

Water recycling: A step to better water stewardship and public health

My children were angry at me. It was another scorching summer day and the “water-park” Dad built in the backyard was not operational due to water restrictions. Incredibly, in rainy Vancouver, a poor winter snowfall combined with the record sunny summer we experienced last year resulted in a moratorium on running the hose over the playhouse slide. The kids were dying to cool off, which is better than how the garden tomatoes felt; they were just dying.

As my children and tomatoes continued to wilt I chatted with my neighbor and learned that Vancouver restricts the outdoor use of only treated drinking water.¹ My neighbor has a rainwater tank. Now I do too, and I am ready for another summer.

Water restrictions are not always headline news, but they do point to a growing issue in BC and throughout the world. To be sure, drought has been part of the earth’s climate repertoire for millennia, but current projections call for increased frequency of and more widespread occurrence of water shortages as global temperatures rise.²

The human health implications of water scarcity are already upon us and are likely to be further exacerbated as water supplies become more precarious. Water scarcity directly threatens agricultural production, food security, and the effectiveness of sanitation systems. Also troubling are the geopolitical implications of diminishing access to water. The World Bank warns of the prospects for economic decline, increased poverty, and international conflict.³

Though there are many facets to prudent water management, one option is to recycle greywater and rainwater. Greywater is the household wastewater from bathtubs, showers, sinks, dishwashers, and washing machines. Water from toilets and urinals is considered blackwater and is not suitable to be recycled. Water from kitchen sinks and dishwashers,

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which contains food waste, may be considered grey or black depending on the jurisdiction.³ Rainwater can be harvested from roofs or through other collection methods.³

It is estimated that reusing greywater can save up to 60% of household water,⁴ and there are many ways to reuse water (e.g., watering gardens and lawns, or flushing toilets and urinals), but regulations around reusing water vary across jurisdictions.

In BC regulations have included provisions for the use of reclaimed water since 1999. Wastewater in BC is already being reused in toilet/urinal flushing, landscape watering, playground use, green-roof irrigation, golf course irrigation, and forage crop irrigation. The BC government has also updated the Building Code

to allow water utility providers to distribute nonpotable water and to allow nonpotable distribution systems to be installed in buildings.³ Currently, the BC Ministry of Health is drafting a manual for greywater use in composting toilets.⁵

Using recycled water to flush our toilets and to water our lawns and gardens can benefit the environment by reducing the draw on drinking water, improving plant growth and soil maintenance, recharging local groundwater, and decreasing the load on sewage and treatment infrastructure. To go a step further, some systems can even extract the heat from washing machine and bath effluent for use elsewhere in the home.

On the other hand, the use of reclaimed water may carry human health risks, although the danger is thought to be low.⁶ For example, water from bathing may carry potentially pathogenic microorganisms, and water from kitchen sinks or dishwashers may contain food waste and chemicals.⁷ Moreover, some chemicals contained in greywater can adversely affect plants.⁷ To mitigate risks to human health and agriculture, systems are typically used to prevent direct human exposure or to divert unwanted waste and chemicals.

In BC there are still opportunities to enhance existing regulations to balance water stewardship with public health, including more comprehensive Ministry of Health policies and regulations for reusing different types of water, and municipal bylaws on plumbing code reuse provisions.³ More broadly, greater alignment between environmental, health, and municipal policies and regulations can minimize human health risks associated with reusing water.

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Three older brothers, yes. Coffee with extra cream, no sugar. A job teaching med students pelvic exams. Surprised, she asked why anyone would ever sign up for a job like that. Smiling, I told her I loved to teach, but what I really wanted was to be a doctor, like my students would be. She frowned and wrinkled her nose. "I hate doctors," she signed. "I've dealt with them all my life, and I hate them. I hate them."

"... But why?"

She looked at me, incredulous.

"Because they don't care. They don't look at you and see a person, they see a problem. Especially me."

She consented to a special, extensive pelvic exam that collects evidence in cases like hers. It was optional. I explained that pelvic exams don't usually hurt, but that, in light of her injuries. . . . She nodded in haste that she understood as she signed her consent, determined. But she had turned from green to grey, frightened, despite herself.

Slamming down the pen, she turned briskly and asked if I would hold her hand. I felt myself pale. I had always waited down the hall as women were examined.

"Of course," I said. Inside, my heart hammered. The blood in my ears was torrentially loud. Down the hall where I usually sat, the story she told me was safely sequestered by all my professional boundaries. But in the exam room. . . .

The nurse was ready for us. The curtain swung around, sealing us in. The day-surgery wing abandoned, we helped Elise to lay supine on the table and guided her foot and prosthetic to the footrests. Stupidly, I told her that I had two hands and could afford to have one broken. Her face blank and stony, she watched the translator as I spoke, but signed nothing. A knot in me tightened, somewhere.

It was a difficult exam. Elise crushed my fingers together, and

whipped her head around to seek my eyes. Nobody, before that moment, had ever fixed me with that look. Years later, I'd see it again and again in the eyes of soon-to-be mothers in labor, close to the end. That fear of death, the pain, and dread of pain, mingled with tears and a coarse resolve. Elise grit her teeth and stared through me, inside of me, holding on in desperation, a drowning woman adrift. Staring, clenching her jaw, refusing to stop the exam, it was clear she was taking me with her. I followed her down as far as a person who had never lived her life, who would never truly understand, could go. Her desperate grasp was counterpoint to everything her face beheld: gratitude, shades of dignity and pride in the corners of her mouth, and a deep, enduring sorrow ringing the sockets of her bloodshot eyes. Looking back at her, I was flooded with certainty.

This. This mattered. This was why, at 3:00 a.m., I was not fast asleep in my comfortable bed. This moment was why I wore that pager, and later, this one. Without any warning, a total stranger mattered in a way that deeply affirmed something shared, and resilient, between us. Its relation to bruises and bloodwork was only tangential. My eyes pricked with tears as I held that hand, that stare, that moment of deep and honest human, humane connection. This was the heart and soul that would drive the years of sleepless nights, on-call disasters, and overtime hours. The live, electric brilliance of that unguarded, understood moment had lit the way through an evening of hell.

I looked at Elise, surrounded by people she barely knew, on the very worst day of her very young life. Her hand in my hand, I said nothing. But then, and forevermore, I would see the person.

The person first, Elise. I promise.

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But my kids are still angry at me. They hate tomatoes.

—Lloyd Oppel, MD

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