

Preliminary Report of the Multicultural Yard, Health and Environment Project (MYHEP)

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INTRODUCTION

The Multicultural Yard Health and Environment Project (MYHEP) was a research project undertaken jointly by researchers from the University of Toronto, the University of Western Ontario and the City of Toronto Public Health Department, in collaboration with five community groups in Toronto. The goal of the research was to identify and better understand some of the challenges faced by governments in communicating information (particularly environmental health information) to various cultural and linguistic audiences. A second goal was to explore the effectiveness of particular by-law enforcement strategies, on the assumption that effective by-law enforcement enhances health protection (and conversely, that insufficient enforcement in particular communities could lead to unequal health protection).

The City of Toronto's Pesticide By-law¹ limiting residential pesticide use was used as a case example to address the research goals. This case was identified as a result of earlier research that evaluated existing literature about environmental health education strategies and by-law effectiveness (Jermyn 2005). In addition, attempts by City of Toronto staff to evaluate small initiatives such as train-the-trainer workshops and grants to community partners to deliver information about natural gardening methods, showed that specific cultural and linguistic groups tended to have different concerns and questions related to the by-law. These differences appeared to be related through cultural practices to the ways in which their outdoor space was used and perceived. This research project was therefore a first step in beginning to address the important questions raised by this earlier work about communicating environmental health information in ways that are feasible, relevant and protective of public health.

The MYHEP project assessed the effectiveness of environmental health communication strategies and by-law enforcement campaigns among the City of Toronto's diverse communities by focusing on two linguistic groups with large populations in the Toronto area – Spanish-speakers and Cantonese-speakers. It explored how ethno-cultural groups receive, interpret and respond to information and outreach campaigns about pesticide use. Four community groups in the Toronto area, representing native Spanish-speakers and Cantonese-speakers, helped connect the researchers to people who were willing to participate in the research. Focus groups and individual in-home interviews were used to explore participants' awareness and perceptions of outreach campaigns about pesticide use undertaken by the City's public health department. Researchers also asked about participants' uses of their outdoor residential space to explore how these might differ from traditional Anglo-Canadian practices, and how these differences could be better

¹ Toronto Public Health describes the by-law as follows in their Staff Report:

Toronto's Pesticide By-law restricts the application of pesticides on all public and private properties in the City of Toronto. The by-law applies to anyone who uses pesticides outdoors, including homeowners, renters, lawn care companies, golf courses and cemeteries. Pesticides composed of specific lower-risk active ingredients such as soap, biologicals or acetic acid, are exempted from the by-law and have no restrictions on their use. Certain uses of restricted pesticides are permitted under the by-law, such as to control or destroy pests which have infested property. The by-law is enforced by Public Health Inspectors, who identify possible violations through complaints and proactive surveillance. [McKeown 2007]

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reflected in information campaigns. Finally, researchers asked participants directly how the current campaign might better address information needs of different ethnic groups.

The results of the MYHEP study will be useful for the City of Toronto's ongoing campaign to inform residents and enforce its Pesticide By-law. There are also wider implications for other public education and public health programs in Toronto, for other restrictive by-laws in the City, and for other municipalities and governments across the country that must learn effective ways of addressing diverse populations.

METHODS

As a one-year 'pilot' project, MYHEP sought to interview members of two linguistic communities in Toronto: Cantonese speakers and Spanish speakers. Community partner organizations associated with the City of Toronto were asked to help recruit for focus groups and in-home interview participants. All interviews were conducted in the preferred language of the participants, and all but one (Spanish) preferred to communicate in their native language.

There were a total of 23 primary respondents across all focus groups and in-home interviews. Two focus groups were held with each linguistic community, with a total of 21 people participating (ten Cantonese, eleven Spanish). Ten participants (five from each language group) participated in in-home interviews. All Cantonese in-home interviewees were drawn from the focus groups (two from downtown Toronto and three from Scarborough). Of the five Spanish in-home interviewees, two were drawn from the first focus group (North York), one from the second (York) and two came from other referrals. If other members of the family were present for home interviews, their responses were included though they are not counted as primary respondents. In total, ten Cantonese speakers and thirteen Spanish speakers participated as primary informants.

Both focus group and in-home interviews asked participants a range of questions about the following broad categories:

- How they used and maintained their outdoor space with an emphasis on what kind of products they used and how they learned about gardening.
- What they knew of the Pesticide By-law; how they had learned about it; and what their impressions were of it.
- What they knew of the complaints-based enforcement system and whether or not they would register a complaint if a neighbour used pesticides in contravention of the by-law.
- What they thought about the City's role in general and especially whether they found City information on pesticides and alternatives accessible and useful.
- What they would suggest to improve communication about the by-law with their community.

Responses were translated into English and transcribed. The English transcripts were then coded according to a "coding tree" created by the research team. This "coding tree" identified key themes that emerged from the interviews and focus groups. Coding was done using NVivo7 (a software package that assists with qualitative analysis). This coded material formed the basis of the analysis below.

PRELIMINARY ANALYSIS

What follows is a summary of the responses from both focus groups and in-home interviews covering a number of specific areas of interest. These include how participants use their outdoor space, and influences on attitudes and behaviours related to outdoor space management. In addition, participant knowledge of and attitudes toward the pesticide by-law are discussed, as well as participants' views on how City strategies to promote engagement with the by-law could be improved. Some quotations from the English translations of the transcripts are included to illustrate and clarify the analysis.

1. Uses of Outdoor Space

Among the ten in-home participants, a wide variety of uses of outdoor space were reported, including lawns, flower beds, shrubs, vegetable gardens, herb gardens, fruit trees, paved areas, driveway and parking areas, storage areas and so on. A total of eight (four out of five for each linguistic group) had lawn areas. Seven participants had flowers in beds or containers (four Spanish, three Cantonese). Nine participants (five Spanish, four Cantonese) grew some form of edible product (vegetables, herbs, fruit) with the majority (seven) growing vegetables. It should be noted that participants cannot be considered representative of the broader population or of their respective ethnic groups, in particular because those who agreed to participate may be more likely to be active, interested gardeners. Without a wider sample, it is impossible to say if these uses reflect the 'norm' in Toronto, but it is notable that almost everyone grew at least some food and 80% had some lawn.

Three in-home respondents (2 Cantonese, 1 Spanish) had pesticides on their premises during the in-home interviews. All lived in Scarborough and two were fluent English speakers. While we did not collect specific socioeconomic data, these were also described as middle to upper middle class households by our researchers.

2. Influences on People's Attitudes and Behaviours

People reported a variety of influences on their gardening practices. The most common was that of neighbours, especially older Canadians and Italian-Canadians. People were influenced directly by asking for advice and indirectly by observing what other people did. There were some distinctions here between the Cantonese and Spanish respondents, with Spanish respondents being more likely to report asking their neighbours for advice. Some of this difference is explained by previous experience with gardening before coming to Canada. As well, a very few people reported asking retailers or being influenced by advertisements for gardening products and two mentioned that they had been influenced by City information in the past.

The downtown Cantonese focus group and the two in-home interviewees that came from that group consistently reported that they used their land for growing food; that they did not use pesticides; that they did things differently from 'Westerners'; and that they did not ask their neighbours for advice. All of these respondents preferred speaking Cantonese and most were unable to converse in English. The in-home interviewees explained that they did not need to learn how to garden because they had been farmers in China and used similar techniques in Canada. One respondent's husband said that if he did encounter problems, he would consult one of the

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hundreds of kin he knew in Toronto. They used manure and sometimes home-made compost to fertilize the land and hand-picked insect pests like slugs.

Among Scarborough Cantonese participants, neighbours were not a direct influence via conversation, but acted as examples and models for nicely kept yards. One respondent felt that Chinese people in general were not as interested in lawn care as their Canadian counterparts though she had bought at least one herbicide on a colleague's recommendation and was the one respondent who paid a lawncare company suggesting that she, at least, was concerned about the appearance of her lawn. One Spanish respondent viewed neighbourly influence as a competition. A small sample of responses that indicate the influence of neighbourhood aesthetics includes:

I think people are more affected by their neighbours. Personally speaking, sometimes when I drive past my neighbourhood, I see some really outstanding gardens. ... They have a lot of different perennials, flowers and rocks complementing each other. They are really a lot more outstanding than just a plain lawn. They look like very well designed gardens filled with blossoming flowers. At that moment I would think that perhaps I would love to have a garden like that. I would be really interested to know more about how to build such an outstanding garden either from books or by hiring other people to do it for me.

In my case I can see that everyone keeps up their gardens, and it's because we see what people do and everyone wants to maintain their gardens and have them looking nice, they want to have them looking better...like a competition.

Among Spanish in-home interviewees, one reported not relying on neighbours for information because she did not speak enough English to communicate though she did ask people at the community centre she attended. The other four all reported learning a great deal about gardening in Canada from neighbours when they arrived here. Two specifically mentioned older people as great sources of information and when specific linguistic groups were identified, Italians were recognized as great gardeners willing to share their expertise. Below is a sample of these kinds of responses:

I think that they do everything naturally if they can, because when he [Italian neighbour] has been working outside, I haven't seen that [he uses anything]...the soil is really good; they don't need to spray...things. I only wish I had the number of tomatoes that he picked, look, my little plants just produced that much [points to box of tomatoes in kitchen] and that's it...And he hasn't sprayed anything on them.

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I've just learned from my neighbours, either by imitation, or because I've found plants and I ask about them. ...I ask my neighbours, I ask the 'seniors,' the older Canadians, they know a lot! They've always answered me. I've had infestations of slugs, and they told me what to put on the plants, or how to get rid of ants, or how to prune a rosebush, or how to go about making a garden of perennials...they've taught me.

Well 'Weed and Feed' is what the neighbour recommended. I didn't know of any other fertilizer, and he recommended that, so I bought it. But no, I don't know them by brand or anything, that one brand is better than another. 'Weed and Feed' because my neighbour said so!

For me, yes, the woman that lives next door influences me, because I ask her how to garden, you know, how to get the tomatoes to produce and all of that ...And she eats everything she has over there, and gives some to me as well. I have been influenced by my neighbour that's Italian. ... I've learned from my neighbour – before in Vancouver, we also lived in a house owned by some Italian people, so seeing how they worked in the gardens - that is how I learned from there. And here my neighbour that's Italian, who really influenced us quite a lot – not directly telling us what we should plant, but rather by watching her.

The lady there [Italian neighbour] told me [what to buy], she gave me the labels and everything to buy it, but I really wouldn't buy it otherwise.

My next door neighbour, he's been a gardener I don't know how many years, he's 80 years old, and again, he was telling me – you know that worm, that was eating my tomatoes, he was telling me 'Oh, you have a worm,' regardless of the fact that he hasn't seen it, but he knew, that in the soil, it's a worm. So we looked that day for the worm, and we found it. It was a worm, they knew it. ... At the back of the house, this lady is 91 years old, and I guess for 80 years, she's been a gardener. So if my flowers are dying, or my food was dying, she would come and show me what was wrong.

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None of these respondents reported having farming or intensive gardening experience in their home countries which may explain their willingness to seek neighbourly advice as compared to the downtown Cantonese-speaking group.

When people are unsure of what to do, neighbours, along with kin and friends, seem to be the most influential sources of information.

3. Pesticide By-law

Awareness of the Pesticide By-law

Drawing on both the focus groups and interviews, 17 of 23 primary respondents were unaware of the by-law before participating in MYHEP. Among the ten Cantonese-speaking participants, three were aware of the pesticide by-law: one works for the City and so learned about it there; another learned of it through his association with Toronto Public Health's Community Grants program for which he conducted workshops on pesticides; and, the third thought there was a pesticide ban but did not know to whom it applied or what products were restricted. Of the 13 Spanish-speaking participants, one person knew about the law and had a clear idea of how it worked; two others had heard of it but did not know any details.

Effect of & Attitude toward the Pesticide By-law

Most participants reported that the by-law would have no effect on them as they did not use pesticides anyway, or had not used them for some time. There were a few exceptions. Two Cantonese participants in Scarborough did regularly use chemical pesticide products and one was annoyed that the by-law would restrict her lawncare company's ability to control weeds (she was the only participant who used a lawncare company). The other noted that she would no longer use weed-control products but felt that if 'problems' were serious enough, the use of restricted products would be necessary. Among Spanish participants, two reported that they would change the products they used based on the by-law and one of these was prepared to learn about alternative pest control strategies in the garden. The majority of respondents (22) were in favour of or neutral about the by-law and only one, as noted above, was openly negative.

Observations

While these findings are quite positive in terms of likely compliance with and support of the by-law, some participants were working with assumptions about how the law worked that could result in them using restricted products. These assumptions can be broken down into two types: assumptions about municipal jurisdiction and the consequence of restricting a product; and, assumptions or confusion over the definition of 'chemical,' 'pesticide,' 'fertilizer,' 'organic' and 'infestation.'

(a) Jurisdiction and Restricted Products

One fairly common misapprehension was that if a product were restricted by the municipality, it would no longer be sold in regular commercial outlets. The following quotations make this clear:

I know that the legislation changed this year, and that it will come into effect in the coming year, and I think that this [Weed and Feed] will be one of the pesticides that they'll take away. But also, I'm going to be practical in the sense

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that I'm not a gardener, I'm not a garden technician, and the truth is that I don't like to invest time in understanding all of the ins and outs of fertilizers, because it's not my profession. So, next year, with the legislation passed, I'd imagine that they'll only be able to sell those products that are legal within Scarborough – you'll buy what they have. ... I'm just going to be practical in the sense that I'm sure that more than one [product] will have a sign that says 'authorized for sale' – so, that's what I'm going to base it on.

But they are sold in the stores that say they are ok. That's why I use them. I have been using them and eating the vegetables for many years. I really don't know whether they are harmful or not. I buy them because they sell them.

[Discussion between two participants in a Cantonese focus group]

1: Those chemicals may not be allowed by the City Government.

2: But they are always sold at stores.

1: So you think that you can use them on your garden because they are available in stores?

2: Is it ok?

[Discussion between two participants in a Spanish focus group]

1: But they sell it [pesticides]?

2: Yes, stores can still sell it.

1: That doesn't make sense.

Six respondents believed that restricted products would no longer be available on the shelves or would be marked as 'dangerous' or restricted, or that if a product was for sale, it was 'safe.' Two people recognized the problem of restricting the use of legal products:

I know that the Government bans the use of something, but I can still buy it. That means it's not banned. A lot of people think that way.

How does this by-law exist if the government still allows these products [to be sold]? ...they shouldn't have the products at all...because you have to have the awareness of whether it's good or bad [to know whether to buy it].

Only one participant was aware that the City did not have jurisdiction over the sale of pesticides.

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(b) Definitional Uncertainties

There were often requests to clarify the meaning of terms like ‘pesticide’ and ‘fertilizer,’ and some people were unsure of what the by-law restricted or how that was determined. Some examples of these types of confusion and uncertainty illustrate this point:

[segment of a focus group, Q represents interviewer]

Q: Have you ever considered whether fertilizers are harmful to the environment?

1: They should not be? I don't really know.

2: I think fertilizers don't cause harm to the environment while chemical ones do. But normally 'organic chemical' fertilizers should not cause any harm?

Q: Things like manure do not cause harm?

2: I think so too. They should not cause harm. They talk about using 'organic chemical' fertilizers here.

Q: So what about you? Do you think using chemical fertilizers are bad for the environment?

1: It shouldn't be.

Q: What's your opinion on pesticides?

1: About fertilizer...

2: Fertilizer is different than pesticides. Pesticides are for killing things, for infestations; fertilizer is nutrients for the soil.

3: Like manure and that.

1: Ohhh, OK.

2: Like natural fertilizer...pesticides are used for killing things...

3: Like ants...

2: For weeds as well. Do you use anything like that?

1: No.

Q: OK, and what do you think about using it? Is it worrying to you?

1: Well I think that the soil needs...[Unclear], because in order to be able to farm the land, one prepares the soil, so they use fertilizers to kill everything that's there, so that the land is good and able to produce.

4: So fertilizer and pesticide isn't the same thing?

[All]: No.

2: Fertilizer adds more minerals.

Q: Yes – so pesticides are for killing either weeds or insects, like with a spray or a powder.

1: For insects I used it for the ants, so that yes I do use.

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Q: First of all, do you understand the differences between chemical and organic pesticides/fertilizers? Have you heard about them?

1: Chemical things are those made with chemical raw materials. I think they are not very good for human bodies, and cause some harm.

Q: Do you know what 'organic' means?

1: Organic... should be something like environmental protection? Something like grasses?

2: It should be something not chemical.

1: It should be something not chemical and without pesticides.

'Weed and Feed' we use more as a fertilizer – I don't know if it's a pesticide officially.

There were others who did not know that 'weed and feed' products were also pesticides and would be restricted under the new law. It is also worth noting that only one respondent made the connection between the overuse of lawn fertilizers and contamination of lake water – the more common assumption is that fertilizer is benign. There were two focus group discussions about the meaning of 'infestation' and it was not clear that they understood this could apply only to insects under the by-law.

It is clear then that at least some people would not stop using restricted products if they continue to be available on store shelves and/or if they cannot clearly distinguish between the categories of pesticide and fertilizer, chemical and organic.

By-law Enforcement

Generally, participants stated that they were not likely to make a complaint if they knew a neighbour was using pesticides in contravention of the by-law. Across the 23 primary respondents, only one (Spanish) was adamant that she would make a complaint as long as she would remain anonymous. It is worth noting that this respondent reported many conflicts with neighbours over other issues such as noise and garbage. Another respondent's husband (Cantonese) reported being willing to complain on the basis that pesticides were harmful to everyone's health. These were the only strong positives in the sample.

Among Cantonese primary participants, none were unconditionally prepared to complain. All participants in the South Riverdale focus group said they would be unlikely to complain because they distrusted government, felt it might get them in trouble and because they could not speak English. Confidentiality was less the issue here than anonymity as they wished to avoid contact with government authorities:

Q: You don't want to have things to do with the government?

1: That's right. If anything happens the government will go to you. It will be troublesome.

2: That's right.

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1: *It will be a lot of trouble to me. I will try to avoid it as much as I can.*

2: *A lot of trouble.*

3: *I will try my best to avoid it [laugh].*

Q: *I see...*

3: *I don't want to find trouble for myself [laugh].*

Q: *You may have to go to the authority as a witness...*

3: *[Laugh]*

1: *That's right. It will be a lot of trouble.*

Scarborough Cantonese focus group participants were in favour of talking to friends and neighbours first (3 of 4) while the fourth, the same person who opposed the by-law, would only complain if the dangers of pesticide use were made clear to her:

Q: *Do you know how enforcement works?*

1: *I'd like to know. I don't know how it works. But I want to know the harmful levels for the environment and for humans. If it's very bad to the environment or to our health, then I would say something and report the person. But if it's just... you know... if it's just an environmental issue brought up by the environmentalist, then it's no major concern.*

Among Spanish primary participants, apart from the one response noted above, only two were prepared to complain on the condition that the process is confidential. Of the remainder who voiced an opinion, one was in favour of talking to neighbours first in order to avoid problems or conflicts while four were adamant that they would not make a complaint, one because she lacked the time:

My life is so frantic that I don't have time to get all the required things done for to take care of my household, and really the government is bureaucratic, you know, they'll have me waiting, like they'll have me waiting 8 hours on the 1-800 line, no – "Please wait for one of our operators to be available. Please hold, your opinion is very important." [laughs] I have lots of things to do at home, I don't think I'd [make a complaint] – for lack of time, not for lack of desire to. Just recently a neighbour had a garbage bin that smelled horrible outside, when we all went out – I mean, there is a day for garbage, and you have to call [to find out]. The neighbourhood smelled terrible. I didn't have time even to complain to the City so that they'd fine them. And that bothered me – that's real life, I don't have time to complain, although it bothers me, I don't have time. I have a lot of commitments.

The husband of one Spanish respondent saw the enforcement system as fostering gossip and through this developing a system of state repression:

They've proposed a system which they have little idea about, and prefer a system of 'gossip,' no, just having neighbours keep an eye on what's

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being done and who's doing it – it's moralist. I mean, here people are very content not having gossip people – if the government wants to have gossips, well they should look at a social system like Cuba's, I mean a repressive system where the police are just waiting for the gossip of other people in order to act. No, I'm not going to do that [make a complaint].

There was much discussion about the issue of confidentiality. While interviewers assured respondents that the complaints process was confidential, some people still felt it was not worth the risk of upsetting neighbourhood relations since accused parties would know it was someone nearby who complained. Even the strongest positive response was conditional on guarantees of confidentiality despite her history of conflicts with neighbours.

A few respondents also felt that it would be difficult to know when someone had used pesticides so that they would not know when to complain.

Overall Effectiveness of by-law

Given the general unwillingness to complain, many respondents felt that the by-law would not be effective. A number of them had ideas for improving this:

- More public education: this was the most popular idea to encourage more people to abide by the restriction. Some ideas for reaching people included workshops offered through community centres and retailers; information available at community centres etc. The specifics of how better to reach the public are given below under Civic Engagement.
- Many people also supported banning pesticides or at least restricting their sale to those with a permit. Alternatively, they suggested making dangerous products obvious by use of a symbol that everyone could understand.
- Ensure confidentiality.
- Use a system of patrolling inspectors – some people recognized that the costs and practicalities of this would make it unworkable.
- Have telephone access in other languages.
- Impose tougher fines to deter people.
- Ensure that alternative products are available as retail products (in other words, do not ask people to make their own).

4. Civic Engagement in Relation to the By-law

This section deals with responses to City of Toronto information about the by-law and alternative gardening practices and with the specific question of translation into other languages to improve communication effectiveness.

During the focus groups, people were given packages of information – some in English, some in their native language – that had been prepared by the City. When possible, the interviewers asked what people thought of these packages during the focus group and in the in-home interviews. Those people who did not participate in focus groups were given information during the first interview and asked their opinion in the second or third. Responses to this material were very

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mixed and seemingly contradictory where the same person would ask for more information while suggesting that the existing material was too detailed.

Both Cantonese and Spanish participants noted errors that made it obvious that non-gardeners had done the translation. One issue deserves special attention for future Spanish translations. The terms ‘grass’ and ‘lawn’ can be translated a number of different ways in Spanish: *pasto*, *grama*, *césped*, *hierba*. *Hierba* is particularly problematic since ‘*hierba buena*’ means mint while ‘*mala hierba*’ means weed. *Hierba*, by itself, does not mean grass as it is used in the existing material. *Pasto*, *grama* and *cesped* are all regional variations for lawn but it is clear from this brief analysis that translating gardening terms into a single ‘Spanish’ or ‘Cantonese’ version is likely to be problematic due to regional and technical specificities. In Cantonese, it was noted that participants had no word for ‘slug’ though they all dealt with them in the garden – they referred to them as ‘wet sticky bugs.’ One solution suggested by some participants was to leave technical terms in English or to accompany information with pictures so that everyone could be clear what was being referred to in terms of species of plants and insects and gardening techniques.

In terms of engagement with City initiatives in relation to (but not exclusive to) the by-law, many participants agreed that more communication would be an asset and lots of suggestions were generated on the question of how the municipality might better reach members of these linguistic groups. While many of these are obvious, respondents often disagreed as to efficacy and these objections are noted:

- Flyers in the post: Lots of people suggested this medium of communication though some felt that ‘junk mail’ tends to be ignored. As well, the same tension between providing enough detail in the right language and overwhelming people with ‘too much information’ in the wrong one was reflected in these discussions. One creative solution was to include an insert about the by-law in the property tax bill where people were more likely to take notice.
- Schools: No one was opposed to sending information home with children but some felt that this could not be relied on since people with very young children or none at all, would not receive it. Some felt that if children were to be involved, pesticide information should be part of what they are taught in school, not just included as a note to their parents.

As I see it, it's about who you want to educate, you know? If you want to educate parents, send sheets to the parents. If you want to educate kids, give classes to the kids. Don't give them sheets, because children aren't going to read sheets. You have to dedicate the time to give them a class. If you're going to want the parent to read something, you have to send the sheets to the parent. How many parents will actually read it, well, I don't know that this system is so effective, I can't say.

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When my children take them [information sheets] home I will read them. If the information they take home is in Chinese they always ask me to read. But if it is in English, we won't understand so we don't read them. They don't ask us to read English [Laugh]. But there is Chinese information that they take home.

- Radio, television and newspapers in other languages than English were also popular ideas though one respondent noted that there needed to be 'experts' consulted or interviewed to lend credibility to the information.
- Malls and stores popular with specific linguistic groups were suggested as good places to post notices.
- Some people felt that the best avenue was through direct outreach through workshops offered at community centres, churches or retail stores.
- Internet was only popular among those who spoke English fluently (the minority) and it was noted that the City's own website did not provide access to material in other languages on the front page.

There were other ideas but the main problem with reaching people is how to do it in the right language in the most convenient form. For example, the City of Toronto sends out English garbage collection calendars with instructions as to how to get one in another language. To the extent that this is effective and people take the time to request a different version, it works, but this concerns information people want for their own convenience. Repeating this process (English with instructions about how to request another language) with information that may not be readily understood (what is a pesticide?) or appreciated (weeds are a nuisance) may be less effective. To that end, direct communication about the by-law and enforcement through non-English media would appear to be a better option and as one participant noted, this has to be a consistent and long-term campaign:

The other thing is that they have a massive, consistent, and persistent campaign, that's regular, you know – 'at all times' – because what happens with the majority of campaigns for ethnic communities is that they give, like, a drop of water in the pool, and nothing else, you know – like, OK – when the money's available, we'll decide to do something, alright, lets go...And it's that you find this pattern in everything – in schools, in City activities, everywhere – that's why it doesn't surprise me that there isn't any [materials] in Spanish.

In terms of what information people wanted in connection with the by-law and how to comply with it, the following suggestions were made:

- Explain why pesticides are restricted and why they are risky. Clarify what they are and distinguish them from fertilizers.

They also have to make clear the benefits and harms, because not a lot of people know about them. If you just talk about banning pesticides without

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talking about the harms, people would not care, and would just care for their own convenience.

- Provide alternatives to a wide variety of problems or indicate where more specific information can easily be found in the person's native language.
- Tell people how to garden well so that they do not need pesticides. For example, suggest which plants will tolerate our soils and climate well or explain how to compost.
- Tell them clearly which products are allowed and which are not and where to find alternatives.

If the City sends a list to my house ... of chemical products, that maybe won't be useful for me, because the name of a chemical product isn't exactly what you read on a label. If the City sent a list of all the products that contain that chemical product, then that list would help.

For different reasons, mostly legal but also practical, none of these may be easy for a municipal authority to enact. Perhaps the best way to respond to these demands is to ensure that local partner organizations are able to address these issues in public fora and media over the long term.

ORIGINAL QUESTIONS REVIEWED

While the sample size of MYHEP was small, the use of intensive in-home interviews gave us an opportunity to probe some issues more deeply than focus groups alone would have permitted. Some interesting observations relevant to the original questions of the project result.

By-law compliance and enforcement issues

The MYHEP project sought to explore the effectiveness of particular by-law enforcement strategies, particularly in relation to ensuring sufficient enforcement in non-English-speaking communities. This really has two components. First, is everyone protected by knowing that pesticides are restricted so that they themselves refrain from using them? Second, is everyone protected from their neighbours' use of pesticides by virtue of being able to utilize the existing enforcement structure (i.e., by making a complaint)?

As to the first question, few participants in the in-home interviews were found to have pesticides on their premises. Those who did have pesticides appeared to be more affluent than those who did not. This, along with responses from non-pesticide using respondents, suggests that one factor in the use of pesticides is cost and people's willingness to pay for pest-free lawns and gardens. To the extent that our finding reflects a wider reality, it may be that poorer households do not have the disposable income to buy pesticides in the first place or may not prioritize yard aesthetics sufficiently to want to spend money in that way. It is possible then that this is not an 'ethnic' or linguistic divide between pesticide users and non-users but an economic one. Since these three households could all understand spoken English, they are not *a priori* excluded from English-language information campaigns (though they may or may not pay attention to the media used by the City).

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At the same time, participants reported confusion about what constitutes a pesticide and about whether products that are restricted by the by-law are available for sale. This confusion could lead to participants purchasing and using pesticides unintentionally. Under these conditions, it is unlikely that all citizens are equally protected, since those with less familiarity with key terms in this arena (e.g., pesticide, fertilizer) and/or who use the presence of a product on store shelves as an indicator of its compliance with the by-law may expose themselves unwittingly to restricted products.

As to the second question, whether or not a household will be protected from the pesticide use of neighbours, this currently depends on their willingness to complain should their neighbours fail to comply with the by-law. Here there are clearer links between ethno-linguistic origin and level of comfort dealing with government, as all of our downtown Cantonese respondents reported being unwilling to complain for fear of ‘trouble’ with authorities and because they could not speak English. One respondent’s husband was the only exception in this group. This would suggest that, even if direct complaint lines were offered in a number of languages, people with negative perceptions of government authorities are unlikely to make use of them. The one Spanish in-home interviewee who spoke no English also queried whether she could call in Spanish but said she would complain if it were confidential. The majority of the rest who would not complain or would only do so with absolute assurances of confidentiality were concerned about the effect of complaining on neighbourhood relationships (it is important to note that the City currently ensures confidentiality to callers, and it may want to emphasize this in future information campaigns). Among study participants, it would seem that the risks of neighbourhood conflict are seen to outweigh the risks of pesticide exposure. This would appear to be a broader concern that is not directly linked to comfort in the English language, although it may be more pronounced among those who feel more vulnerable in their communities (including those who lack trust in government).

To summarize then, for people who speak no English, current by-law information/education campaigns and the complaints-based enforcement system are likely not protecting them well. However, other factors like income and pesticide-related education may be better predictors of pesticide use than ethnic affiliation, and concerns about creating conflict between neighbours may affect a broader group than non-English speakers. This raises questions about the effectiveness of current education and enforcement strategies that go beyond the small case study population explored here.

To achieve the widest possible net of compliance through existing enforcement mechanisms would require that more people are made aware of the links between pesticide use and negative human health outcomes (see Sanborn et al. 2004). In addition, it is clear that supporting efforts to ban the sale of pesticides at the provincial level would be the surest way to limit their use and provide universal health protection. Our research shows clearly that people believe ‘government’ would not allow the sale of products unless they were safe, or at least legal. An alternate stream of public education could make jurisdiction issues clear and call for action at the provincial level. Encouraging retailers to voluntarily remove restricted products from their shelves, to showcase unrestricted products in their displays, and to offer literature and workshops about alternative treatments would also help.

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Information and Communication for Environmental Health Protection

A second goal of the MYHEP project was to identify and better understand some of the challenges faced by governments in communicating environmental health information to various cultural and linguistic audiences. Results highlight a number of challenges faced in communicating with non-English-speaking groups, including difficulties in ensuring accurate translation and the lack of use of “mainstream” media.

The data also suggest some interesting avenues for future efforts to reach non-English speaking populations. Participants themselves identified a number of potential avenues, as summarized in a previous section. These generally involved media campaigns targeted to a particular linguistic audience (e.g., through alternative media and specialized flyers), as well as education campaigns that build on existing community resources (e.g., programs at the community centres and schools).

Participants also suggested that pesticide and pest treatment material should use diagrams and images as much as possible to clarify the message. This is particularly important when referring to types of plants and insects where translation issues will almost certainly arise. Technical terms should be clearly defined rather than assumed (particularly core concepts like pesticide, fertilizer, chemical, organic, natural etc.), both in English and in other languages. Above all, regulations and guidelines must be made simple to understand and follow, for the benefit of all those who receive the information.

Results in general suggest the importance of working with community organizations and peer leaders. This could involve pairing impersonal media campaigns with outreach to groups who might then spread the information through informal networks. As was suggested in an earlier literature review (Jermyn 2005), using ‘community leaders’ may be more effective than broadcasting general information. In this case, ‘leaders’ are those to whom others turn for gardening advice and are likely to be those with both experience and commitment to gardening. This suggests that selectively tapping into events or spaces that attract older or experienced gardeners in an area would be useful, especially if these events encouraged peer education to the broader community. In addition, where there are other types of groups (such as the village or kin associations of mainland Chinese for example), they could be included in language specific education campaigns such as mailing and outreach events.

CONCLUSION AND FUTURE RESEARCH

MYHEP explored some of the ways people use and think about their outdoor space. The research exposed some interesting differences between groups (e.g., the greater influence of neighbours among Spanish participants) and broad similarities across groups (e.g., a general unwillingness to participate in complaint-based enforcement). In addition, the data raise but do not resolve provocative questions about the role of socioeconomic status and prior farming experience in use of pesticides.

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Future research could take a number of directions based on these findings. Possible research avenues include:

- Examining practices among experienced gardeners to determine what advice they are likely to be giving out.
- Targeting socioeconomic groups for a similar study to see if the tendency observed here holds true.
- Comparing the practices of those with prior farming experience and those without.
- Testing the premise that knowledge about health risks from pesticide exposure is sufficient to shift people's willingness to complain (see Baxter et al. for current research on this question).
- Examining the effectiveness of particular interventions (e.g., education programs that make use of community networks).

Overall, this research has the potential to help inform the development of better environmental health protection programs, including education and enforcement strategies, in and beyond the City of Toronto.

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