

Poo Patrol: Community-led science and action to reduce dog fouling and improve child health

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Fouling of public areas by dog faeces has serious public health impacts, not least by discouraging healthy outdoor play.

This research engaged schools and communities to support and monitor their efforts to stimulate behaviour change among dog owners.

About the research

Dog faeces are repulsive and unhygienic, and close encounters with them are unpleasant.

Children and other vulnerable people are especially affected and soiled areas can put them off outdoor exercise. Lack of exercise is a major contributor to childhood obesity and related adverse health outcomes and outdoor play has many health and social benefits for children.

Eggs from the parasitic dog worm *Toxocara* can be released from faeces and contaminate soil. This can be dangerous to human health. Past efforts to reduce dog fouling have only been partially successful, and additional resources for enforcement and cleansing are rarely available.

This Bristol-led research engaged schools and community groups to discuss health risks from dog faeces, and provides a 'toolkit' of learning materials on the problem.

A 'Poo Patrol Spray Day' was organised involving the community with support from the researchers. Posters and data recording sheets were devised, with volunteers stencil-spraying faeces to increase local awareness and encourage behaviour change among dog owners.



Dog fouling: more than a nuisance

- A Bristol study estimated that around 350,000 tonnes of dog waste are deposited in Britain each year¹.
- One to three faecal deposits are found per 100m of pavement in Bristol.
- One fifth of soil samples from public parks contain *Toxocara* parasite eggs².
- Dog fouling degrades the sense of neighbourhood value particularly for children in impoverished areas³
- It is a significant disincentive for children to play and engage in physical activity outdoors⁴ increasing the risks of obesity and diabetes and reducing wellbeing⁵.

These issues are far from unique to Bristol and most communities face a similar problem with dog fouling. Impacts are greatest in disadvantaged communities and with vulnerable people including children, the elderly and disabled. Removal of dog waste at source is the most effective prevention.

An intractable problem for local government and communities

Bristol City Council surveys state:

- dog fouling is the number one local concern by members of the public
- of those surveyed all were annoyed by dog fouling
- 68% give fouling the top rating of 'hugely annoying' compared to 45% being hugely annoyed by general litter.

“Dog fouling is a problem in Bristol and the Spray Day is a great example of working together to address it.”
Marvin Rees, Mayor of Bristol

Although legislation is in place to discourage dog owners from polluting public places, resources for enforcement are scarce and prosecutions are very rare.

Relying on local government to clean up the mess, however, is unrealistic and unfair to tax payers. Individuals have attempted to tackle the issue but their effectiveness has not been documented or shown to reduce dog fouling over a large area.

Encouraging dog owners to behave responsibly is still the best way forward.

Impact of *Toxocara* worms on child health



The roundworm *Toxocara canis* lives in the gut of dogs and lays eggs that pass out in the faeces.

Eggs that are released into soil following faecal disintegration can then readily infect the public via contact and ingestion.

When ingested, larvae hatch and migrate around the body, causing inflammation in different organs and other health impacts such as visual impairment, sleeplessness and may be linked to epilepsy and asthma.

Sources

1. Quantifying sources of environmental contamination with *Toxocara* spp. eggs. <https://doi.org/10.1016/j.vetpar.2012.12.034>
2. Shenton, Azam and Morgan, University of Bristol, unpublished data 2017
3. What's wrong with being poor? The problems of poverty, as young people describe them <https://doi.org/10.1111/chso.12107>
4. Independent mobility, perceptions of the built environment and children's participation in play, active travel and structured exercise and sport: the PEACH Project <https://doi.org/10.1186/1479-5868-7-17>
5. Humans and Nature: How Knowing and Experiencing Nature Affect Well-Being <https://doi.org/10.1146/annurev-environ-012312-110838>

A new approach

Awareness of specific public health threats from dog faeces is low among the dog-owning public, leading to complacency and lapses in sanitary action. By linking dog fouling to health outcomes in the local community, and engaging children as messengers of positive change, the case for proper disposal can be made more powerfully.

A toolkit has been developed through this research to support local action by schools and communities. It has provided positive outcomes in Bristol and can therefore be rolled out elsewhere.

The Toolkit: resources to support school and community participation

- Pre-prepared presentation for delivery at school assembly or at local community meetings
- Workshops delivered by postgraduate students on dog fouling and worm life cycle
- National curriculum compatible lesson plans in biology, art, literature and maths on topics relating to dog fouling and *Toxocara* worms
- Pre-cut stencils and spray paint for marking educational messages on Spray Day
- Instructions and tally sheet for citizen science data collection

Benefits of the Poo Patrol toolkit

- Children and residents empowered to effect positive change within their communities
- Lessons in biology, art, literature and maths that impact on real-world problem
- Grassroots and flexible to include creative inputs from pupils and community members
- Citizen science monitors impact locally and reinforces motivation to sustain actions
- Helps communities to work with local authorities and reduce need for public spending
- Resources and data at a central hub supports upscaling and national impact

Case Study: Poo Patrol Big Spray Day

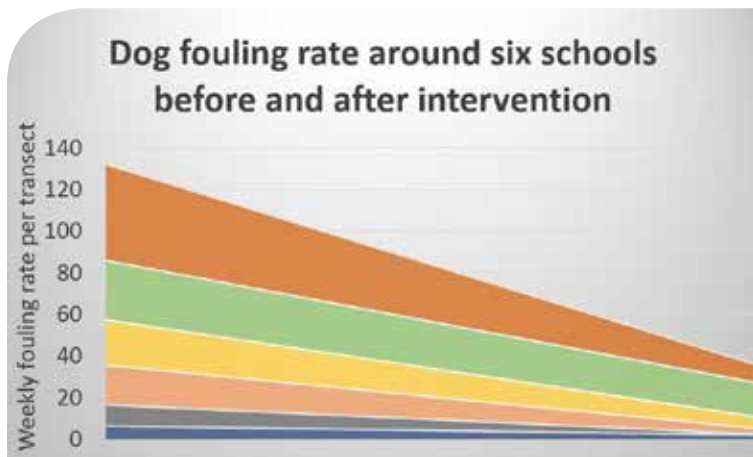
Schools and community groups in Bristol were engaged through Sustainable Learning, the national schools programme, to sign up for the Spray Day event. Poster and stencil design competitions were run for children, and stencils produced to display the best slogans. Lessons developed pupils' awareness of the issues around dog fouling and worm infection, and to elicit creative solutions and interventions. In total 25 schools and 16 community groups registered.

Teachers took classes out locally, where they spray-painted dog fouling and stencilled slogans, displayed pupil-designed posters, and entered data including numbers and locations. Community group actions were co-ordinated with those of school classes.

Two weeks later, the exercise was repeated and the change in the rate of fouling was noted. Hotspots were identified for cleaning and future anti-fouling action.



“We might get a dog at home so I am learning the importance of picking poo up.” Pupil, Torwood House school, Bristol



Key Findings

- Pupils and community volunteers marked more than 500 instances of dog fouling in one day.
- Contamination was concentrated around primary schools.
- Of 20 complete data sets before and after intervention, 19 showed reductions in fouling rate.
- Estimated weekly fouling rate declined by an average of 65% around schools, thus the intervention was actively promoting behaviour change.
- The research showed that grassroots school and community-led efforts can impact substantially on rates of dog fouling.
- Embedded citizen science of data gathering provided valuable information on efficacy, and could be used to motivate sustained gains.
- Empowerment of children and residents to achieve measured positive change in their communities has the potential for further far-reaching benefits.

Future Opportunities

The research presented in this report provides a template for school and community led initiatives to effect behaviour change and reduce dog fouling. The toolkit is available under licence and can be easily adapted for use in different contexts. By collecting and pooling citizen science data on fouling rates and impacts of intervention along the way, experiences can be compared and the most effective strategies identified. Together we can work for cleaner shared spaces, better public health, and empowered communities everywhere.

Find out more on www.teampoopatrol.com

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