

## Exposure to artificial turf infill made from recycled tires: Comments on January 2017 Washington Department of Health Report



### Massachusetts Toxics Use Reduction Institute March 2017

In January 2017, the Washington State Department of Health published a report entitled *Investigation of Reported Cancer among Soccer Players in Washington State*.<sup>1</sup> The report was developed due to concerns about a possible link between cancer and exposure to artificial turf fields containing infill made from recycled tires. TURI has received queries about how best to interpret the information in this report, and has received promotional materials that cite the Department's report as a basis for safety claims about infill products made from tire crumb. This information sheet briefly summarizes some basic information about the report and its limitations.

#### Overview

To complete the report, the Department conducted interviews with a number of soccer players with cancer. These individuals were identified by Amy Griffin, a soccer coach. The interviews conducted by the Department represent the first attempt to gather systematic information on a subset of soccer players who have been diagnosed with cancer.

The report also includes an effort to estimate the total number of young people in the state of Washington who may play soccer, and the number of these individuals who might be expected to develop cancer based on state cancer statistics.

The Department used this information in an attempt to calculate a ratio comparing "observed" to "expected" cancer rates.

#### Limitations of the study

The full text of the Washington Department of Health report identifies key limitations of the study. These include the following.

- **No systematic effort to identify cases of disease.** The comparison calculations performed by the Department treat Griffin's list as a proxy for all players with cancer in the relevant age/time categories. However, Griffin's list is an informal list developed as a result of personal communications from athletes and their families with the soccer coach, and was not designed to be complete. The Department did not make any effort to identify other soccer players with cancer.
- **Non-targeted comparison.** The report notes that Griffin's list is likely to be most representative of the population with which she has greatest contact, and suggests that the interview findings "might best represent characteristics of females, WYS[Washington Youth Soccer]-defined select and premier soccer players, goalies and players from King County, rather than soccer players overall." ("Executive Summary," p.2) However, the Department did not make an effort to estimate an expected number of cancers for this smaller subset of Washington's population.
- **No effort to investigate causal relationships.** The project undertaken by the Department was not designed to be able to detect any causal relationships between exposures and disease. Specifically, the authors note: "Notably, this investigation is not designed to add to our understanding of the risks or benefits of crumb rubber fields or to discover the causes of cancer among the people reported to the project team." ("Objectives," p. 7; see also "Discussion," pp. 34-35.)

- **Cursory literature review.** The report includes a very brief review of selected literature on crumb rubber made from recycled tires. A much more complete literature review is available from the US EPA.<sup>2</sup>

## Calculation Details

The Department performed a detailed exercise to calculate the possible number of people who were between the ages of 6 to 24 in the period 2002-2015, and may have played soccer. Due to the age range considered and assumptions made in the calculation, this yields a large number: nearly 5 million person-years. The Department then used state cancer statistics to estimate the total number of cancers that could arise in this population.

The Department did not perform a similar effort to identify actual soccer players with cancer, limiting its attention to the informal list provided by Amy Griffin. The Department further reduced this list through the application of age, year, and location criteria.

Using this information, the Department estimated that the individuals identified by Griffin and meeting the Department's criteria constitute just 2% of the total number of individuals who could have played soccer at some point and could have some type of cancer, based on the Department's calculation.

This comparison does not make it possible to draw any conclusions about the possible relationship between exposure to tire crumb and risk of developing cancer.

## Summary and directions for future research

The calculations presented in this report do not provide information on the possible relationship between playing on artificial turf and risk of developing cancer. However, information gathered for this report could be useful in designing future studies to address this question.

The Toxics Use Reduction Institute is a multi-disciplinary research, education, and policy center established by the Massachusetts Toxics Use Reduction Act of 1989. The Institute sponsors and conducts research, organizes education and training programs and provides technical support to help Massachusetts companies and communities to reduce the use of toxic chemicals.

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<sup>1</sup> Washington State Department of Health. 2017. *Investigation of Reported Cancer among Soccer Players in Washington State*. DOH Pub 210-091. Accessed at <http://www.doh.wa.gov/Portals/1/Documents/Pubs/210-091.pdf>, February 24, 2017.

<sup>2</sup> US EPA. December 2016. *Federal Research Action Plan on Recycled Tire Crumb Used on Playing Fields and Playgrounds*. EPA/600/R-16/364. Also see US EPA. December 2016. "Literature Review and Data Gap Analysis Spreadsheet." Accessed at <https://www.epa.gov/chemical-research/december-2016-status-report-federal-research-action-plan-recycled-tire-crumb>, March 3, 2017.

September 2017 update: TURI's comments were based on the first version of the report, published in January 2017. In April 2017, the Washington Department of Health issued a revised version of the report, clarifying the scope and nature of the Department's research.