THE MICHAEL J. FOX FOUNDATION
FOR PARKINSON'S RESEARCH

August 16, 2018

Tom Sinks, Office of the Science Advisor
Environmental Protection Agency
1200 Pennsylvania Avenue NW,
Washington, DC 20460

Re: Docket ID No. EPA-HQ-OA-2018-0259 (Strengthening Transparency in Regulatory Science)

Thank you for the opportunity to comment on the Environmental Protection Agency's (EPA) Strengthening Transparency in Regulatory Science proposed rule.

As the world's largest nonprofit funder of Parkinson's disease (PD) research, The Michael J. Fox Foundation (MJFF) is dedicated to accelerating a cure for Parkinson's and developing improved therapies. In providing more than $800 million in research to date — including on toxicity of environmental exposures — the Foundation has fundamentally altered the trajectory of progress toward a cure. It is estimated that 1 million people in the United States have PD, with an annual economic burden of at least $26.4 billion.

As overall justification for the proposed rule, the EPA claims it is following the accepted practice of many science organizations including many scientific journals, however we believe this is misleading. For its work, MJFF supports a general policy of open data and its ability to help speed discovery, ensure validity through replication, and deepen the public's trust in findings. When possible, access to underlying raw data and initial analysis allows scientists to check each other's work outside of the confines of a strict peer-review process, and can help catch misleading data, even when innocently created. MJFF strives for open data in its own research where possible, and encourages funded researchers to make data available based on the nature of the study and the feasibility of adequate de-identification. Major journals in the field follow a similar practice and only require data be made confidentially available to other researchers for the purposes of reproducing or extending analysis. No major journal requires scientists to publish raw data to the public in all cases. In a joint statement in response to the proposed rule, the editors-in-chief of *Science, Nature, Cell, Proceedings of the National Academy of Sciences*, and the *Public Library of Science* stated that the proposed rule will exclude important studies from consideration in the rulemaking process and adversely impact the decision-making process.[1]

As MJFF and the country's premier journals acknowledge with their policies, there are many studies where the exposure of data is infeasible, counterproductive or dangerous. The types of studies most vulnerable to exclusion, human-based clinical trials or epidemiology (observational) studies, form the bedrock of knowledge vital for determinations about the environment's impact on human health. Exclusion of these studies from EPA review stands to affect every decision made at the agency from National Ambient Air Quality Standards (NAAQS), to chemical

[1] Jeremy Berg, et.al, Joint Statement on EPA Proposed Rule and Public Availability of Data, Science Magazine, May 4, 2018, at 501.

registration and regulation in consumer products and pesticides. EPA already requires studies to be peer reviewed — a gold standard of science — to verify and validate research. The effect of this rule, overall, will be to restrict EPA's access to science rather than make it more transparent.

Thank you again for the opportunity to comment. More specific responses to the proposed rule are below.

I. *EPA requests information on all aspects of the proposed regulation and the bases articulated for it.*

De-identified does not mean unidentifiable

As stated in the proposed rule, the agency aims to ensure that "more of… the science … is available to the public for validation," while also "reduce[ing] the risk of unauthorized disclosure and re-identification."[2] We appreciate the agency acknowledging that re-identification is a concern and its requests for more information. There are many studies where it is impossible to de-identify data to a level where both the data is usable and participants are properly protected. Environmental exposure data often must be specific to a particular house, street or neighborhood. For example, a 2009 study showed that consuming water from a private well located in an area with historical pesticide use is associated with an increased risk of Parkinson's disease.[3] Due to the nature of wells — typically serving a relatively limited number of people within a very small radius — the detail needed to perform the study renders proper de-identification impossible. All one needs to know is that a certain person lives near a particular well coupled with a demographic detail such as their age, gender, race, etc., and privacy is at great risk.

Rule forces unneeded expense on the public

Even if there was an acceptable way to mask personal data while maintaining enough information to comply with the rule, costs of such anonymizing are prohibitively expensive. When Texas Congressman Lamar Smith's Honest and Open New EPA Science Treatment Act of 2017 (Honest Act)[4] — a bill with content very similar to the current rule — was under consideration, the Congressional Budget Office estimated that it could cost up to several million dollars a year to comply.[5] This unnecessary cost simply sets up a barrier to consideration by the EPA and will not make science more reliable.

Chilling impacts to science

If EPA's rule takes effect, it could introduce selection bias that may slow studies and alter results and thereby affect regulatory decisions. Large-scale population studies rely on many people — often numbering in the thousands — to reveal sensitive or private information. Studies may have

[2] Strengthening Transparency in Regulatory Science, 83 Fed. Reg. 18768 (proposed Apr. 30, 2018) (to be codified at 40 C.F.R. pt. 30).
[3] Nicole Gatto, et al., Well Water Consumption and Parkinson's Disease in Rural California, Envtl. Health Persp., Dec. 2009, at 1912-1918.
[4] H.R. 1430, 115th Cong. (2017)
[5] Cong. Budget Office, HONEST Act Cost Estimate (2017).

difficulty recruiting or retaining volunteers if the researchers are required to make de-identified data publicly available as some may be more hesitant to share their information. Those who are willing to participate may be different from others in ways we cannot currently predict or describe, which could introduce confounding variables and bias that may question the study's results.

II. *EPA requests comment on the effects of this proposed rule on individual EPA programs*
The proposed rule stands to affect every program and statute that the EPA administers. We will highlight the three most directly relevant to the EPA's role in regulating environmental exposures with potential to cause Parkinson's disease.

Parkinson's disease research in pesticide determinations
All pesticides distributed or sold in the United States must first be registered by the EPA and reregistered every 15 years[6]. In order to be registered, the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) requires the applicant show that its proposed pesticide does not cause unreasonable risk to human health or the environment.[7] The applicant typically provides studies that comply with the EPA's testing guidelines along with its application materials. The EPA reviews the data provided and performs some of its own work, including human health and ecological risk assessments, on a chemical.[8] Additionally, under the Food Quality Protection Act which amended FIFRA, EPA must find a pesticide poses a "reasonable certainty of no harm" before it can be registered for use on food or feed[9].

For example, the herbicide paraquat is currently undergoing reregistration review. As part of that process, EPA is looking at studies relevant to the chemical's health concerns, including the connection with Parkinson's disease.[10] Over the past few decades, studies consistently show a correlation between exposure to pesticides and Parkinson's disease, but that full breadth of data may not be reviewable by EPA under the current proposal. For example, a meta-review examined 40 studies and concluded, "epidemiologic studies suggest a relatively consistent association between exposure to pesticides and an increased risk of developing [Parkinson's disease], despite differences in study design, case ascertainment and definition, control selection, and pesticide exposure assessment." Many of these studies would be excluded from consideration under the proposed rule.

In addition, relevant studies have design characteristics that make them vulnerable to non-compliance and exclusion. Specifically, two studies of California's Central Valley found years of exposure to a combination of herbicides paraquat and maneb increased the risk of Parkinson's

[6] Food Quality Protection Act of 1996, Pub. L. No. 104-170, 110 Stat. 1513, 1514-35 (1996)
[7] Envtl. Prot. Agency, FIFRA and Federal Facilities (2018), https://www.epa.gov/enforcement/federal-insecticide-fungicide-and-rodenticide-act-fifra-and-federal-facilities
[8] Envtl. Prot. Agency, Human Health Risk Assessment (2016), https://www.epa.gov/risk/human-health-risk-assessment
[9] Food Quality Protection Act of 1996, Pub. L. No. 104-170 § 408(b)(2)(A)(ii), 110 Stat. at 1516 (1996).
[10] Paraquat Dichloride Human Health Mitigation Decision, 82 Fed. Reg. 118 (Envtl. Prot. Agency Jan. 1, 2017) (notice of availability).

later in life. Another study found that Central Valley residents under age 60 who lived near fields where the pesticides paraquat and maneb were used between 1974 and 1999 had a Parkinson's rate many times higher than other residents in the region.

Parkinson's is rare enough such that in many communities, data that would need to be disclosed, such as behavioral factors (occupation, tobacco or alcohol use, how long they've lived in the area), will render individuals easily identifiable. To protect patient privacy, scientists may not want to make even de-identified data public.[11] Without these and similarly designed studies, the EPA is likely to miss relevant information in its review.

Parkinson's disease research in TSCA determinations

The Toxic Substances Control Act (TSCA) is EPA's primary authority for regulating non-pesticide chemicals. Under TSCA, EPA can secure information on new and existing chemicals and regulate chemicals it determines pose an unreasonable risk to public health or the environment.[12] All studies used would be subject to the proposed rule.

In late 2016, the EPA moved to ban toxic chemical trichloroethylene (TCE) due to health risks, including a risk of Parkinson's disease,[13] though this action is still pending[14]. The original recommendation was based on hundreds of studies, many of which would not be considered under the proposed rule.

For example, one study sent questionnaires to 134 people who had formerly worked on a site with heavy and long-term exposure to TCE. Fourteen had signs of Parkinson's disease, and an additional thirteen showed mild features of the condition, far more than expected given the population.[15] Another asked twin pairs about exposure to solvents including TCE, and showed a significant association between TCE exposure and Parkinson's disease risk.[16]

In these relatively small studies, a distinctive characteristic — people who all worked together, and twins — respectively, combined with the most basic additional medical information could render the participants identifiable. Both of the TCE studies are highly cited and the findings have

[11] Nat'l Inst. of Health, HIPPA Privacy Rule (2007), https://privacyruleandresearch.nih.gov/pr_08.asp
[12] Envtl. Prot. Agency, Summary of the Toxic Substances Control Act (2017), https://www.epa.gov/laws-regulations/summary-toxic-substances-control-act
[13] Press Release, Envtl. Prot. Agency, EPA Moves to Ban Certain Aerosol Degreasers and Dry Cleaning Spot Removers as the First Major Regulatory Action under Chemical Reform Law (Dec. 7, 2016) (on file with the author).
[14] Unified Agenda of Regulatory and Deregulatory Actions, Trichloroethylene 83 Fed. Reg. 1935, 1937. (Jan. 12, 2018)
[15] D.M Gash, et al., Trichlorethylene in Parkinsonism and Complex I Mitochondrial Neurotoxicity, Annals of Neurology, Feb. 2008, at 184-192.
[16] Samuel M. Goldman, et al., Solvent Exposures and Parkinson's Disease Risk in Twins, Annals of Neurology, June 2012, at 776-784.

been replicated. To exclude this evidence that TCE exposure is a risk factor for Parkinson's disease is illogical and does not serve the best health interests of the American public.

Furthermore, the proposed rule does not comply with the letter of TSCA. TSCA and other statutes administered by EPA requires the agency use the "best available science" [17] and none require the agency to access to raw data. TSCA additionally requires that EPA consider all information that is reasonably available to the administrator.[18] As drafted, the proposed rule violates these statutes because it would force the agency to ignore some of the best information available.

Parkinson's disease research and the Clean Air Act

The Clean Air Act authorizes EPA to establish NAAQS to protect public health and to regulate emissions of hazardous air pollutants. EPA works with local governments to reduce air pollution and uses scientific studies that could be impacted by the proposed rule to revise its national air quality standards and NAAQS on a regular basis.[19]

Very little is currently knows about air pollution and its impacts on the brain. Recent studies have linked particulate exposures to Parkinson's disease including a large study done in Denmark. This study used several thousand people with and without a current diagnosis of Parkinson's disease. Using extremely specific (within 5-50 meters of the front door) geo-coding to estimate participant's exposure to contaminants, the study estimated that ambient air pollution from traffic increased risk of developing Parkinson's disease by 9 percent.[20] Researchers found an increased risk of Parkinson's disease after exposure to particulate matter in studies from Taiwan[21] and South Korea,[22] as well.

In addition to concerns stated in the previous section about the usefulness of data if enough information is redacted to protect privacy, these studies raise additional challenges because they were performed internationally. In the Danish study, participants are protected by European Union (EU) law. Going forward, an EU study's compliance with the proposed rule will need to be reconciled with the new General Data Protection Regulation,[23] which is seen as more restrictive than the United States' Health Insurance Portability and Accountability Act of 1996 (HIPAA)[24]. The privacy directive raises many issues for science not discussed here, but it is clear that many

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[17] Frank R. Lautenberg Chemical Safety for the 21st Century Act Pub. L. No 114-182 (codified as amended at 15 USC §2625 (h)) available at: http://uscode.house.gov/view.xhtml?path=/prelim@title15/chapter53&edition=prelim
[18] Id. at §2625 (k).
[19] Envtl. Prot. Agency, Clean Air Act Overview (2017), https://www.epa.gov/clean-air-act-overview
[20] Beate Ritz, et al., Traffic-Related Air Pollution and Parkinson's in Denmark, Envtl. Health Persp., Mar. 2016, at 351-356.
[21] Chiu-Ying Chen, et al., Long Term Exposure to Air Pollution and the Incidence of Parkinson's Disease: A Nested Case-Control Study, PLOSOne, Aug. 15, 2017, at 1-14.
[22] Hyewon Lee, et al., Short-term Air Pollution Exposure Aggravates Parkinson's Disease in Population-based Cohort, Scientific Reports, Mar. 16, 2017, at 1-14.
[23] Council Directive 2016/679 2016 O.J. (L119) 1, 88 (EC).
[24] Int'l Ass'n of Privacy Prof'l, GDPR Matchup: The Health Insurance Portability and Accountability Act (2018), https://iapp.org/news/a/gdpr-match-up-the-health-insurance-portability-and-accountability-act/

studies that involve people located in the EU will have a difficult time both complying with the new directive and providing enough information to EPA to be considered.

Studies coming from other countries are vital to health determinations in the Unites States because people in other countries are exposed to chemicals at different rates than in the U.S. The ability to compare and contrast exposure to health outcome can be enlightening; average particulate matter concentrations in South Korea and China are several times higher than in the

United States,[25] making relatively subtle effects stand out more easily. Studies done in other countries can also help researchers tease out whether an effect is dose or length of exposure dependent. The inability to review and use international research in determinations will virtually guarantee EPA is missing major findings and important data.

III. *Which criteria the agency should use to base any exceptions, including whether a case-by-case exception may be appropriate.*

Exceptions process grants too much power to individual administrator

As written, the proposal grants the EPA administrator broad authority to exclude individual studies. This could have broad-reaching impact depending on the preference of the administrator at the time, and allows the administrator to overrule scientists regarding their own science. Allowing politically appointed officials to make decisions about whether a study qualifies for an exception is dangerous. The administrator already has broad authority to decide what action to take on an item, it should not have the power to hide evidence that does not support the action.

The EPA should consider all relevant, peer-reviewed data when making decisions that impact American's health, and the proposed rule's exceptions process clearly undermines this goal. If the proposed rule takes effect, EPA should at least require that exceptions decisions are made by an expert in the particular area of research. For example, a panel of non-partisan, unaffiliated expert scientists could be used to make recommendations on exceptions.

Proposed rule will harm the American people

Overall, the proposed rule will force the EPA to make decisions based on less information, which will compromise its mission to protect human health. As a non-profit organization dedicated to improving the lives of people with a chronic illness, we strive for transparency and replicability in science in everything we do and expect nothing less of the federal government. Decisions made at the EPA impact hundreds of millions of people; please ensure that the agency continues to balance the need for scientific integrity and transparency with its duty to the protect the country's welfare. Thank you for the opportunity to comment.

[25] Katherine Ellen Foley, Every Country has Terrible Air Pollution, but these are the World's Worst, Quartz Media, Sep. 28, 2016, https://qz.com/794542/air-pollution-map-by-country-fine-particulate-matter/