar case in Houston, terminations of public school teachers were based on an algorithm that scored them based in part on their students' performance. A court found that the undisclosed, unexplained algorithm prevented the teachers from even checking whether their scores were accurate, "and as a result [the teachers were] unfairly subject to mistaken deprivation of constitutionally protected property interests in their jobs."[47] But even if people have access to the algorithm, that might not be enough to meaningfully challenge it. The Arkansas court found that providing the algorithm during discovery met the ascertainable standards requirement, but did not require the state to create a general explanation of how the algorithm works since individual beneficiaries were supposed to receive individualized notice about what specific factors determined their care hours allocation.[48] Algorithms are so complex that knowing specific factors might not be enough to understand all different possible outcomes needed to fairly contest an adverse decision.

B. Adoption of algorithm-driven decision-making processes can violate notice-and-comment rulemaking requirements.

The Administrative Procedure Act (APA) sets forth the procedural requirements that federal government agencies must satisfy when engaging in certain types of activities, including creating and implementing rules for the disbursement of public benefits.[49] Typically, when an agency creates rules, it does so using its informal rulemaking authority under 5 U.S.C. §553, often referred to as *notice-and-comment rulemaking*. Notice-and-comment rulemaking procedures require that an agency give the public notice and opportunity for comment on the proposed rule prior to its adoption, and usually no less than thirty days before its effective date.[50] Additionally, states have enacted statutes that function as analogues to the APA for state administrative rulemaking and actions.[51]

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43 *See* Michael T. v. Bowling, No. 2:15-cv-09655, 2016 U.S. Dist. LEXIS 123749, at *7 (S.D. W. Va. Sep. 13, 2016).
44 *Id.* at 34.
45 *Id.* at 40-41.
46 *Id.* at 33-35.
47 Houston Federation of Teachers, Local 2415 v. Houston Independent School District, 251 F.Supp.3d 1168, 1175-80 (S.D.Tex. 2017) (relying on Banks v. Federal Aviation Admin., 687 F.2d 92 (5th Cir. 1982), which held that procedural due process requires an opportunity for plaintiffs to test the accuracy of the government's test results by verifying or reproducing the test results for themselves through access to the data used to produce those results).
48 See Excerpted Transcripts of Trial (Court's Rulings from the Bench), *Estate of Ethel Jacobs v. Gillespie*, No. 3:16CV00119 DPM at 4-7 (E.D. Ark. Oct. 28, 2016 (on file) (explaining that the law requires that notice related to algorithm-based cuts to attendant care hours explain ascertainable standards only with the amount of information sufficient to show the state's basis for the decision).
49 5 U.S.C. §§ 555-57. For further explanation of the federal rulemaking process, *see generally*, Todd Garvey, Cong. Research Serv., R41546, A Brief Overview of Rulemaking and Judicial Review, (Mar. 27, 2017), *available at* https://fas.org/sgp/crs/misc/R41546.pdf.
50 5 U.S.C. § 553 (2018).
51 For origins and distinctions between federal and model state APAs, *see generally*, Arthur Earl Bonfield, *The Federal APA and State Administrative Law*, 72 Va. L. Rev. 297 (1986).

In the context of algorithm-driven decision-making, agencies may violate the APA or equivalent state statutes by failing to give adequate notice when switching to a new benefits determination system or by altering a program by which they administer benefits. As Professor Danielle Keats Citron explains, "automated policy falls within the APA's definition of a rule, as it articulates general policy that prospectively affects a large number of individuals."[52] There is a strong argument that "[w]hether accomplished overtly through informal rulemaking or covertly through programming, new rules must be issued in accordance with the APA and its state analogues."[53] Put differently, code that embeds a change in an agency's policy to administer public benefits is likely to mark a substantially different approach to enforcing a prior rule, which requires agencies to go through notice-and-comment rulemaking to implement the change in a procedurally proper manner.

Advocates have had some success in APA-based challenges, although the victory can be incomplete if a government agency rectifies its procedural failures while leaving the program the same. In *Arkansas Dept. of Human Services v. Ledgerwood*,[54] plaintiffs challenged the state's promulgation of a rule that changed the process used to determine attendant-care hours for HCBS participants from a system of nurse discretion to an algorithm-driven decision-making tool. Because the agency failed to mention any changes to its methodology in the proposed rule, the plaintiffs had shown enough evidence that the state failed to meet its obligations under the APA and secured injunctive relief preventing further use of the tool.[55] As a result, thousands of people retained their benefits.

Plaintiffs subsequently had a lengthy journey to lasting relief. Four days after securing an injunction against the proposed rule, Arkansas issued an emergency rule to justify continued use of the tool.[56] That emergency rule was quickly enjoined and the state turned to traditional APA procedure to reinstate an amended tool five months later.[57] Public pressure from advocates and other community members during the public comment period resulted

52 Danielle Keats Citron, *Technological Due Process*, 85 Wash. U. L. Rev. 1249, 1289 (2008).
53 *Id.*
54 Arkansas Dept. of Human Services v. Ledgerwood, 530 S.W.3d 336 (Ark. 2017).
55 *Id.* at 345 (Ark. 2017) (upholding a temporary restraining order against the state's 2015 rule because plaintiffs showed that the algorithm caused them irreparable harm while waiting for a valid rule); Arkansas Dept. of Human Services v. Ledgerwood, 571 S.W.3d 911, 913 (Ark. 2019) (explaining that the lower court had granted a permanent injunction in 2017 against the 2015 rule so that the state could not use the algorithm without properly issuing a new rule to adopt the algorithm).
56 *See* Notice of Compliance with Court Order, Arkansas Dept. of Human Services v. Ledgerwood, 530 S.W.3d 336 (Ark. 2018) (No. 60-CV-17-442) (providing the state's emergency rule, ARChoices 1-18 - Resource Utilization Groups (RUGS) Overview).
57 *See* Memorandum Order, Arkansas Dept. of Human Services v. Ledgerwood, 530 S.W.3d 336 (Ark. 2018) (No. 60-CV-17-442) (granting injunctive relief against the state's emergency rule and imposing sanctions for contempt). See also Order Granting Defendant's Motion to dissolve May 14, 2018 Injunction, Arkansas Dept. of Human Services v. Ledgerwood, 530 S.W.3d 336 (Ark. 2018) (No. 60-CV-17-442) (dissolving the 2018 permanent injunction against the 2015 rule because the state followed APA procedures to promulgate its final rule).

in the state overhauling the tool with a more clearly described algorithm.[58] Shortly after, thanks to continued public pressure, the legislature forced the state agency to abandon the algorithm-driven system entirely. Since then, the state has switched to a new system that relies less on algorithms but is still problematic.

The public consultation processes mandated by the Administrative Procedures Act can have useful public effects. Notice-and-comment rulemaking creates an opportunity for meaningful public engagement, builds good faith with stakeholders, and can uncover problems early and help smooth systems' adoption. Moreover, the notice and comment process creates an important moment for the state to articulate its objectives, its methodology, and its plans for updating and auditing its tools on a future basis. All of these steps can help to avoid the errors that can otherwise give rise to litigation as described in this report. And, if the tools prove problematic once implemented, a robust record of public comments could be used in subsequent litigation about whether the agency's action was arbitrary and capricious.

C. Benefits cuts caused by algorithm-driven decision-making can jeopardize the Americans with Disabilities Act's community integration mandate.

> "[Medicaid] provides personal care services for me that allow me to work in the [...] community. [...] Institutions and nursing homes are the only other options for people with disabilities like us, but they cost more money than community-based services do, and they cost us our freedom and independence."[59]
>
> – Larkin Seiler, plaintiff in *K.W. ex rel. D.W. v. Armstrong*

58 The state's emergency measure triggered significant public criticism. *See* Benjamin Hardy, *ARChoices rule blocked*, Arkansas Times (May 31, 2018, 8:00 AM), https://arktimes.com/news/arkansas-reporter/2018/05/31/archoices-rule-blocked. The final rule also faced mass criticism. See Arkansas State Legislature, Senate Public Health, Welfare, and Labor Committee, Exhibit D: Arkansas Department of Human Services, Medical Services: ARChoices 1-18; Resource Utilization Groups (RUGS) Overview and Public Comment (2018), *available at* https://www.arkleg.state.ar.us/Calendars/Attachment?committee=430&agenda=663&-file=Exhibit+D+-+DHS.pdf; Arkansas State Legislature, Administrative Rules Subcommittee, DHS Responses to Public Comments Regarding the ARChoices 3.0 Long Term Services Support (LTSS) Transformation Package Received after Deadline (2018), https://www.arkleg.state.ar.us/Calendars/Attachment?committee=040&agenda=815&file=E12d%20DHS%20MS%20-%20LTSS%20Reform%20Package%20Late%20Comments%20and%20Reponses%20.pdf. Thanks to persistent advocacy by the Legal Aid of Arkansas and numerous other advocates, the state replaced the RUGs algorithm with a new algorithm for which the public had better notice. *See* Kevin De Liban, ARChoices: Take Action, Medicaid Saves Lives, https://medicaidsaveslives.com/2018/10/12/archoices/; 2019 ARChoices Fact Sheet, Legal Aid of Arkansas, http://www.arlegalservices.org/sites/default/files/2019%20AR-Choices%20Fact%20Sheet.pdf.

59 Taylor Nadauld, *Medicaid Mobile makes stop in Moscow*, Moscow-Pullman Daily News (Jul. 31, 2017), https://dnews.com/local/medicaid-mobile-makes-stop-in-moscow/article_98450f18-cd8f-5faf-995c-5300a9fc5174.html (quoting Larkin Seiler).

During the 1990s, the state of Georgia confined Lois Curtis and Elaine Wilson in long-term, locked psychiatric wards. Curtis was a Black woman with intellectual disabilities and Wilson was a white woman with intellectual disabilities. Although they wished to live in the community and their doctors agreed that community placement would be appropriate, they remained institutionalized. Attorney Sue Jamieson of the Atlanta Legal Aid Society brought suit on their behalf alleging a violation of Title II of the Americans with Disabilities Act.

In a powerful decision for Curtis and Wilson, the Supreme Court held that "unjustified isolation" amounts to discrimination on the basis of disability, explaining that such isolation perpetuates stereotypes that people with disabilities are "incapable or unworthy of participating in community life."[60] Writing for the majority, Justice Ruth Bader-Ginsburg underscored that "unnecessary institutional segregation of the disabled constitutes discrimination per se, which cannot be justified by a lack of funding."[61] Wilson has since died, but Curtis remains active in statewide self-advocacy efforts and is a prolific visual artist.

The Americans with Disabilities Act (ADA) creates a "clear and comprehensive national mandate for the elimination of discrimination against people with disabilities."[62] Among its provisions, the ADA makes clear that disabled people should be able to remain in their communities if they so choose.

The ADA's "integration mandate" requires public entities to "administer services, programs and activities in the most integrated setting appropriate to the needs of qualified individuals with disabilities."[63] The mandate defines the most integrated setting as one that enables disabled people to "interact with nondisabled persons to the fullest extent possible."[64] The force of this mandate was confirmed in the Supreme Court's 1999 *Olmstead* decision, which held that lack of funding alone does not make unnecessary institutionalization of disabled people constitutionally permissible.[65]

Plaintiffs who experience a significant reduction in benefits to the point that they may no longer be able to live independently may have a valid ADA discrimination claim under *Olmstead*. In *C.S. v. Saiki*, the Oregon plaintiffs argued that the algorithm-driven system's cuts to their benefits would make them "shut-ins in their own homes or... force[] them into group homes or foster care placements in order to get adequate supports to go out into

60 Olmstead v. L.C. ex rel. Zimring, 527 U.S. 581, 597, 600 (1999).
61 *Id.* at 594 (quoting App. to Pet. for Cert. 31a-42a at 37a).
62 42 U.S.C. § 12101(a)(2), (b)(1).
63 28 C.F.R. § 35.130(d) (1998).
64 28 C.F.R. app. B to Part 35.130 (2012).
65 Subsequent courts have held that *Olmstead's* interpretation of the integration mandate also applies when states put people with disabilities merely at risk of institutionalization, even if they are not institutionalized at the time or were not institutionalized before. *See, e.g.,* Fisher v. Okla. Health Care Authority, 335 F.3d 1175 (10th Cir. 2003).

the community".[66] The court stayed the *Olmstead* claim while the parties work to improve the state's assessment tool to address design flaws and other problems with the program.

Similarly, in *K.W. v. Armstrong*, the Idaho plaintiffs argued that any cuts to their benefits made by the algorithm-driven system would be so severe that they created a "serious risk of institutionalization."[67] Like in *Saiki*, the *Olmstead* claims in Armstrong are on hold while the parties develop and implement a new system.[68] For plaintiffs asserting an *Olmstead* claim, the key question turns on whether the state's reduction in benefits places them at risk of institutionalization, so this question will resurface when the parties' new system is implemented.

Plaintiffs in *Brandy C. v. Palmer*, however, lost on their *Olmstead* claim, with the court granting summary judgment to the Florida agency.[69] In *Brandy*, plaintiffs argued that the state's new algorithmic allocation tool and individualized Significant Additional Needs process would be likely to reduce their benefits so severely that they would be at risk for institutionalization.[70] The court found that the plaintiffs were alleging a risk of terminations that was too speculative because no one had actually lost any benefits or was even likely to lose benefits.[71]

At the end of 2019, the D.C. Department of Health Care Finance hired a private company that started using an algorithm-driven assessment tool to make eligibility determinations for the Elderly and Persons with Disabilities Waiver. As soon as the tool went into effect, hundreds of disabled people and older people saw drastic cuts in their home care hours, creating gaps for people who otherwise depended on consistently available care. Others found their eligibility terminated after reassessment.[72] Like people with disabilities in other states, these D.C. residents fear that ever-decreasing care hours will lead to institutionalization in nursing facilities and residential centers and all that comes with institutions – segregation, isolation, and increased risk of early death, exposure to illness, abuse, and neglect.[73]

66 Motion for Preliminary Injunction, *C.S. v. Saiki*, No. 6:17-cv-00564-MC , at *18-22 (D.Or. April 10, 2017).
67 K.W. v. Armstrong, 180 F.Supp.3d 703, 721-722 (D.Id. 2016).
68 *Id.* at 722.
69 *Brandy C. v. Palmer*, 2018 WL 4689464 (N.D.Fla. 2018)
70 *Id.* at 1.
71 *Id.* at 2.
72 Tara Bahrampour, *District residents say cuts in Medicaid home care hours leaves them vulnerable*, Wash. Post. (Mar. 8, 2019, 5:15 PM), https://www.washingtonpost.com/local/social-issues/district-residents-say-cuts-in-medicaid-home-care-hours-leave-them-vulnerable/2019/03/08/bdbe1878-3eb5-11e9-922c-64d6b7840b82_story.html.
73 *See generally* U.S. Gov't Accountability Off., GAO-19-433, Nursing Homes: Improved Oversight Needed to Better Protect Residents from Abuse (2019), https://www.gao.gov/products/GAO-19-433 (providing highlights and a full report about abuse citations in nursing facilities).

D. Proprietary claims should not prevent beneficiaries from accessing the information necessary to understand and challenge decisions made about them.

In many cases, advocates challenging algorithm-driven decision-making face additional hurdles when vendors assert that the tools are proprietary and cannot be reviewed. In the Idaho case, the state used an interview booklet to collect data about beneficiaries' needs and risks and entered the booklet's data into the budget tool for calculation.[74] The state argued against disclosure of the interview booklet during Medicaid hearings because the copyright was owned by a private company that would "suffer substantial economic loss" if people could copy the booklet and learn to adjust their interview answers for better outcomes.[75] The court ultimately directed the state to allow beneficiaries to view all parts of the booklet necessary to challenge a budget reduction, and to protect the disclosed material with a protective order.[76] This issue frequently resurfaces in broader public policy questions around how to meaningfully promote algorithmic accountability.

There are particularly strong grounds for overcoming proprietary claims in cases involving public benefits. In such instances, the algorithm-driven system in question has been built using taxpayer money, to execute a government function in which program beneficiaries have firmly-established due process rights, including the right to notice, ascertainable standards, and appeal.[77]

States adopting algorithm-driven decision-making systems should address these considerations at the time they contract with an outside vendor. As Hanna Bloch-Wehba has observed, "states differ widely with regard to how public contracts should treat intellectual property rights. Some states generally treat these contracts as conferring licenses upon state actors, while others, by default, allocate full ownership of intellectual property to the state."[78] This is an important intervention point for state decision-makers, as they must be able to explain and give access to the tool to meet the standards required by due process.

In the litigation context, some courts have reconciled the tension between due process rights and vendors' proprietary interests by issuing protective orders.[79] However, this

74 *See* K.W. v. Armstrong, 180 F.Supp.3d 703, 716 (D.Idaho, 2016).
75 *Id.* at 717.
76 *Id.*
77 *See* Kate Crawford & Jason Schultz, *AI Systems as State Actors*, 119 Colum. L. Rev. 1941, 1951 (2019) ("procedural due process claims were able to overcome some of the arguments that disclosure of the technical workings of the systems would violate trade secrecy laws, especially when central to the question of how various public benefits determinations were made"); AI Now Institute, Litigating Algorithms: Challenging Government Use of Algorithmic Decision Systems 8 (2018), https://ainowinstitute.org/litigatingalgorithms.pdf (explaining that there were successful "constitutional and administrative due process claims that challenged the lack of notice, explanation, and ability to comment or contest the changes to public benefit systems," until systems became more widespread).
78 *See* Hannah Bloch-Wehba, Access to Algorithms, 88 Fordham L. Rev. 1265, 1307, https://ir.lawnet.fordham.edu/cgi/viewcontent.cgi?article=5649&context=flr.
79 *See e.g.*, K.W. v. Armstrong, 180 F. Supp. 3d 703, 717 (D. Idaho 2016) (explaining that protective orders in particular cases could be employed to "substantially mitigate[] – and perhaps entirely alleviate[]" possible harm to owners of proprietary information); Sonia K. Katyal, *The Paradox of Source Code Secrecy*, 104 Cornell L. Rev. (forthcoming) (manuscript at 1276-77, https://www.lawschool.cornell.edu/research/cornell-law-review/upload/Katyal-final.pdf ("Thus, one cluster of solutions involves protective orders, in-camera review, trade secret analysis by mutually-agreed-upon third-party experts or special masters, and other solutions."); Rebecca Wexler, *Life, Liberty, and Trade Secrets: Intellectual Property in the Criminal Justice System*, 70 Stan. L. Rev. 1343 (2018) (dis-

approach gives program beneficiaries access to necessary information *only once they are in litigation and only to the people litigating*, instead of allowing program participants access to meaningful information about their benefits determinations at the critical time that the decision is made. Additionally, while protective orders give litigants much-needed access to information, they legitimize the need for secrecy and therefore do not solve broader concerns about transparency and accountability.[80] Litigants and the communities they serve will therefore have to weigh their need for access against the potential of reinforcing secrecy when deciding whether protective orders are appropriate in their specific cases.

Advocates may also want to consider making open records requests and, if necessary, litigating under the Freedom of Information Act (FOIA) or its state equivalents to obtain documentation explaining the functioning of an algorithmic benefits tool.[81] FOIA and some states' public information laws define software as a type of record subject to disclosure,[82] and in some cases, impose limits on attempts to evade disclosure through restrictive contracts with private vendors.[83]

IV. Next Steps and Recommendations

> "I mean [I] want these systems to not replicate and iterate on prejudicial, bigoted human biases, and I want them to actively reduce the harm done by those things. I mean I want tools and systems crafted and laws drafted not just by some engineer who took an ethics class once or some politician who reads WIRED every so often, but by collaborative teams of people with interoperable kinds of knowledge and lived experience. I mean I want politicians recognizing that

cussing use of protective orders to address trade secrets concerns).

80 For a summary of critiques of protective orders for discovering trade secrets, *see* Bloch-Wehba, *supra* n.78, at 1308-12.

81 *See id.* at 1298-1303; Robert Brauneis & Ellen P. Goodman, *Algorithmic Transparency for the Smart City*, 20 Yale J.L. & Tech. 103, 153-160 (2018).

82 *See* Brauneis & Goodman, *supra* n. 81, at 109-10.

83 *See* Bloch-Wehba, *supra* n.78 at 1303 n.280 and n.281 (citing *Office of Health Care Access v. Freedom of Information Commission*, Nos. CV030521573S, CV030521574S, 2005 WL 1095361 at *8 (Conn. Super. Ct. Apr. 19, 2005) (recognizing that Connecticut's open records law requires agencies to consider whether a proposed system or software will provide for rights under FOIA prior to acquisition). *See also* Millions March NYC v. N.Y. City Police Dept., No. 100690/2017, at *10 (Sup. Ct. Jan. 11, 2019), https://iapps.courts.state.ny.us/nyscef/ViewDocument?docIndex=4QmPYG6IvyS9ItQf69pMKg== (finding that prices and product features of a surveillance technology were not trade secrets and their disclosure would not cause competitive harm or substantial injury).

> the vast majority of people do not in fact understand [companies'] algorithms or intentions, and that that is, in large part, because the people in charge of those entities *do not want us to understand them."*
>
> – Damien Patrick Williams, Virginia Polytechnic Institute and State University[84]

States turning to algorithm-driven decision-making typically claim they are doing so to advance a data-driven, standardized and efficient approach to public systems, or to better detect, prevent, and respond to fraud. In some instances and more troublingly, these claims may mask a hidden motivation to decrease the costs of public benefits programs, allowing policymakers to obscure broader cuts under the veneer of new technology. For instance, in Indiana, the Family and Social Services Agency publicly described its intent to automate welfare eligibility determinations as a means of combating fraud and reducing wasteful spending; meanwhile, the governor who oversaw development of the new system explicitly stated that he wanted to drastically reduce the number of people receiving welfare altogether.[85]

When algorithm-driven decision-making goes wrong, it harms people who lose vital benefit supports and those who may rely on such supports in the future. These harms are real and deeply felt. In Arkansas, the change to an algorithm-driven system resulted in an *average* 43% reduction in home support hours—the difference between a person receiving 8 hours of attendant care per day, which could enable greater independence and allow a family caregiver to leave home and go to work, and just 5.5 daily hours of care.[86] Participants in that program claimed that they were forced to go without food, remained in soiled clothes, faced an increased risk of falling, and considered moving to nursing facilities.

Individual client representation and impact litigation can curb the impact of unfair algorithm-driven decision-making processes. Nevertheless, legal advocacy cannot effectively challenge the harms of increasingly automated decision-making for marginalized communities if states can evade accountability for underlying policies and processes. Some applications of algorithm-driven decision-making may be so dangerous that no regulations can sufficiently mitigate the harmful effects, and advocates might instead focus on preventing their adoption.

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84 Damien Patrick Williams, 2019: *A Technoccult Future Worth Thinking About*, A Future Worth Thinking About (Jan. 1, 2019), http://www.afutureworththinkingabout.com/?p=5337.

85 *See* Virginia Eubanks, *Automating Inequality: How High-Tech Tools Profile, Police, and Punish the Poo*r 45-49 (St. Martin's Press, 2017).

86 *See* Arkansas Dept. of Human Services v. Ledgerwood, 530 S.W.3d 336, 339-40 (Ark. 2017).

In keeping with the foundational principle of *Nothing About Us, Without Us* that has long guided disability rights and disability justice advocacy, we propose the following starting points to various stakeholders who wish to prevent or respond to the potential harms of algorithm-driven tools in benefits determinations.

State governments:

- Understand that when you develop, acquire, and deploy algorithm-driven assessment and decision-making tools, these are policy decisions. Algorithmic tools can directly impact people's lives and present unique oversight and legal challenges. They cannot be treated as a simple matter of procurement.

    - Ensure that algorithm-driven decisions align with the government's policy objectives and legal obligations. Algorithmic tools embed values and policy priorities within their design, and cannot be handled like a simple technology purchase.
    - Accept that algorithmic tools may not be appropriate for all decision making, or may only be fit for purpose when supplemented by human decision-making.
    - Remember that you are entrusted with building a system that respects and serves those who are entitled to benefits. Bend technology to meet your obligations instead of the other way around.

- Fulfill your obligations under the Administrative Procedures Act and your state's equivalent law. This includes providing the public notice and an opportunity to comment around acquisition and deployment decisions.

- Plan for the complete lifecycle of a tool. Institute a process through which algorithmic tools are developed, purchased, deployed, and routinely audited in accordance with the law and policy-making best practices.

    - Consider intellectual property rights when selecting specific tools. Any contract you have with vendors should protect your ability to examine the tool yourself and to publicly disclose what tools you use, how they work, and what data they rely upon.
    - Ensure that any algorithmic tool is built on substantial, reliable, and relevant data. Tools that fail to have large, representative data sets underpinning their outputs are vulnerable to error and subsequent legal challenges.
    - Carefully test and analyze algorithm-driven assessment and decision-making tools to ensure that they:

        - Are fit for purpose, and are making benefits determinations that meet individual needs,
        - Do not risk or result in institutionalization of individuals in violation of their ADA right to stay in their communities if they so wish,
        - Do not perpetuate discriminatory biases or unfair treatment.

- Audit algorithm-driven assessment and decision-making tools regularly.
    - Formulas, data sets, and their subsequent outputs must be reviewed on a regular basis to ensure they operate fairly, correctly, and as intended.
    - Consistently update your tools. Any algorithm-driven assessment and decision-making tool requires ongoing maintenance. Data can become stale quickly.

- Create a system that meets individuals' constitutional right to receive due process in decisions about their benefits.

    - Provide people with notice and a chance to appeal any individual benefits determinations before those decisions go into effect.
    - Provide people with an explanation of how their determination was made, including information about how any algorithms work.
    - Provide people with an explanation of how any algorithms and other formulas were applied to their information in particular, including what factors were determinative in their ruling.
    - Provide assistance to those with a disability that may prevent them from being able to fairly represent their interests on their own.

- Be transparent with benefits recipients, the public, and government decision-makers.

    - Affirmatively release information about your tools, even if not required to do so by court order or in response to a public records request.
    - Welcome oversight in public forums, like legislative or executive branch hearings.
    - Build relationships with disabled people, advocacy organizations, and legal representatives outside of formal or mandatory processes so that you may benefit from their experience and recommendations on an ongoing basis.

Attorneys:

- Get to know your clients. Follow the leadership of disabled people and their family advocates.

    - Listen to what your clients say they need and how they are directly impacted by benefits policies.
    - Collaborate and partner with disabled people who have legal, policy, technical, and other relevant expertise.

- Look to published scholarship and caselaw.

    - There is a growing body of academic research, policy advocacy, and press reporting around the use of algorithm-driven decision-making tools. Identify legal and technical experts with whom you can consult, including the litigators and organizations cited in this report.

    - Stay up to date with research and policy recommendations published by nonprofits and advocacy organizations that specialize in tracking trends, best practices, and evolving norms in algorithmic accountability.

- Understand that your advocacy may need to rely on the court of public opinion as much as it does the courtroom. Take a client-centered approach to how much of the plaintiffs' stories should be shared in each venue.

    - Identify media contacts and publications who would work with you and your clients so your clients can drive the narrative.
    - Reach out to legal and disability justice organizations who welcome guest-written content or cross-share so that plaintiffs' stories reach a broader audience.
    - Engage lawmakers. Work with clients to share their stories with elected officials, putting a human face on the consequences of the program you're challenging. Explain the barriers to administrative appeals and litigation and why Congressional oversight is crucial.

- Consider other beneficiaries who may have been affected in the same manner as your clients.

    - Many other beneficiaries may not have resources or a platform to share their story. Seek out ways to work with these beneficiaries. They and your clients can help bolster each other's efforts.
    - Facebook groups, online disability community forums, law school clinics, disability self-advocacy organizations, parent or family advocacy organizations, and regional Legal Aid offices may be useful locations to identify similarly situated beneficiaries to underscore the systemic nature of the problem you're alleging.

Self-Advocates and Family Advocates:

- Speak out online and in your community. You have the right to go to town, county, and state government meetings to share your story and voice your concerns. Many legislative and executive branch meetings are open to the public. Here are some examples of spaces where you can ask to be heard:

    - Town, City, or County Council meetings
    - Town or County Disability Commission meetings
    - State Developmental Disabilities Council meetings
    - State's Health & Human Services Department listening sessions

- Engaging in social media outlets like Twitter, Instagram, and Facebook may help you connect with other advocates who care about the same issues and educate people on the problems you're encountering. You can follow and add to hashtags like #CripTheVote, #DisabilityRights, and #DisabilityVisibility. You may also want to search for relevant Facebook groups to join based on particular topics or regional areas.

- Share your story with the press. You can write an op-ed or letter to the editor about cuts to your and other people's benefits. Most publications share information about how to submit op-eds and letters to the editor on their websites. You can contact journalists who write about benefits, health care, and disability issues and ask them to write about algorithm-driven decision-making in benefits. Many journalists - for local, state, and national outlets - share their contact information online.

- Contact your legislators. You have the right to contact your state's lawmakers and any other elected officials to advocate about new tools that may impact your benefits. When you write, call, or send social media messages to your elected officials, it's helpful to share information about who you are, why the issue is important to you, and what you want them to do. You can look up who your elected officials are and how to contact them on websites like My Reps: https://myreps.datamade.us/

- Seek legal advice. If you can't afford a lawyer on your own, some organizations that may provide free support include the following:

    - Your state's protection and advocacy organization. These organizations have names like Disability Rights California or Disability Rights Center of New Hampshire. They give free legal assistance to people with disabilities.
    - Your local legal aid organization. These organizations have names like Legal Aid Society or Legal Services. They give free legal assistance to low-income people.
    - A legal clinic at a law school. These organizations are based out of law schools, and focus on specific topic areas. Legal clinics that might help could be called something like Poverty Law, Health Law, Disability Rights Law, or Economic Justice, for example.
    - A pro bono program in your state. These programs are usually run by the state's lawyers association, for example the Maryland State Bar Association or the Kansas Bar Association. Lawyers who work for private firms usually volunteer to help people who can't afford to pay a private lawyer on their own.

- If your benefits have been cut, keep track of everything related to your case. Save letters and emails. Write down information from any phone calls with the agency. If you decide to appeal or go to court, this information can be extremely important for you and your lawyer.

- If you have a disability, you can join a self-advocacy organization. You are not alone! In a self-advocacy organization, you can find support, work together on your own case, and strategize for policy advocacy in your state. Here are some examples of self-advocacy organizations:
    - People First organizations. These are organizations by and for self-advocates with intellectual and developmental disabilities.
    - Autistic self-advocacy organizations. These are organizations by and for autistic self-advocates.
    - National Federation of the Blind or American Council of the Blind chapters.
    - Organizations for people in mental health recovery, who are peers, have lived experience, or are consumers of mental health services.
    - ADAPT chapters.
    - Associations of people who self-direct services.

- If you are a family member of a person with a disability, you can join a family support organization. Some examples of these organizations include the following:

    - Chapters of the Arc
    - Your state's Parent Training & Information Center
    - Chapters of the Sibling Leadership Network
    - Chapters of the Autism Society

APPENDIX A
ABOUT THIS PAPER AND PROJECT

This paper was drafted by the **Center for Democracy and Technology** with the support of the **Ford Foundation**. It is part of a project that seeks to raise awareness about the impact of algorithmic bias on people with disabilities, including identifying risks, evaluating existing legal protections, and forging collaboration between disability rights and AI fairness advocates.

In January 2020, we convened a symposium on strategic advocacy against the harms of algorithm-driven decision-making on disabled people. We invited attorneys and plaintiffs from several of the cases we have highlighted in this paper, along with advocates and researchers interested in learning from and building on their advocacy. Among other topics, workshop sessions focused explicitly on development of adequate remedies to address harms already caused, as well as prophylactic approaches to prevent similar future harm. Participants are committed to centering perspectives and leadership of directly impacted people from multiply-marginalized communities in devising advocacy priorities and strategies, both in the context of individual client representation and in systemic advocacy.

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With thanks to the many who attended the January 2020 symposium, including the following advocates and community members:

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With appreciation for the Georgetown Law institute associates, events staff and contractors, and law student research assistants who assisted with planning and event support, including Albena Asenov, Anthony Minutella, DeVan L. Hankerson Madrigal, Eduardo Gonzalez, Jeff Gary, Kara Dubbs, Kim Gorman, Kimberly McKarin, Mary Lou Miller, Melissa Dull, Nia-Melanie Moise, Sahar Takshi, Sarah Koslov, Susan Wilcox.

Paper Acknowledgements

With gratitude for review and comments from Aaron Rieke, Damien Patrick Williams, David Machledt, Elizabeth Edwards, Emily Paul, Emma Weil, Hannah Bloch-Wehba, Henry Claypool, Kevin De Liban, Ming Hsu, Natasha Duarte, and Ritchie Eppink.

APPENDIX B

CHART:
States' Use of Algorithm-driven Decision-making Tools for Benefits Determinations

See CDT's website for a downloadable and screen-reader accessible version of this chart in Microsoft Word format.

Link here.

APPENDIX B

STATES' USE OF ALGORITHM-DRIVEN DECISION-MAKING TOOLS FOR BENEFITS DETERMINATIONS

This appendix describes representative examples of states' tools in use as of September 2020 that are confirmed or suspected to involve algorithm-driven decision-making. We define "algorithm-driven decision-making" as the application of rules, formulas, or sets of steps to carry out a task traditionally handled by humans. Here, this process decides or recommends the level of care (LOC) needed, allocation of benefits, or potential for fraud.

Key of Common Tools	
interRAI-Home Care (interRAI-HC) and other interRAI tools	A few algorithms are applied in the interRAI. The Resource Utilization Group (RUG) classifies people with similar functional abilities into the tier group that uses the same amount and type of resources. The Method for Assigning Priority Levels (MAPLe) uses decision-tree logic to categorize people into one of 5 service priority levels. The Resource Intensity for Children and Youth (RIChY) algorithm chooses pathways according to service needs and data combinations that indicate risk.
Supports Intensity Services (SIS; SIS-C for ages 5 to 15; SIS-A for ages 16 and older)	The SIS was developed for people with intellectual disabilities (ID) and developmental disabilities (DD), specifically designed to measure the pattern and intensity of supports needed in at least three major life areas. States apply their own resource allocation algorithms or rules to the SIS to translate the SIS results into an individualized fee schedule.
Vulnerability Index-Services Prioritization Decision Assistance Tool (VI-SPDAT)	The VI-SPDAT's ranking algorithm scores candidates from 1 to 17 based on level of vulnerability. Scores over 7 qualify for permanent housing, while scores between 4 to 7 qualify for limited support. A second algorithm matches people with high vulnerability scores to available housing. The results inform the city's housing decisions. Authority: 24 CFR §§578.3 and 578.7.
Data matching system	To prevent fraud in benefits determinations, several states use systems that automatically exchange data with other state and federal electronic data sources. This exchange verifies income and receipt of other public assistance and flags disqualifying information such as criminal history. Authority: 45 CFR § 205.51.

Tool	**Programs in Which Tool is Used**	**Description of Tool and Human Review and Authorities for Reference**
	ALABAMA	
Family Assistance Certification, Employment & Training System (FACETS)	Family Assistance Program	The state's Comprehensive Claims System for benefits recovery activities interfaces with FACETS, which certifies that payments are issued correctly and to prevent fraud. Workers factor the FACETS certification results into determinations. Authority: 45 CFR §205.36.
	ALASKA*	
	ARIZONA	
Health-e-Arizona Plus	Medicaid, Nutrition Assistance, and TANF; Elderly, Physical Disability, and DD HCBS waivers	If the system's data matching cannot verify all data, assistors help customers submit application materials online. Assistors track progress and step in when the system's access to electronic data sources is insufficient. Authority: 42 CFR §433.111; 45 CFR §205.36.
	ARKANSAS	
Arkansas Independent Assessment (ARIA)	HCBS Waivers for the elderly, physically disabled, and people with DD, ID, and severe mental illnesses	Arkansas applies the ARIA—which replaced RUGs in 2018 and is based on Minnesota's MnCHOICES—to classify LOC into service tiers. Tiers rely on algorithms to different extents based on the population seeking services. Authority: Arkansas Independent Assessment (ARIA) New-18 Manual
Department of Human Services eligibility systems	Transitional Employment Assistance, Arkansas Works, and SNAP	The systems exchange and process eligibility information with each other without manual intervention. The state claims that removing human involvement will not cause loss of coverage for disabled people. Authority: 45 CFR §205.36.
	CALIFORNIA	
California Statewide Automated Welfare System (CalSAWS)	CalWORKs, CalFresh, Medi-Cal, state foster care program, state refugee program, and county medical services	CalSAWS computes benefits and pre-populates reports for prospective redeterminations based on anticipated income. Pending bill SB 285 requires analysis of how CalSAWS can help users initiate other government benefit applications. Authority: 42 CFR §433.111; 45 CFR §205.36; Cal. Welf. & Inst. Code Ch. 4.1 and §11265 et.seq.
Universal Assessment Tool (UAT)	Medi-Cal's In-Home Supportive Services, Community-Based Adult Services, and Multipurpose Senior Services	The automated UAT evaluates medical needs, routine daily functional needs, and consumer characteristics. It would combine the three separate data systems to help better coordinate care. The statute mandating the UAT's development was just chaptered in October 2019 and does not describe human review processes. Authority: Cal. Welf. & Inst. Code §9805.
VI-SPDAT	Homeless Crisis Response System for Los Angeles	The data is fed into the Los Angeles Homeless Management Information System. VI-SPDAT failed to prioritize people in Los Angeles who were demonstrably in need of housing support.
	COLORADO	
SIS	Support Living Services, HCBS waivers for people with DD	See Key. People are reassessed if they challenge their results within 30 days of the first assessment. Authority: 10 Colo. Code Reg. 2505-10-8.612.
Colorado Benefits Management System (CBMS)	Low Income Energy Assistance Program (LIEAP), child care, SNAP, TANF, WIC, Medicaid, RTD LiVE	The CBMS is a database system used to screen, apply, and receive determinations. It replaced call centers with a chatbot. Case review appears to only occur through an informal dispute resolution conference with the local office. Authority: 10 Colo. Code Reg. 2506-1-4.100.
	CONNECTICUT	
interRAI-HC	Acquired Brain Injury (BI), Persons with Autism, Comprehensive Supports, and Mental Health HCBS Waivers	The agency is responsible for establishing quality assurance procedures to review client records without identifiers. Authority: Conn. Gen. Stat. §17b-342, Conn. Agencies Regs. §17b-342-1.
	DELAWARE	
DCIS II	TANF, cash assistance, Medicaid, child care, and food stamps	The system automates interviewing, data matching, eligibility determination, benefit calculation, and benefit issuance for over 100 variations of its public assistance programs. Authority: 16 Del. Admin. Code §2000 et.seq.
	DISTRICT OF COLUMBIA	
interRAI-HC	Elderly & Persons with Disabilities Waiver, Medicaid Personal Care Aide, Adult Day Health Program, and other LTCSS excluding ID/DD	DC's Department of Health Care Finance's Feb. 2019 report said that it would establish an internal review process after implementing interRAI-HC led to terminations and reductions while LOC needs remained the same. It is unclear whether this review process has begun. Authority: 29 DCMR §4201.4; DC Code §§1-307.02 and 7-771.01.

* It is unclear how current or upcoming tools in this state use algorithm-driven decision-making to determine eligibility for government assistance or services.

DC Access System (DCAS)	SNAP	The DCAS incorporates the existing Automated Client Eligibility Determination System (ACEDS). It processes eligibility through expedited application, data matching, and overpayment processing. The system has a history of increasing discrepancies and error rates. Authority: 45 CFR §205.36.
FLORIDA		
Automated Community Connection to Economic Self Sufficiency (ACCESS) System	SNAP, Medicaid, and TANF	The ACCESS system applies business rules engines to automate calculates used to determine eligibility at the application and renewal stages, and it performs data matching. Workers ultimately authorize the determinations. Authority: 42 CFR §433.111; 45 CFR §205.36.
GEORGIA		
SIS	Comprehensive Supports and Georgia New Options HCBS Waivers	See Key. Authority: Ga. Comp. R. & Regs. 82-3-1-.08.
HAWAII		
interRAI-HC	HCBS waivers for elderly and physically disabled people	See Key. Authority: Haw. Code R. §§11-800-24 and 17-1720-18; Haw. Rev. Stat. §346D-3.
SIS	HCBS waivers for people with DD	See Key. Families can get an informal review. Authority: Haw. Code R. § 11-881-18; Haw. Rev. Stat. §§333F-6 and 346D-3.
Hawaii Automated Welfare Information (HAWI), Hawaii Automated Network of Assistance (HANA) systems	TANF, SNAP, child care, and employment support	HAWI and HANA perform intrastate data matching to determine eligibility, control payment, and track clients. Staff use the determinations made by both systems to authorize benefits. Authority: Haw. Code R. §17-681-51; 45 CFR §205.36.
IDAHO		
Idaho Benefits Eligibility System (IBES)	Medicaid, SNAP, TANF, and child care programs	The IBES applies resource allocation rules to each person's tailored application. It verifies income through E-Verifi, the state's data matching tool that aggregates data. The IBES performs auto-enrollment and auto-verification. As of 2018, the state planned to slightly scale back auto-enrollment and auto-renewal. Authority: 42 CFR §433.111; 45 CFR §205.36.
ILLINOIS		
Illinois Integrated Eligibility System (IIES)	Medicaid, SNAP, and TANF programs	The tool's data matching and programmed rules auto-populate application fields and select automatic or regular eligibility processes. It allows workers to focus on reviewing information in auto-populated applications rather than inputting information. Authority: 42 CFR §433.111; 45 CFR §205.36.
INDIANA		
interRAI-HC	Aged & Disabled and Traumatic BI HCBS waivers	See Key. The state may initiate an independent LOC assessment to determine whether to continue reimbursement at the same level. Authority: 405 Ind. Admin. Code §§2-4-22 and 2-17-6; Ind. Code §12-10-10-6.
Indiana Eligibility Determination and Services System (IEDSS)	SNAP, TANF, IMPACT job training, and Medicaid	In 2017, the IEDSS replaced the Indiana Client Eligibility System (ICES) and another family assistance system used together to determine eligibility and to manage workflow, respectively. When ICES became automated, denials of benefits applications rose sharply. Authority: Ind. Code §§12-8-1.5-14; 42 CFR §433.111; 45 CFR §205.36.
IOWA		
interRAI ChYMH	Children's Mental Health and Habilitation HCBS waivers	See Key. The clinical team confirms the accuracy of RIChY's assessments. The Medical Services Unit (MSU) annually certifies the LOC using the tool and supporting documentation. Authority: 441 Iowa Admin. Code §§83.122 and 78.27 .
interRAI-HC	AIDS, Health and Disability, BI, Physical Disability, and Elderly HCBS waivers	See Key. The MSU is responsible for reviewing the LOC determination based on the completed assessment and supporting medical documentation. Authority: 441 Iowa Admin. Code §§83.2, 83.22, 83.42, 83.82, and 83.102.
SIS-C and SIS-A	HCBS waivers for people with ID	See Key. Pending bills expand human review. SF156 and HF555 require independent assessors to administer a conflict-free uniform SIS assessment. SF2140 and HF2264 amend all Medicaid managed care organization contracts to include a process to dispute SIS scores. Authority: 441 Iowa Admin. Code §§83.60 and 79.1.
Eligibility Integrated Application Solution (ELIAS)	Medicaid, CHIP, and food assistance	ELIAS replaced the Automated Benefits Calculation System to better apply the state's eligibility rules, as the existing system proved inaccurate and could not be integrated with new systems. Authority: 42 CFR §433.111; 45 CFR §205.36.
KANSAS		
Medicaid Functional Eligibility Instrument-LOC (MFEI-LOC), using interRAI-HC	Frail Elderly, Physical Disability, Program of All-inclusive Care for the Elderly (PACE), and Traumatic BI HCBS Waivers	See Key. Authority: Kan. Admin. Reg. §26-8-5; KS Dept. for Aging and Disability Services Policy No. M2018-128.
Kansas Eligibility Enforcement System (KEES)	Medicaid, food assistance, CHIP, TANF, LIEAP, employment services, child care subsidies	KEES applies rules to match determination correspondence to eligibility criteria. It performs data matching and initiates annual redeterminations. It scans barcoded annual reviews and links them to cases, generating a system task to alert the eligibility staff to review. Authority: 42 CFR §433.111; 45 CFR §205.36.
KENTUCKY		
SIS	Supports for Community Living Waiver	See Key. Authority: 907 Ky. Admin. Reg. 12:010.
Benefind	Transitional Assistance Program, CHIP, SNAP, and Medicaid	This tool applies eligibility rules within the Kentucky Health Benefits Exchange. Assisters aid the application process. Authority: 900 Ky. Admin. Reg. 10:200; 921 Ky. Admin. Reg. 2:040.
LOUISIANA		
interRAI	Community Choices Waiver	See Key. Authority: La. Admin.Code tit. 50, §XXI.8107.
SIS	Residential Options, Supports, New Opportunities, and Children's Choice HCBS Waivers	See Key. The state's implementation of the tool includes an exceptions review process with the ability to request additional supports. Authority: La. Admin. Code tit. 50, §§XXI-13704 and XXI-16107.

* It is unclear how current or upcoming tools in this state use algorithm-driven decision-making to determine eligibility for government assistance or services.

MAINE		
Maine Automated Client Eligibility System (ACES)	TANF	ACES determines eligibility monthly by evaluating applicant information against designated criteria and through data matching. Authority: 10 144 Me. Code R. Ch. 331; 45 CFR §205.36.
MARYLAND		
Adult Day Care Assessment & Planning System (ADCAPS), using interRAI-HC	Aging and Adults with Medical Disabilities HCBS Waiver	Aside from reviewing and updating when there is a significant change, the state has a quality assurance program to audit. Authority: Md. Code Regs. §§10.09.07 and 10.09.27; Md. Code, Hum. Servs. §4-206.
Maryland Automated Benefits System (MABS)	Unemployment Insurance	MABS interfaces with related unemployment insurance systems that process tax payments and scan documents. Supervisory reviews of claims and adjustments are required. Authority: Md. Code, Hum. Servs. §5-206; 45 CFR §205.36.
Maryland Client Automated Resource and Eligibility System (CARES)	All Family Investment Administration public assistance programs	CARES functions include maintaining individual and case information, determining technical and financial eligibility, and calculating and initiating benefits issuance. Authority: Md. Code, Hum. Servs. §5-206; 45 CFR §205.36.
SIS-C	Community Pathways, DD Waiver, Physical Disability, Mental Disability	Upon request, the state will review whether its standard administration procedures were followed. It will not review the score itself because of the professional training required to assign an accurate rating. Authority: Md. Code, Health-Gen. §7-403, Md. Code, Hum. Servs. §4-206.
MASSACHUSETTS*		
MICHIGAN		
interRAI-HC	Habilitation, Choice, and Health Link HCBS Waivers	See Key. Decisions about reviewed grievances must not made by anyone involved in previous levels of review and determinations. Authority: Mich. Comp. Law §400.109c and 400.109i.
SIS	HCBS waivers for people with ID/DD	See Key. The same review procedures above are followed. Authority: Mich. Comp. Law §400.109f.
Michigan Integrated Data Automated System (MiDAS)	Unemployment Insurance	MiDAS flags discrepancies in a person's automated file as potential fraud and pre-populates questionnaires that trigger automatic fraud determinations for inadequate responses. The state claims the system is no longer fully automated but it is unclear how it offers human review. Authority: Mich. Comp. Law §§400.83 and 421.6g; 45 CFR §205.36.
Michigan's fugitive felon matching system	Food Assistance Program	This system's algorithm performs data matching. Applicants can no longer be disqualified based on only a match. The state continues to fix its notices and develop a policy that does not rely on future use of this system. Authority: Mich. Comp. Law §400.10c.
MINNESOTA		
MnCHOICES	Community Alternative Care, Community Access for Disability Inclusion, BI, DD, and Elderly HCBS Waivers	The MnCHOICES tool uses employment to gauge community involvement in people under age 65 and volunteering to gauge community involvement in people age 65 and older. It applies policy and regulatory eligibility rules to numerous criteria related to health, quality of life, and activities of daily living. Authority: Minn. Stat. §256B.0911 Subd. 3a(c).
MAXIS	Family Investment Program, Food Assistance Program, General Assistance, and Supplemental Aid	This tool performs data matching. Prior to a denial based on missing information, the human services commissioner confirms that the missing evidence is necessary to determine need. They help applicants obtain the evidence, including medical examinations and electronic medical records. Authority: Minn. Stat. §256.01 Subd. 18a, §256.01 Subd. 29, and §256.45.
MISSISSIPPI		
interRAI-HC	Elderly, Physical Disability, and Mental Illness HCBS waivers	See Key. Authority: Miss. Code §43-13-117; 23 Miss. Code R. §208-1.6.
Mississippi Application Verification Eligibility & Reporting Information Control System (MAVERICS)	TANF, food stamps, and TANF Work Program	A person's information is fed into MAVERICS and the Jobs Automated Work System. The two systems complete data matching together. The MAVERICS screening process informs workers' eligibility determinations. Authority: Miss. Code §§43-13-116 and 43-13-116.1; 45 CFR §205.36.
MISSOURI		
interRAI-HC	Elderly, Physical Disability, and Mental Illness HCBS waivers	See Key. Authority: Mo. Rev. Stat. §208.895; Mo. Code Regs. tit. 19 §15-8.200.
SIS	DD HCBS waivers	See Key. Authority: Mo. Rev Stat §208.895.
MO HealthNet eligibility system	Medicaid and CHIP	The system performs data matching and checks if ineligible people may qualify for tax credits. A 2020 audit found that the system incorrectly removed people eligible for renewal, so reviews were delayed. Authority: Mo. Code Regs. tit. 13 §40-7.035; 42 CFR §433.111.
MONTANA		
Combined Healthcare Information and Montana Eligibility System (CHIMES)	SNAP, TANF, Medicaid, Healthy Montana Kids	CHIMES applies rules to automate benefits calculations and performs data matching. Workers authorize determinations after CHIMES calculates them, but they have had to continue to manually double-check determinations. Authority: 42 CFR §433.111; 45 CFR §205.36.
NEBRASKA		
Nebraska Family Online Client User System (NFOCUS)	Cash assistance, SNAP, LIEAP, Child Care, Medicaid, and Aged and Disabled Waiver	The expert subsystem within NFOCUS is the automated portion of the system and uses stored information to aid in eligibility and benefit determination. Authority: 468 Neb. Admin. Code, ch. 1, §004; 469 Neb. Admin. Code, ch. 1, §004.
NEVADA		
SIS	HCBS waivers for people with DD	See Key. Authority: Nev. Admin. Code §427A.430.
NEW HAMPSHIRE		
SIS	ABI, DD, and In-Home Supports for Children with DD HCBS waivers	See Key. Authority: N.H. Code Admin. R. He-M 503.02.
NEW JERSEY		
NJ Choice, using interRAI	Global Options for Long-Term Care Waiver for elderly and physically disabled people	NJ Choice applies an algorithm that determines LOC and is also applied within a telephone-screening instrument to help target people at risk of institutionalization to refer them to clinical assessors. Authority: N.J. Admin. Code §10:37-6.44.

* It is unclear how current or upcoming tools in this state use algorithm-driven decision-making to determine eligibility for government assistance or services.

NJ Disability Automated Benefits System (DABS)	Disability and Family Leave Insurance	DABS functions were automated per the state labor department's 2018 recommendation to calculate determinations based on data from the State Plan Bureau. Authority: N.J. Admin. Code §10:69-8.5.
NEW MEXICO		
Automated System Program and Eligibility Network (ASPEN)	TANF, SNAP, LIEAP, Medicaid, and Cash Assistance	ASPEN calculates eligibility by executing rules. However, the system has a long history of miscalculations that have not been corrected. Human review is compromised as employees have to manually tweak calculations to compensate for the system's glitches that have cost people access to their benefits. Authority: N.M. Code R. §8.102.110.15.
NEW YORK		
Uniform Assessment System-New York (UAS-NY), using interRAI-Community Health Assessment	Medicaid Personal Care and New York's eight LTSS programs	The UAS-NY applies the RUG-III to classify people into care plans. The tool underestimates cognitive disability, so the state proposes a secondary nurse's assessment where a medical provider can document that the person qualifies despite the score. Care plans and budgets are reviewed before people participate. Authority: NY Soc. Serv. L. §§364-L(2a), 366(6-a).
Child and Adolescent Needs System-NY (CANS-NY)	Behavioral or DD Health Home Services	The CANS-NY within the UAS-NY is for people up to age 21. It measures acuity level, and the UAS-NY applies an algorithm to determine how needs pertaining to that acuity level should be billed. Care plans and budgets are reviewed before people participate. Authority: NY Soc. Serv. L. §366(7).
New York State of Health (NYSOH) system	Medicaid and CHIP	The NYSOH system was initially built to facilitate enrollment in health insurance plans. Over 90% of eligibility determinations are automated. Authority: NY Soc. Serv. L. §364-J(30).
Welfare Management System (WMS)	SNAP, TANF, and Medicaid	The WMS Resource File Integration subsystem performs data matching. The WMS Healthcare Eligibility Assessment and Renewal Tool applies rules to automatically renew or cut benefits. If workers approve the results, the WMS calculates and submits a budget to the Benefits Issue and Control System to issue benefits. Authority: NY Soc. Serv. L. §21.
VI-SPDAT	New York City Continuum of Care	VI-SPDAT data is fed into the Coordinated Assessment and Placement System. Authority: 18 NY Comp. Codes R. §800.3.
Deferred Acceptance Algorithm	New York City school choice system	Students rank their preferences for 12 schools whose criteria include academic and standardized test performance, portfolios, and interviews. The algorithm matches students to their highest-ranking school where they meet criteria. Schools need only ensure that at least 20% of their matches are students with physical or learning disabilities. No authority found.
NORTH CAROLINA		
SIS	Innovations Program; Mental Health, DD, and Substance Abuse Services	See Key. The SIS assesses people with ID, DD, or Traumatic BI for the Innovations Program. Authority: 10A N.C. Admin. Code 27G.2306 (b)(3).
North Carolina Families Accessing Services through Technology (NC FAST)	Medicaid and SNAP	The NC FAST executes a set of programmed rules to produce eligibility determinations. Authority: 42 CFR §433.111; 45 CFR §205.36.
NORTH DAKOTA		
SIS	HCBS waivers for people with ID/DD	Reviews are only done when major life changes alter the client's circumstances and needs. Authority: N.D. Admin. Code 75-04-05-09 and 75-04-05-09.1.
OHIO		
Healthcare Electronic Notification System (HENS)	HCBS Waivers including MyCare Ohio, Level One, and PASSPORT	HENS includes the newer Adult LOC Questionnaire, which is being tested with an algorithm. Where HENS data matching is unsuccessful, the state must verify manually with the person. If the person becomes ineligible, the state must complete a pre-termination review before termination. Authority: Ohio Admin. Code §5160:1-2-01; 42 CFR §433.111.
Ohio Benefits System (OBS)	Prevention, Retention and Contingency program; SNAP; Ohio Works First; Medicaid; and cash assistance	The OBS uses data matching. Its "Baby Bot" and "Disability Onset Alert Bot" automate information processing that previously required caseworkers to do repetitive tasks. The Disability Onset Alert Bot has processed 92% of cases without any caseworker involvement. Authority: Ohio Admin. Code §§5101:1-1-36 and 5101:1-2-01; Ohio Rev. Code §5101.061.
OKLAHOMA*		
OREGON		
Oregon Needs Assessment (ONA)	Model Waiver (ID/DD), Children's HCBS, Medically Complex Hospital Model, and Medically Involved Children's Waiver	An algorithm applied to the ONA reduced service hours across the board by 30%. The newer ONA tool no longer mandates a specific number of care hours. The ONA works with case managers to decide hours and service groups. The state evaluates people not immediately found eligible by the algorithm. Authority: Or. Admin. R. 411-015-0008 and 411-425-0055.
Client Assessment and Planning System (CAPS)	Aged and Physically Disabled Waiver	CAPS documents abilities and characteristics, limitations, existing supports, living environments, treatments, and health history. CAPS's algorithm then calculates priority for services based on the degree of assistance an applicant requires with specific activities of daily living. Authority: Or. Rev. Stat. 410.505; Or. Admin. R. 411-030-0020.
PENNSYLVANIA		
SIS	Community Living, Consolidated, and Person- and Family-Directed Support HCBS Waivers	See Key. Authority: 62 Pa. Cons. Stat. §441.8, 55 Pa. Code §52.25.
Client Information System (known as iCIS)	Medicaid, HCBS waivers, LTSS, SNAP, cash assistance, SSI, and LIEAP	The iCIS logic selects the category of medical assistance based on application information. For all benefits, it identifies clients participating in multiple programs by data matching and interfacing with the Master Client Index that stores client demographic data. Authority: 62 Pa. Conns. Stat. §432.23; 42 CFR §433.111; 45 CFR §205.36
RHODE ISLAND		
SIS	HCBS waivers for people with ID/DD	The state uses the tool for people ages 16 and older. Authority: R.I. Gen. Laws §§40-18-3 and 40-18-4; 210 R.I. Code R. 50-00-4.

* It is unclear how current or upcoming tools in this state use algorithm-driven decision-making to determine eligibility for government assistance or services.

Rhode Island Bridges	Medicaid; SNAP; cash, child care, and general assistance; SSI; and LTSS	RI Bridges integrates multiple program applications using the Unified Health Infrastructure Project that executes eligibility rules. Applications dropped sharply due to processing delays after after staff cuts coincided with the system's launch. Authority: 42 CFR §433.111; 45 CFR §205.36; R.I. Gen. Laws § 40-6-9.1; 218 R.I. Code R.10-00-1 and 210 R.I. Code R. 40-00-1.
SOUTH CAROLINA*		
SOUTH DAKOTA		
ACCESS	Medicaid and SNAP	ACCESS's first screen shows non-financial eligibility. The next makes budget calculations. The final screen indicates whether ACCESS finds overall eligibility. Benefits Specialists check all screens to make sure the results match the application information. Authority: S.D. Admin. Rule 67:13:03:21; 42 CFR §433.111; 45 CFR §205.36.
TENNESSEE		
SIS	Self-Determination HCBS Waivers	See Key. The state proposes using the SIS for all HCBS waivers. Authority: Tenn. Code §71-5-1404.
Tennessee Eligibility Determination System (TEDS)	TennCare Connect, which provides health insurance; Medicaid; CHIP; TANF; SSI	TEDS is part of the new TennCare Connect system that replaces the state's Medicaid management system, the benefits eligibility system, and the TennCare Management Information System. TEDS performs data matching and analyzes a mix of income and medical information. Authority: Tenn. Code §71-5-153; 42 CFR §433.111; 45 CFR §205.36.
TEXAS		
Texas Integrated Eligibility Redesign System (TIERS)	SSI and SSDI, TANF, SNAP, CHIP, WIC, and STAR+Plus Waiver programs	The TIERS decision table logic applies eligibility rules and performs data matching. It automates file clearance when it completely matches application data; otherwise, it triggers an alert for manual staff clearance. An advisor reviews the flow to make sure eligibility calculations use the right data. Authority: Tex. Hum. Res. Code §§31.0326 and 33.053; Tex. Gov't Code § 531.110 and 531.191.
UTAH		
SIS	Community Supports Waiver	See Key. Authority: Utah Admin. Code R414-502.
Electronic Resource and Eligibility Product (eREP) System	Medicaid, CHIP, SNAP, TANF, and child care assistance	An eligibility specialist identifies service options when speaking with the person. They review required verification information entered into eREP before it determines eligibility. eREP integrates application information from multiple programs, applies rules to assess need, and performs data matching. Authority: Utah Code §35A-3-104.
VERMONT*		
VIRGINIA		
SIS	HCBS waivers for people with ID	Redeterminations are calculated by the LOC Eligibility Re-determination audits (LOCERI). If a LOCERI audit finds a person ineligible, a manual review must be performed. Authority: 12 Va. Admin. Code § 30-120-1040(F).
Virginia Case Management System (VaCMS)	Medicaid, SNAP, TANF, child care benefits, and LIEAP programs	The VaCMS calculates eligibility. Its results must be reviewed and authorized. Improper staff training left users to teach themselves or be trained on the new system. Contested results require review and update of relevant Data Collection pages before rerunning eligibility calculations. Authority: Va. Code §§63.2-222, 63.2-503(D).
VI-SPDAT	Balance of State Continuum of Care	See Key.
WASHINGTON		
SIS	HCBS waivers for people with ID/DD	See Key. Authority: Wash. Rev. Code §71A.16.030; Wash. Admin. Code §388-828-4000 et.seq.
Comprehensive Assessment Reporting Evaluation (CARE)	All Adult HCBS waivers	CARE's algorithms establish classification groups, eligibility, LOC, and budget. Staff's assessments are only reviewed regularly for their first three months on the job. Authority: Wash. Admin. Code §388-106-0065.
Automated Client Eligibility System (ACES)	WorkFirst, federal- and state-funded food and cash assistance, and state Medicaid programs, LTSS	ACES applies eligibility rules and data matching for applications and renewals. Most renewals are triggered automatically without review. Authority: Wash. Rev. Code §74.04.805, Wash. Admin. Code §388-426-0005.
Predictive Risk Intelligence System (PRISM)	Medicaid Home Health	The PRISM tool uses an algorithm that calculates the degree to which a person may have a significantly heightened need for home health services. Authority: Wash. Admin Code §§182-557-0200(c) and 182-557-0350.
WEST VIRGINIA		
WV Path (using Utilization Management Contractor (UMC) algorithm)	Medicaid, ID/DD HCBS waivers, CHIP, WV WORKS, SNAP, Emergency Assistance, LIEAP, and School Clothing Allowance	The UMC's algorithm applies eligibility rules to functional assessments for the waivers to calculate service level. The UMC analyzes annual assessment data to customize algorithms that create individualized budgets for people who require these waivers. WV Path itself performs data matching for other benefits. Authority: W. Va. Code §§9-8-3 through 9-8-7.
VI-SPDAT	Coalition to End Homelessness Continuum of Care	See Key.
WISCONSIN		
Long-Term Care Functional Screen (LTCFS)	Family Care, Partnership, Community Options, PACE, IRIS (for elderly and physically disabled adults), and all HCBS Waivers	The LTCFS eligibility logic should produce results that trained screeners would expect, but the agency's screen liaison reviews unexpected results. If necessary, a state quality consultant performs a full review and consults until the screen results are considered accurate. The screener acts on the final results. Authority: Wis. Admin. Code DHS §73.04
Client Assistance for Reemployment and Economic Support (CARES)	The above programs, Medicaid, SSI, FoodShare, Caretaker Supplement, Child Care Subsidy, Wisconsin Works	CARES performs data matching. CARES uses the Error-Prone Profile—applicant characteristics prone to incorrect verification results—to flag applications for workers to follow up. The worker confirms that the CARES determination is appropriate by verifying relevant details of the non-financial results and budget details. Authority: Wis. Stat. §46.034
WYOMING*		

* It is unclear how current or upcoming tools in this state use algorithm-driven decision-making to determine eligibility for government assistance or services.

APPENDIX C
CASES CITED

Arkansas Department of Human Services v. Bradley Ledgerwood, 530 S.W.3d 336 (Ark. 2017).

Arkansas Department of Human Services v. Bradley Ledgerwood, 571 S.W.3d 1 (Ark. 2019).

Arkansas Department of Human Services v. Bradley Ledgerwood, 571 S.W.3d 911 (Ark. 2019).

Armstrong v. Manzo, 380 U.S. 545 (1965).

Banks v. Federal Aviation Admin., 687 F.2d 92 (5th Cir. 1982).

Barnes v. Healy, 980 F.2d 572 (9th Cir. 1992).

Brandy C. v. Palmer, 2018 WL 4689464 (N.D.Fla. 2018).

Cahoo v. SAS Inst. Inc., 322 F. Supp. 3d 772 (E.D. Mich. 2018).

Plaintiff's Motion for Preliminary Injunction, C.S. v. Saiki, No. 6:17-cv-00564-MC, (D.Or. Apr. 10, 2017).

Dolic v. Missouri Dep't of Soc. Servs., 493 S.W.3d 22, (Mo. Ct. App. 2016).

Fisher v. Okla. Health Care Authority, 335 F.3d 1175 (10th Cir. 2003).

Goldberg v. Kelly, 397 U.S. 254, (1970).

Holmes v. New York City Housing Authority, 398 F. 2d 262 (2d Cir. 1968).

Houston Federation of Teachers, Local 2415 v. Houston Independent School District, 251 F. Supp.3d 1168 (S.D.Tex., 2017).

Excerpted Transcript of Trial (Court's Rulings from the Bench), Estate of Ethel Jacobs v. Gillespie, No. 3:16-CV-119-DPM, (E.D. Ark. Oct. 28, 2016).

Order, Jacobs v. Gillespie, No. 3:16-CV-119-DPM (E.D. Ark. November 1, 2016).

K.W. v. Armstrong, 180 F.Supp.3d 703 (D.Idaho, 2016).

Mayer v. Wing, 922 F. Supp. 902 (S.D.N.Y 1996).

Michael T. v. Bowling, No. 2:15-cv-09655, 2016 U.S. Dist. LEXIS 123749 (S.D. W. Va. Sep. 13, 2016).

Michael T. v. Crouch, 2018 U.S. Dist. LEXIS 49598, (S.D. W. Va. Mar. 26, 2018).

Michael T. v. Crouch, 344 F. Supp. 3d 856, 860 (S.D. W. Va. 2018).

Millions March NYC v. N.Y. City Police Dept., No. 100690/2017 (Sup. Ct. Jan. 11, 2019), https://iapps.courts.state.ny.us/nyscef/ViewDocument?docIndex=4QmPYG6IvyS9ItQf-69pMKg==.

Office of Health Care Access v. Freedom of Information Commission, Nos. CV030521573S, CV030521574S, 2005 WL 1095361 (Conn. Super. Ct. Apr. 19, 2005).

Olmstead v. L.C. ex rel. Zimring, 527 U.S. 581, 597, 600 (1999).

Rosas v. McMahon, 945 F.2d 1469, (9th Cir.1991).

Waskul v. Washtenaw County Community Mental Health, 221 F.Supp.3d 913 (E.D.Mich. 2016).