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IDEAS THAT LEAD

**The Future with Zero-Emission
Electric Vehicles**

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**Do Epidemiological Data Support the
Case for Vaccine Mandates?**

**It's Time to Abolish the Absurd (and Slightly
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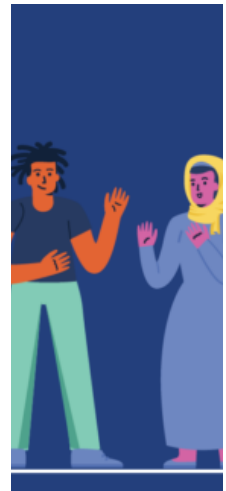
It's hard not to like electric vehicles. Or rather, it is becoming hard to express open dislike of them. They're green, clean, quiet, fast, subsidized – and “free” to operate. And if the Liberal government has its way, EVs will soon be the only cars you can buy. It's all settled! But perhaps it shouldn't be. James Coggins parts the curtain of EV virtue-signalling and poses some basic questions that should have been answered by now if Canada is to cruise smoothly into its battery-operated future. Car owners and families, brace yourselves for a severe jolt, for Coggins uncovers a yawning vacuum of answers regarding the very fundamentals of building, financing and powering Canada's soon-to-proliferate EV fleet.

It's Time to Abolish the Absurd (and Slightly Racist) Concept of “Visible Minorities”

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“Visible minority” is a term unique to Canada. But unlike other oddities of Canadian English, such as two-four, chesterfield, housecoat or serviette, it does more than just highlight our linguistic distinctiveness. It's also standing in the way of a fairer and more equitable country. Mustering the latest research and expert opinion, Peter Shawn Taylor reveals the myriad problems with using race to bifurcate Canada into two solitudes of white and non-white, otherwise known as visible minority. There's a better way forward that could not only build a more cohesive society but also address the disadvantages faced by Canadians of all races.



Do Epidemiological Data Support the Case for Vaccine Mandates?

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“Follow the science!” seems to have largely given way to “Vaccinate! Obey! Or else!” the latter threat incorporating everything up to and including martial law. Perhaps there's no better time, then, to take a look at what the actual data say and where they might lead – if we choose to listen. In this exclusive research-based essay, Jim Mason lays out and meticulously examines the most recent three months' worth of Ontario government Covid-19 case data. Applying accepted epidemiological formulae in his analysis, Mason vividly charts the vaccines' increasingly worrisome performance throughout the Omicron Wave.



The Future with Zero-Emission Electric Vehicles

By James R. Coggins

First Published November 24, 2021

Last summer the federal government decreed that by 2035 all new cars and light trucks sold in Canada must be zero-emission vehicles. While some hydrogen-powered vehicles are in development, this essentially means that within 20-25 years almost all Canadians will be forced to drive electric vehicles (EVs). This massive change in Canadian life is not being brought about by a law debated in and duly passed by both Houses of Parliament, but simply through a “regulation” issued by the minority government of Justin Trudeau.

Shouldn't a change as wide-ranging as this at least have been thoroughly studied and debated? It wasn't. We are increasingly a nation governed by a prime minister and bureaucracy rather than by Parliament. For the population that

will have to live with the consequences, perhaps even more disturbing is that it does not appear even to have been thought through by those imposing it. For this decree raises a number of as-yet unanswered questions that go to the very heart of building, financing, powering and running what the government clearly expects will be Canada's burgeoning EV fleet.

1. Where Will the Money Come From?

Battery-operated cars are more expensive to manufacture than gasoline-powered automobiles. Although the individual difference varies greatly, purchasing an EV costs at least 50 percent more than an equivalent gasoline-powered

one – in some cases up to 300 percent more. The multiplicity of available vehicles – along with the dizzying array of trim levels, options and engines – complicates precise comparison, but some examples make the overall picture clear.

The gasoline-powered version of the Ford Mustang, according to the Ford Canada website, starts at \$31,895. The electric version starts at \$50,495. According to Chevrolet Canada, the diminutive entry-level (and gas-powered) Chevrolet Spark starts at \$10,398 – less than the price of a very fancy e-mountain bike. The electric Chevrolet Bolt – Chevy's “cheapest” electric car – will set you back nearly four times as much: \$38,198. The ubiquitous Ford F-150 light truck lists for as little as \$34,079. The electric version, when it comes out as the world's first electric pickup, will start at \$92,025 – well into European luxury-car pricing territory. The price differences among Japanese and European cars are similar. As for the world's leading all-electric-car manufacturer, Tesla, its least expensive offering, the Model 3, starts at \$64,900 – comparable to a well-equipped, mid-sized European sports sedan like the Audi A6. Tesla's Model S, meanwhile, ranges up to \$169,990.

In short: EVs are vastly more expensive than gasoline-powered cars and, if they don't come down significantly in price, will put car ownership out of reach of many Canadians. And some carmakers still haven't even developed a fully electric vehicle; others offer only hybrids. No manufacturer has yet produced an electric truck, although the Ford F-150 seems closest to roll-out. Larger electric trucks and RVs are a long way off and may never be feasible.

There are about 25 million cars and light trucks in Canada – less than 1 percent of them electric. EVs still make up only 3.5 percent of new vehicle sales – about 55,000 units last year. The average price of a new car in Canada is now over \$40,000. If EVs are conservatively estimated as being 50 percent more expensive, this means that the incremental cost of replacing Canada's entire car and light truck fleet will be at

least \$500 billion. The gross expenditure would be a hard-to-imagine \$1.5 trillion – 75 percent of Canada’s entire annual GDP.



Out of reach for many Canadians: Electric versions of even the more affordable car models are 50 percent to 300 percent more expensive than their gasoline-powered counterparts. Ford’s electric F150 pickup – when it finally appears – will run you close to \$100,000.

Clearly, something will have to give.

The costs do not stop there. Not even close. EVs are useless unless they can be recharged. The most basic “Level 1” chargers cost a seemingly modest US\$80-US\$180 and can be plugged into a standard 120-volt household outlet. But they require eight to 25 hours to fully charge a car, making them impractical for most car owners. Level 2 charging stations can also be installed in a private home with 240-volt service and reduce the charging time to about four to 10 hours. They range in price from US\$750 to US\$2,600, plus potentially US\$1,000-US\$3,000 if electrical upgrading is needed.

Level 3 fast-charging stations are for public and commercial networks and can charge an EV’s battery bank in 30-60 minutes. They cost US\$10,000-US\$40,000 plus US\$4,000-US\$50,000 for installation, reflecting the frequent need for upgraded transmission lines and transformers. By comparison, it costs US\$16,000-US\$21,000 to purchase a dual-outlet gas pump, plus US\$2,500-US\$3,000 for installation. And one such pump can service 12-24 times as many vehicles as a single-outlet electric charging station, since it takes no more than five minutes to fuel a gasoline-powered car.

There are currently about 160,000

gasoline and diesel fuel pumps in Canada. The much greater time needed to recharge an EV means that far more charging

stations will be needed. EVs also have a shorter range than internal combustion engine-powered vehicles and therefore need to be recharged more often. The very expensive Tesla Model S currently has the best official EV range at 650 km – impressive even for a gas-powered car. But this is reduced

when travelling at high speeds or in cold conditions (in a Canadian winter, for instance), since low temperatures drain battery power faster, so its “real world” range is barely 500 km. The more affordable Nissan Leaf has a nominal range of just 400 km.

According to Natural Resources Canada, there are barely 6,000 publicly available charging stations across Canada. During the recent federal election, the Liberals promised to spend \$700 million to add 50,000 more. But that is still only a small fraction of the number that will be needed. Taking all the factors discussed above into account, powering a nationwide fleet of 25 million EVs might require a *couple of million* non-residential charging stations,

people habitually charge their vehicles at home. Taking the mid-range of the costs discussed above, this would require capital investment of \$100 billion, not including costs to upgrade or augment major electrical transmission lines to service the increased electrical load (more on that below).

All of the costs discussed so far come before you “put in the juice.” Doing so certainly won’t remain “free” for long. Costless charging proved a great way to create buzz for EVs and to soften up the public for the coming transition. City governments and large organizations could afford to offer this as long as EVs remained a novelty, but the practice is obviously unsustainable. Perhaps not surprisingly, it is difficult to obtain clear data on what it actually costs to charge an EV. Electricity rates vary greatly from province to province, from region to region within some provinces, and according to time of day. It costs more to charge a vehicle at a fast-charging commercial station that is trying to recover its investment costs and make a profit on the electricity it sells than it does at a slower, home-based station.

Taking all of this into account, a recent study by the Anderson Economic Group concluded that refuelling in the U.S. costs US\$8.58-US\$12.60 per 100 miles driven for a range of gasoline-powered vehicles, while recharging costs US\$12.95-US\$15.52 per 100 miles driven for comparable EVs. Going by these data, driving a typical 10,000 miles per year would increase the annual cost of motoring by about US\$350. While noticeable, most

Costless charging of electric vehicles proved a great way to create buzz for EVs and soften up the public for the coming transition. City governments and large organizations could afford to offer this as long as EVs remained a novelty, but the practice is obviously unsustainable.

unless charging times drop substantially, vehicle ranges improve sharply and/or

car owners would probably consider this bearable. But this assumes stable

electricity prices for the long term. More likely, power costs will climb significantly in response to increased demand associated with a burgeoning EV fleet and the ongoing government-driven shift to less efficient and more expensive “green” energy sources.

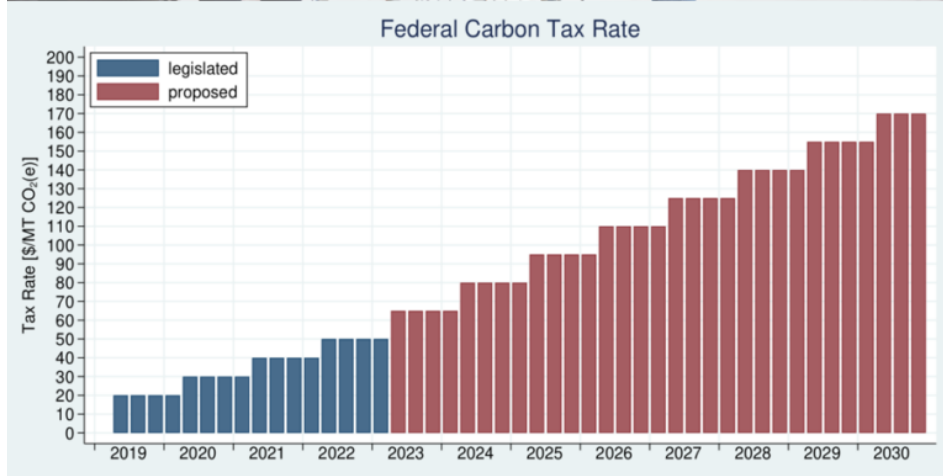
The shift to EVs will clearly entail significant new costs for car owners and those who depend on them. Assuming that a typical EV will last 10-12 years, the changeover will cost the average Canadian car buyer at least \$2,000 per year more than they would spend to replace a normal car. A home charging station will come on top of that. As will the added cost of charging their EV – already at least Cdn\$500 more per year than gasoline or diesel, and set to climb.

All-in, the additional costs are likely to be \$4,000 or more per year. (For a family that needs two vehicles, that would be \$8,000+ annually.) That will materially reduce the standard of living of all but the wealthiest Canadian families, and will certainly price some families out of vehicle ownership altogether. These extra costs are the primary reason why Canadians have been reluctant to buy EVs.

2. How Much Can Government Pay?

The federal government is well aware of the extra costs involved with EVs, so it subsidizes them at every stage. Just last year, for example, Ottawa and Ontario poured \$590 million (about one-third of the total cost) into helping Ford upgrade its assembly plant in Oakville, Ontario, to start making EVs. Governments and electric utilities also subsidize charging stations.

Most of all, governments directly subsidize EV sales. The federal government provides a \$5,000 grant toward the purchase of each EV costing less than \$60,000, and some provincial governments offer additional subsidies, ranging up to \$8,000 in Quebec. If Canada’s 25 million gasoline-powered cars and light trucks were replaced with EVs drawing an average government subsidy of \$10,000 per vehicle, the cost to taxpayers would total some \$250 billion –



Endangered species? The family car or minivan is how millions of Canadians get around. Not for much longer, apparently. The carbon tax is meant to make buying and operating EVs relatively more attractive by making gasoline-powered vehicles much more expensive. But as the number of gas-powered cars dwindles, taxes on EVs will need to rise. (Source of graph: Werner's Blog, UBC Sauder)

plus billions more as early adopters began replacing their first EVs. That is obviously unsustainable, and here too, something will need to give.

It is also necessary to consider government revenue – though it is increasingly difficult to obtain clear information from the federal government. Annual budgets used to contain tables and graphs detailing revenue and spending. They are now 500-page philosophical treatises with very few financial details. It is known, however, that the Government of Canada collects about \$5 billion per year in excise taxes on gasoline, diesel and aviation fuel, as well as approximately \$1.6 billion per year in GST on gasoline and diesel. Provincial governments together collect approximately \$8 billion per year

from similar excise taxes. A recent *C2C Journal* article estimated that fuel taxes levied by all levels of government in 2019 totalled nearly \$18 billion. The federal government’s carbon tax, meanwhile, brought in about \$2.5 billion in its first year (2019) at \$20 per tonne, but the rate is scheduled to rise to \$170 per tonne by 2030, increasing the anticipated annual haul to \$20 billion. Some provinces also have their own carbon taxes.

The carbon tax is intended to close the gap between the operating costs of electric and gasoline-powered vehicles, not by making EVs less expensive but by making internal combustion engine vehicles more expensive. As the number of gasoline and diesel-powered vehicles on Canada’s roads starts to dwindle, so will carbon and

excise tax revenue. How will governments replace this income when there are fewer gasoline-powered vehicles to tax? If they impose taxes on electricity or EVs, EVs will become even more expensive. Regardless of what they drive, Canadians will have to pay a lot more for motoring.

The federal government is already running record deficits, so it is highly questionable whether it can continue to subsidize EVs and the required infrastructure changes at the current rate. That the costs will increasingly fall directly on consumers seems unavoidable. In the larger picture, it does not matter exactly where this money appears to come from, because when it comes to transportation by private vehicle, consumers are the same people as taxpayers. As taxpayer-funded subsidies of EVs fall, consumer-funded spending on EVs will rise. Canadians are going to pay – and pay a lot.

3. Where Will the Electricity Come From?

Last summer's heat wave stretched the capacity of electric grids in some parts of Canada, suggesting there is little remaining margin. Electric generation will have to increase significantly to charge 25 million EVs in Canada. Where might that increased capacity come from?

Canadians consume about 522.2 billion kilowatt-hours of electricity per year. A web post by a U.S. power utility estimated that an EV that travels 5.5 km per kilowatt-hour of electricity will consume approximately 4,090 kilowatt-hours per year, based on

driving about 22,000 km per year. Using those assumptions, 25 million electric vehicles in Canada would consume about 102.25 billion kilowatt-hours per year. This would require increasing Canada's electricity production by well over 20 percent (to account for the electricity lost during long-distance transmission and

25 million electric vehicles in Canada would consume about 102.25 billion kilowatt-hours per year. This would require increasing Canada's electricity production by well over 20 percent.

as heat in transformers, chargers, etc.). A different calculation based on different assumptions estimated that the increase would need to be a formidable 38 percent.

Either scenario represents a large and rapid increase in Canada's electricity consumption and would require constructing dozens of major new generating facilities across the country. In 2018, 60 percent of Canadian electricity production came from hydroelectric dams, 15 percent from nuclear generators, 11 percent from natural gas and crude oil, 7 percent from coal, and just 7 percent from "green" sources including wind and solar power. Every potential source of additional power faces obstacles, objections or drawbacks.

Major hydroelectric dams can only be built on large rivers flowing rapidly downhill, and there is a limited number of such rivers in Canada, even though our nation is better situated in this regard than many others. Building dams (such as the Site C dam on northeast British Columbia's Peace River) is becoming more difficult because environmental activists oppose their construction. Particularly in the Prairie provinces, there is a shortage of suitable rivers, so a considerable amount of

Canadian electricity is still generated by burning coal and natural gas. Relying on those sources to power transportation negates the very purpose of switching to EVs.

Accordingly, several provinces including New Brunswick, Ontario, Saskatchewan and even Alberta are considering turning

to nuclear generating stations. Nuclear power is cost-effective and highly reliable, but proposed new nuclear facilities habitually experience lengthy construction delays, cost over-runs and bitter political opposition – which is why nearly none are being built in any Western country. They also can harm the environment. And even if we set aside fears about the risk of future disasters akin to Three Mile Island, Chernobyl or Fukushima, we still have no good way of disposing of nuclear waste.

This leaves the favourites of environmentalists: solar and wind power. Despite the relentless hype from their many proponents, these sources are much more expensive, produce only intermittent and inconsistent power (when the sun shines and the wind blows), and often produce nothing when they are needed most – on cold, calm winter nights. (This is why the nominal capacity of all such facilities must be backed up on a one-for-one basis by a reliable source such as natural gas.) As well, solar panels and wind turbines wear out after 25-30 years, creating a major waste management problem. The massive fibreglass-wood-and-epoxy blades of wind turbines usually end up in landfills.

Unless Canada can identify and agree upon a large-scale, affordable and environmentally acceptable form of electricity generation, and begin building numerous new generating stations in short order, there is simply no point in switching to EVs. In fact, doing so could spell



Not so green after all: Aged-out wind turbines pose a major waste management problem. Depicted is the municipal landfill in Casper, Wyoming, one of the few repositories for unrecyclable fibreglass turbine blades. (Source: Courtesy of Casper Regional Landfill staff)

disaster as the added electricity demand drives power prices through the roof.

4. Where Will the Land Come From?

The already-large tracts of land blighted in generating “green” energy’s modest and intermittent contribution are just the beginning. As EVs proliferate and traditional energy sources are outlawed (coal), taxed into oblivion (natural gas) or stopped by politics (nuclear), vast areas will need to be covered with solar panels and wind turbines. As a recent *C2C Journal* article pointed out, a study last year by the Manhattan Institute found that replacing the energy output of a single 100-megawatt natural gas-fuelled power plant requires a minimum of twenty 170-metre-tall windmills, together occupying 26 square kilometres of land. By way of comparison, the province of Alberta uses on the order of 10,000 megawatts of electricity at any given time, and this will increase sharply if EVs proliferate as planned. The associated math is not hard to do.

There is also the question of recharging stations. Currently there are 11,908 retail gasoline stations in Canada (with, as mentioned above, a total of about 160,000 gas and diesel pumps). Many times that number of EV rechargers will be needed – possibly 1-2 million. Imagine thousands of large parking lots, each perhaps ten times the size of a gas station, filled with recharging EVs. And while many gas stations will no doubt disappear or be converted and expanded into EV charging stations, many will still be necessary to refuel commercial trucks and other large vehicles, as well as the dwindling fleet of aging gasoline-powered cars and light trucks.

5. Where Will the Lithium (and Other Critical Resources) Come From?

Most electric vehicles run on lithium or lithium-ion batteries. A typical EV battery bank requires about 10 kilograms of lithium (and lesser amounts of cobalt, manganese, nickel and graphite). The world’s lithium reserves are estimated at about 100 million

metric tonnes, or 100 billion kilograms, of which about 21 million tonnes or 21 billion kilograms are currently considered economically viable. So the world should hold sufficient lithium to provide batteries for billions of vehicles – at least in theory.

Unfortunately, annual lithium production was only about 82,000 tonnes in 2020, enough to power about 8 million new EVs worldwide. Moreover, much of that is used for industrial applications and



Not enough lithium to go around: With global supplies mostly spoken for, many new mines must be opened to serve burgeoning demand for EV batteries. At top, the Salar de Uyuni salt flat in Bolivia, the world's largest lithium source. At bottom, child labour in Democratic Republic of Congo. (Source of top photo: Shutterstock)

for batteries in smartphones and other devices. Worldwide lithium production would need to be increased markedly to enable just Canada’s conversion to EVs, even without any sharp increase in demand from other countries. The latter is obviously an unrealistic assumption, so it seems likely that a lithium crunch of some sort will occur as EV production ramps up around the world.

Canada has about 530,000 tonnes of economically viable lithium and currently produces none. Ontario Premier Doug Ford’s government is encouraging the opening of a lithium mine in northern Ontario’s Ring of Fire, but the plan is facing opposition from First Nations and has yet

to undergo environmental assessments.

Lithium is a soft metal, found especially in South America. The current top producers are Australia, Chile, China and Argentina. It is highly reactive and inflammable and presents serious environmental concerns. Its production requires large amounts of water (500,000 gallons per tonne of lithium) and releases a variety of toxic chemicals into the environment. Of course, since Canada produces no lithium at present, there is no environmental concern here. All of that has been offshored.

A Poorer, More Sedentary Future for Canadians

Sound technological solutions to many of these questions may eventually be found, although there is no guarantee. Shouldn’t we at least try to answer some of them before committing to such a fundamental disruption of the Canadian economy and social fabric?

Environmental activists often give the impression that life in the green economy will be much like our current life except for a much smaller carbon footprint and a cleaner environment. The far more likely reality is that in the “green” economy envisioned for only a couple of decades from now, most of us will have to get about on foot, on bicycles and on public transit. Extensive travel, whether international or just road trips within Canada, will likely be reserved for the very wealthy. The rest will travel as we have mostly been doing during the pandemic – virtually – on electronic devices powered by lithium batteries.

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It's Time to Abolish the Absurd (and Slightly Racist) Concept of "Visible Minorities"

By Peter Shawn Taylor

First Published February 19, 2022

No other country in the world divides itself along racial lines as we do in Canada. According to federal legislation, our country consists of three distinct race groups: Indigenous people, whites and everybody else. Members of this final catch-all category are officially deemed "visible minorities" and defined in law as "persons, other than Aboriginal people, who are non-Caucasian in race or non-white in colour." Canadians can either be native, white or non-white. How's that for inclusivity?

The term "visible minority" was invented in 1975 by black activist Kay Livingstone, founder of the Canadian Negro Women's Association, as the means to unite disparate immigrant groups at a time when Canada was overwhelmingly Caucasian. By 1984, the phrase had gained sufficient currency to play a starring role in the final report of Judge Rosalie Silberman Abella's Commission on Equality in Employment, and was later enshrined in law via the federal *Employment Equity Act* of 1986. This law requires all public and private sector employers to improve the job prospects for visible minorities, women,

Aboriginals and people with disabilities through the elimination of barriers and creation of various "special measures," such as targeted hiring. Today, this dichotomy of "able-bodied white males versus everyone else" still forms the basis for myriad policies and regulations meant to impose greater diversity in the workplace and throughout society.

While Abella's report was instrumental in cementing the concept of visible minorities in federal law, she recognized at the time

that lumping everyone who isn't white into a single generic category could create complications. "To combine all non-whites together as visible minorities for the purpose of devising systems to improve their equitable participation, without making distinctions to assist those groups in particular need, may deflect attention from where the problems are greatest," Abella wrote. That said, the future appointee to the Supreme Court of Canada figured a solution would eventually appear.



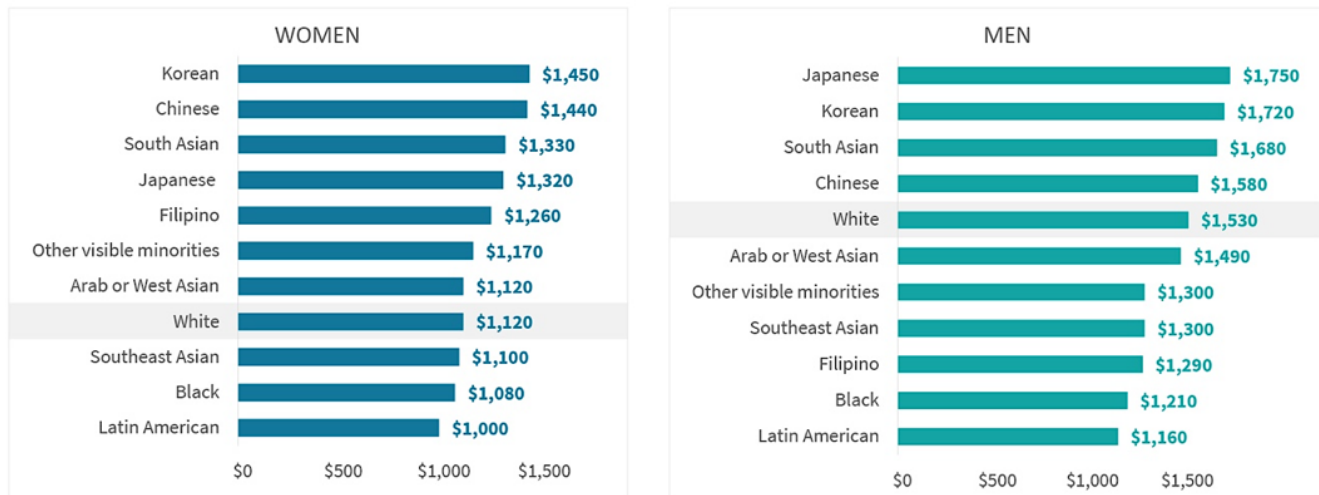
Back to the beginning: The uniquely Canadian concept of "visible minority" was invented in 1975 by Kay Livingstone (left), founder of the Canadian Negro Women's Association, and enshrined into law in 1986 following Judge Rosalie Silberman Abella's (right) Commission on Equality in Employment. (Source of left photo: W. P. Holas)

“At present,” she observed, “data available from Statistics Canada are not sufficiently refined by race...to make determinative judgements as to which visible minorities appear *not* to be in need of employment equity programs.” (Emphasis in original.)

people) and frequently serve as fodder for activists intent on claiming Canada is rife with systemic discrimination and racism whenever a gap is identified. Yet a gap-filled study released last month examining how various racial groups within the visible

India, Pakistan, etc.) males also take home more than whites. Among women, whites are out-earned by a majority of groups within the visible minority category, including Chinese, Korean, Japanese, Filipino, South Asian and Southeast Asian

Average weekly earnings for visible minority racial groups and whites in Canada



Source: The weekly earnings of Canadian-born individuals in designated minority and White categories in the mid-2010s by Theresa Qiu and Grant Schellenberg, *Statistics Canada*, 2022

Nearly four decades later, Canada no longer suffers from an absence of race-based data. We are, in fact, inundated with it. And the evidence arising from this flood of racially-focused statistical work is clear and unambiguous: the entire concept of visible minorities – along with the superstructure of policies and laws that support it – makes no sense in our pluralistic 21st century Canada. It's time to abolish this outdated, imprecise and subtly racist idea.

minority category are doing in Canada's labour market received surprisingly little attention from the media or within activist circles. This may be because most of the gaps it reveals aren't the sort that give rise to claims of racism.

The results of the study by Statcan researchers Theresa Qiu and Grant Schellenberg will come as a shock to anyone expecting to find whites sitting atop the labour market. Rather, the best earners are Canadian-born Japanese males, who

(from Vietnam, Thailand, etc.). At \$1,450 per week, the average Canadian-born Korean woman earns \$330 more per week than the average white woman. For both men and women, the two lowest-earning categories are blacks and Latin Americans.

While clearly contrary to current narratives declaring all of North America to be a bastion of white supremacy, these findings are not unusual for either side of the border. The latest American data on full-time workers similarly shows Asian men

The Data Speaks Volumes

Among the Trudeau government's many indulgences to the cause of social justice has been the creation of the Centre for Gender, Diversity and Inclusion Statistics at Statistics Canada. Reports from this branch of our national statistical agency focus almost exclusively on dividing Canadian society up into ever-smaller slices by race, gender and other attributes (a recent effort tracks the educational attainment of bisexual

The term 'visible minority' was invented in 1975 by black activist Kay Livingstone, founder of the Canadian Negro Women's Association, as the means to unite disparate immigrant groups at a time when Canada was overwhelmingly Caucasian.

earn an average \$1,750 per week. This compares to \$1,530 earned by white men. Chinese, Korean and South Asian (from

to be the highest income earners among full-time workers in the U.S., at US\$1,457 per week, exceeding the US\$1,108 per

year earned by white men.

Asian women also out-earn American white women, by nearly US\$200 per week. Other data from the Pew Research Center on household income point to South Asian-born families as the top earners in the U.S. by a substantial margin.

It bears notice that Qiu and Schellenberg wisely avoid confusing the immigrant experience, which entails numerous challenges of language, culture and credentials, with that of being a visible

to one labour market expert, such a declaration is impossible to make despite the large gaps in performance seen across the visible minority subgroups. “There is absolutely no way to infer any conclusion from this data about whether there is racial discrimination in the labour market,” says Mikal Skuterud, an economist at the University of Waterloo, in an interview. “Some groups are clearly outperforming whites, but no one would interpret that as evidence of discrimination against whites,

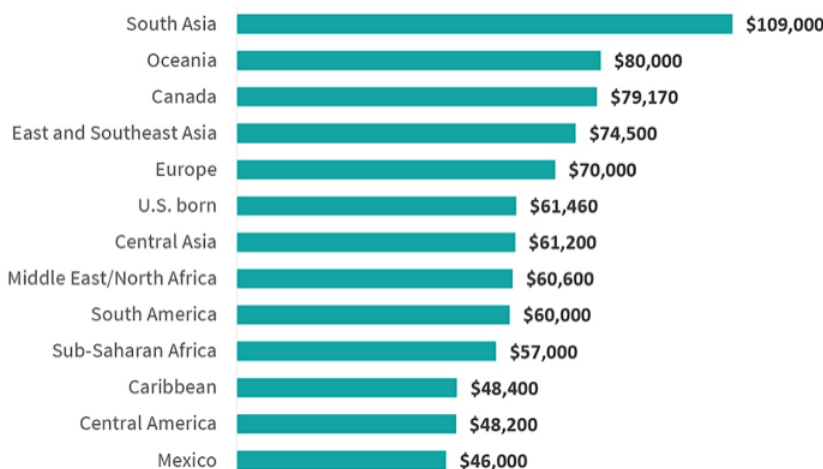
something that also appears in his own research. It is conceivable, he notes, that such persistent gaps are the result of labour market discrimination specifically targeted towards certain groups, rather than across the entire visible minority population. Such a possibility requires further investigation, he says. There are, however, numerous other explanations for this phenomenon, including broader cultural or socioeconomic factors not captured by the recent study. For example, another Statcan report found the rate of lone parenthood, a factor strongly associated with poverty and poor educational outcomes, is nearly three times more common among black mothers than in Canadian society at large. “Black immigrant populations stand out for their prevalence of lone mothers compared to the rest of the Canadian population,” the 2020 report observed. It is hard to imagine this not being a significant factor when it comes to the jobs market.

Taken at the broadest level, Qiu and Schellenberg’s results can be seen as a thorough dismantling of Livingstone’s nearly half-century-old claim that the term “visible minority” describes a single coherent category unified by the lack of whiteness of its members. This “group” now includes both the highest and lowest-earning racial categories in Canada, a fact that stretches diversity to the point of absurdity. The exceptional outcomes for Canadian-born Asian men and women strongly suggest factors other than discrimination – primarily education, family and socioeconomic status – are driving the divergence in earnings across race. And if skin colour is not a useful explanation for performance in the labour market, using it as a basis to set employment targets, as is the case within the federal public service, becomes a perversion of good policy.

"Did it ever make any sense?"

In a column in the *Globe and Mail* nearly a decade ago, Carleton University economist Frances Woolley declared that, “There is something almost racist about the assumption that whites are the standard against which anyone else is

Average household income by region or country of birth in the United States (in US dollars)



Source: Facts on U.S. Immigrants, 2018 by Pew Research Center, 2020

minority in Canada. They do so by focusing only on Canadian-born visible minorities aged 25 to 45 (that is, young second-generation immigrants) and comparing them with similarly situated whites. The researchers further refined their work by adjusting for university education and other demographic characteristics. Here South Asian men were found to do significantly better than white men. Blacks and Latin Americans again did worse. Among women, several visible minority categories statistically outperformed whites, and no group – not even black women – did worse.

A Good News Story for Many, but not All

Do such results bolster the loud and widespread narrative that Canada is a systemically racist country? According

or for Canadians with Chinese, Korean or Japanese ancestry.”

To Skuterud, the fact many Asian groups outperform the rest of Canadian society is a “good news story” since these segments comprise a large and growing share of Canada’s current immigration intake; this bodes well for the integration of future immigrants from these countries in coming years. The results also illustrate the pre-eminence of a university education in explaining job market success, as the strong performance across many Asian groups is closely linked to their high rates of university completion. “Nearly three-quarters of Canadian-born Chinese women have a university degree,” marvels Skuterud. “That’s amazing.”

Skuterud is troubled, however, by the poor results for blacks and Latin Americans,

noticeably, visibly different.” Her opinion hasn’t changed much since then. Asked today if it still makes sense for Canada to enshrine the concept of visible minority in law given the recent Statcan results, she shoots back, “Did it ever make any sense?”

The current system, Woolley observes in an interview, is entirely arbitrary in its binary conception of people as either white or not. “The word white is very imprecise,”

everyone can end up being considered part of a minority group and thus deserving of special treatment. Visible minorities currently comprise 22 percent of Canada’s total population, based on 2016 Census data, a figure that will undoubtedly rise with the release of updated 2021 Census data later this year. In some urban centres such as Surrey, B.C. or Markham, Ontario, visible minorities already constitute a

areas, another factor Qiu and Schellenberg found to be associated with lower earnings. And as a group, whites are noticeably older than those within the various visible minority subcategories. All of which suggests whites, and in particular white men, are likely to face strong headwinds in the future. They may, in fact, be more deserving of government attention than many other identity categories. “The real question,” insists Woolley, “is how can we make the system fair for everyone, not just designated groups.”

A Better Way Than Racializing Everything

Faced with the obvious folly of the entire visible minority concept, the progressive activist community appears focused on changes of nomenclature rather than substance. Linguistic constructs such as BIPOC or “racialized individuals” are more commonly used these days than the term visible minority. But such changes raise more questions than they answer. Consider BIPOC, an imported American acronym for Black, Indigenous and People of Colour. But aren’t black people also people of colour? And if so, why include them twice? As for “racialized,” the word appears derived from an invented verb: to racialize. But that suggests identity is dependant on the views of others, rather than a permanent, self-conceived state.

Any real commitment to tackling the inconsistencies inherent to the uniquely Canadian concept of visible minority must do more than just fiddle with terminology. In its 2020 Fall Economic Statement, the Trudeau government announced plans to review and modernize the Employment Equity Act. The most attractive solution would be to scrap it altogether and recuse the federal government from any further involvement in private-sector hiring practices. A competitive job market driven by need and focused on merit has no apparent problems hiring well-qualified candidates regardless of race, as the Asian experience amply demonstrates. Yet such a hands-off, market-driven and colour-blind approach seems extremely unlikely.

In the absence of simple economic logic,



Shades of confusion: Despite federal legislation categorizing Canadians as either white or non-white, the real world does not abide by such stark contrasts; who can really tell if someone from Greece (left), Lebanon (middle) or Egypt (right) is white or not?

she notes. According to Statcan, for example, Greek Canadians are European and part of the dominant white, mainstream society. Yet anyone who traces their roots to Turkey, right next door, is considered West Asian and hence a visible minority. As a result, one neighbour is eligible for special measures and one is not. Plus, “a lot of people who consider themselves white – such as Lebanese Christians – are identified as visible minorities by the Census,” Woolley adds. The U.S. classifies most Arab ethnicities as Caucasian.

The rise of individuals with multiple or competing racial identities due to the rapid growth in interracial marriages further complicates the notion of colour-coding Canada’s population. The share of mixed-race relationships has more than doubled over the past decade and now comprises 7.3 percent of all marriages and common-law relationships in this country. As these couples have children, it will get progressively more difficult to sort Canadians into separate racial baskets of white and non-white. (Aka oppressors and victims.)

Then there is the issue of how nearly

clear majority. Indigenous people make up another 5 percent of Canada and people with disabilities are estimated at 22 percent. Finally, women represent 50 percent of all other groups. “Designated groups [under the Employment Equity Act] are now an overwhelming majority in the labour market,” says Woolley. “Surely we can all agree that’s problematic.”

The only slice of the Canadian population not offered special treatment under this framework is that of able-bodied white men. Yet the notion that white men stand astride the Canadian economy like a Colossus is both outdated and unfair. As Qiu and Schellenberg reveal, white men have one of the lowest rates of university completion across all racial groups, at 24 percent. This is significantly lower than black women at 36 percent, and only slightly higher than black men, at 20 percent. Given the importance of education to future earnings, low rates of university education in any racial group should be a troubling matter for fair-minded policy-makers.

Whites, both male and female, are also much more likely to live outside urban



"Almost racist": Frances Woolley, an economist at Carleton University in Ottawa, has long complained about the absurdity of the visible minority concept, as it makes whites the standard by which the success of all other racial groups is measured.

one immediate remedy would be to stop using whites as the reference group. Given evidence that whites no longer command the highest wages or best jobs, it makes more sense to shift to a simple Canadian average in future Statcan reports. This would resolve Woolley's complaint about the implicit racism of making whites the standard by which all others are measured. "If you tested everyone relative to the Canadian average rather than whoever is considered 'white,' I think that would be a good thing," she says. "It would mean we are no longer taking the white experience as aspirational, or the norm."

Then again, any system that continues to examine performance by race, regardless of the comparator, perpetuates the fiction that racial identity is the *ne plus ultra* of the job market – if not personhood itself. While a fixation on skin colour has lately come to define public policy in many troubling ways, doing so embeds the concept that Canada is a collection of disparate racial groups constantly in conflict with one another. It would be far healthier for society to simply accept that we all share a common identity as members of a pluralistic Canada. Full stop.

Plenty of evidence suggests Canadians don't care nearly as much about race as the media or political classes constantly claim they do. Consider the 2019 federal election, which featured those potentially damning images of a young Justin Trudeau in blackface. Most Canadians simply shrugged it off. As author Christopher

Dornan observed in his book recapping the election, "The issue of racism – overt and latent, deliberate and unwitting, systemic and extrinsic – simply did not take hold in the election discourse."

Achieving a colour-blind labour market would require shifting away from a preoccupation with race to focus on more important factors. Poverty would be a good place to start. Says Woolley, "If your family income is a million dollars a year and both your parents have PhDs, then the colour of your skin doesn't matter. The same goes if you grew up in foster care and have struggled all your life." Disadvantage and hardship can occur in families of all races and ethnicities. Yet under Canada's visible minority framework, needy individuals can be ignored while others with a different skin

Achieving a colour-blind labour market would require shifting away from our current preoccupation with race to focus on more important factors. Poverty would be a good place to start.

tone get a leg-up they don't deserve. "We need a fair process and fair procedures," Woolley asserts.

A fairer system, Woolley says, should "try to get at socioeconomic measures of disadvantage rather than assuming that identity" is the crucial factor. As an example of such a system, she points to the fact many universities around the world now use socioeconomic status (SES) measures such as family income, rather than race, to determine entrance qualifications for disadvantaged students. Such "class-based" or "race-neutral" standards have a successful track record in Israel.

SES factors are also widely used in the U.S., although they remain a work in progress. The reason many American schools rely on SES is that they've been forbidden from accepting students based solely on race due to court rulings on constitutional grounds. In many cases, however, the universities manipulate their allegedly colour-blind SES rankings in order to sort students by colour regardless of what the courts say. This has led to

numerous lawsuits objecting to such subterfuge, including one well-publicized case involving Asian students denied entrance to Harvard University because of their race. (They lost in 2019, but the case is now heading to the Supreme Court.) Regrettably, even plans meant to ignore race somehow end up becoming fixated on race.

The final word on ending racial employment laws should go to the great human rights advocate Martin Luther King, Jr. King strongly opposed race-based quotas and other affirmative action measures because he anticipated their divisive effect on social harmony. In 1964 he wrote, "It is my opinion that many white workers whose economic condition is not too far removed from the economic

condition of his black brother, will find it difficult to accept...special consideration to the Negro in the context of unemployment, joblessness etc. and does not take into sufficient account their [own] plight." He argued against different treatment based on race because he thought help should be provided to all who need it, regardless of their skin colour. In other words, he dreamt of a truly just and fair world. We're still waiting.

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Do Epidemiological Data Support the Case for Vaccine Mandates?

By Jim Mason

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The truckers' Freedom Convoy 2022 came to Ottawa, packing the downtown core with rigs and Parliament Hill with people. The protesters' primary demand was that governments immediately terminate compulsory vaccinations, vaccine mandates and vaccine passports. The tens of thousands of pro-freedom demonstrators who have been gathering in cities across Canada every weekend want their freedom restored. Before invoking the Emergencies Act, Prime Minister Justin Trudeau refused to meet with the truckers and continued to assert that more vaccination is essential – even as, himself triple-vaxxed, he claimed to have been exposed to Covid-19 and needed to isolate.

Who is right? There are ethical, legal and political arguments both for and against compulsory vaccination. Where a person comes down on this contentious issue ultimately rests upon their basic beliefs and values. This controversy is unlikely ever to be resolved to everyone's satisfaction based on ethics, law or politics alone. But

what about the epidemiological data? Do they tell us anything, possibly even enough to serve as our guide?

If an objective and carefully reviewed evaluation of a credible and representative dataset were to indicate that vaccination does stop or at least severely curtail transmission of the virus and could

therefore enable society to overcome the pandemic, then the case for compulsory vaccination remains arguable. If, however, the data were to show little or no such effect – or even a negative effect – then any case for compulsory vaccination (even on pragmatic/utilitarian grounds) collapses, serious argument should come to an end, and vaccine mandates, passports and all the softer forms of coercion should end forthwith.

The Nature of mRNA Vaccines

It has become pretty clear that mass vaccination did not have the decisive impact that we were led to believe it would have. It is becoming increasingly questionable whether still-more vaccination is going to substantially eliminate Covid-19, as previous vaccination campaigns have done with, for example, smallpox and polio.

The fundamental reason for this is that the mRNA vaccines do not provide strong and broad immunity against Covid-19 and, as a result, do not stop transmission of the infection. The other stated benefits of the Covid-19 vaccines – reducing disease severity and mortality in those infected – may still offer sound medical reasons for individuals to choose to be vaccinated. But stopping transmission is the primary purpose of vaccination from the perspective of pandemic management. Stopping transmission is why many traditional



Protecting ourselves, "saving Grandma" and stopping the pandemic – or so we hoped: Lining up for Covid-19 shots in Toronto, April 2021. (Source of photo: The Canadian Press/Rachel Verbin)

vaccines proved so effective. And stopping transmission – “protecting grandma” – was the main reason populations were pressured so severely and at such length to take the Covid-19 vaccine.

The mRNA vaccines are a different approach to inoculation than traditional vaccines. Previously developed vaccines (including those used today against other diseases) used actual viruses, either inactivated – killed – or live but weakened or “attenuated” to the point where they do not cause illness. Rather than using actual Covid-19 virus, the mRNA vaccines use segments of ribonucleic acid (RNA). RNA is single-stranded genetic material that, in this instance, has been genetically engineered to resemble the segment of the viral RNA genome that codes for the protein spike on the surface of the virus. It is the infamous spike protein that enables the virus to gain entry to our cells.

The RNA segments in the vaccine enter some of the vaccinated person's cells and, once there, are treated by their protein-coding mechanisms like the other segments of messenger RNA that are always there. The RNA from the vaccine partially reprograms the cells to make replicas of the viral spike protein. These synthetic viral spike proteins gather on the cells' interior surfaces, some breaking through to circulate in our bodies. They are recognized by our immune system as a foreign agent. The immune system then mounts a defence, in this instance primarily by producing specific antibodies to bind and eliminate the foreign agents (the free-swimming spike proteins as well as the reprogrammed human cells themselves). The assumption is that when the real virus invades our bodies, the immune system will recognize its spikes as being the same as the synthetic spikes and will activate its now improved defences to bind and neutralize the real virus.

While the concept appears sound, it is an entirely new approach to vaccines. Covid-19 became the first infectious disease against which such a vaccine was deployed. It is consequently misleading to suggest, as some have, that mRNA vaccines are “just like” other vaccines.

To do so appropriates the well-proven, centuries-long track record of traditional vaccines to the yet-to-be-proven and now apparently failing mRNA vaccines. While it is famously difficult to vaccinate effectively against respiratory viruses like the flu,

represents a major change in public communication from the days when people were promised that, once vaccinated, they would not be infectious. The GoO data show that vaccinated people have been getting infected for as long as such

The Government of Ontario data show that vaccinated people have been getting infected for as long as such data have been reported. These facts have a serious implication with respect to attaining population-wide or so-called ‘herd’ immunity and, thereby, stopping the spread of the virus.

we must also consider whether the new technology of mRNA vaccines could be the main source of the increasingly evident shortcomings of the Covid-19 vaccines.

Do the Covid-19 Vaccines Provide Immunity?

Since, from the perspective of stopping a pandemic, the principal purpose of a vaccine is to stop transmission of the infection in question by providing immunity for the vaccinated, our first objective is to determine whether the Covid-19 vaccines actually do this. The Province of Ontario (population 14.6 million) was selected as the study area and the dataset used was the published data on the Government of Ontario's (GoO) COVID-19 webpages.

Before we commence our detailed evaluation, it should be noted that even a cursory examination of the GoO data clearly shows that vaccinated people become infected with Covid-19. Moreover, a number of scientific studies have concluded that infected vaccinated people have the same peak viral loads as infected unvaccinated people, can be equally infectious and can transmit the infection equally efficiently.

While the research remains mixed regarding the degrees of infectiousness and transmissibility, that vaccinated individuals transmit the virus in large numbers is no longer in dispute. This

data have been reported. These facts have a serious implication with respect to attaining population-wide or so-called “herd” immunity and, thereby, stopping the spread of the virus.

What is Herd Immunity?

Herd immunity is attained when a sufficient fraction of the population – called the herd immunity threshold (HIT) – becomes immune to a disease, so its spread is reduced to immaterial numbers – effectively being stopped. The HIT depends on the basic reproduction number, R_0 , of the virus. R_0 is the average number of people to whom an infected person is likely to transmit the infection in an unrestricted society.

For a vaccine that is 100 percent effective at conferring immunity, the relationship is given by:

$$\text{HIT} = 1 - 1/R_0$$

The R_0 for the Delta variant is/was 5.08, having increased from around 3 for the initial strain of SARS-CoV-2. Applying the above formula of 1 minus 1 over 5.08 makes the corresponding HIT approximately 0.8 – or 80 percent of the total population. But this applies only if the vaccines provide 100 percent effective immunity. Since the Covid-19 vaccines do not, this limitation must be taken into account. The critical level of vaccination required to achieve herd immunity for such

vaccines is increased according to the following formula:

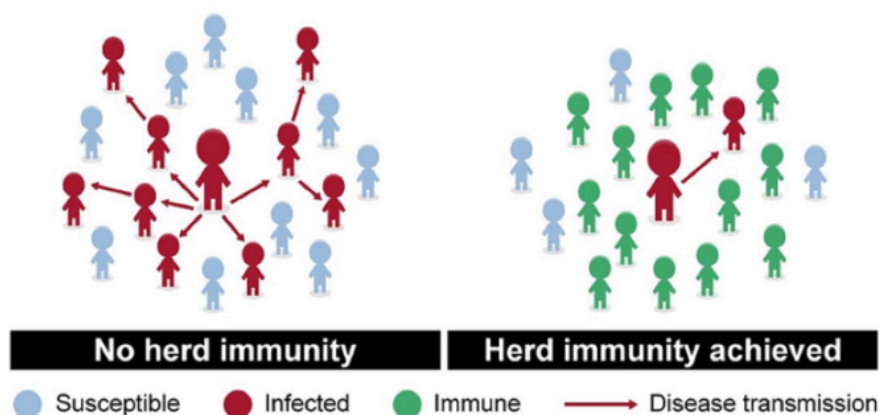
$$V_c = \text{HIT}/E$$

V_c is the required vaccination level, and E is the effectiveness of the vaccine at preventing infection and transmission. Very importantly, if E is less than the HIT, then the required vaccination level, V_c , becomes greater than 100 percent. In such a case, herd immunity can never be reached through vaccination no matter how many people are vaccinated.

It must be noted that this analysis omits any effects conferred by natural immunity resulting from Covid-19 infection. This is because the required data are not disaggregated in government statistics. Imputing the effects of natural immunity would require a series of assumptions aimed at estimating the naturally immune ratios in the vaccinated and unvaccinated portions of the population over the study period. This creates too much room for error. Because natural immunity is certain to be present in both population segments (though in unknown proportions), the effects of the naturally immune on the study results are likely to be at least partially offsetting. Moreover, Canadian governments do not recognize natural immunity as conferring vaccination-equivalent status, so any such analysis would be moot.



Based on initial clinical results, prevention efficacy of popular Covid-19 vaccines such as Pfizer and Moderna was estimated at 90-95 percent. Such high rates of effectiveness are critical to achieving the herd immunity threshold when the targeted virus is highly infectious. (Source of photo: Shutterstock)



Simplified illustration of how herd immunity should be achieved through mass vaccination – if the vaccine in question is highly effective. (Source of graphic: Courtesy of General Services Administration and National Institutes of Health/Johns Hopkins Medicine)

How Effective are the mRNA Vaccines?

The effectiveness of a vaccine, often referred to as efficacy, is the reduction in the percentage of vaccinated people who become infected relative to the percentage of unvaccinated people who become infected. (Purists reserve “efficacy” for referring to the effectiveness as demonstrated during controlled clinical trials, and use “effectiveness” to refer to the vaccine’s impact in the real world. Since we are well into real-world application, the focus here is on effectiveness.)

Mathematically the effectiveness is given by:

$$E = \frac{(\text{percentage of unvaccinated people who become infected} - \text{percentage of vaccinated people who become infected})}{(\text{percentage of unvaccinated people who become infected})}$$

So, for example, if 80 percent of the unvaccinated become infected, and 40 percent of the vaccinated do, then E is 0.5, or 50 percent effectiveness. For this study we are defining “vaccinated cases” as anyone with symptoms starting 14 days or more after receiving the second dose of a two-dose vaccine series, or a single-dose vaccine series, as per the Government of Ontario website.

During the real-world progress of the infection, with widespread testing, a sensible measure of the percentage of people who become infected in both the vaccinated and unvaccinated groups is the

number of new daily cases appearing per 100,000 population in each group. These numbers, expressed as a seven-day trailing average, are reported daily on the GoO website.

From the initial clinical trials by the manufacturers, the efficacy was reported to be 90-95 percent. This is greater than the HIT for the Delta variant, and so should have been sufficient to achieve a population-wide HIT once the overall vaccination level reached 84-89 percent. Clearly, however, herd immunity was not reached. Recent, real-world experiential data suggest that the actually realizable effectiveness of the mRNA vaccines is considerably less than what was initially asserted, and decreases over time. So let’s look at the recent data.

Before the End of November 2021

During the five weeks ending November 28, the Delta variant comprised essentially 100 percent of Ontario’s recorded cases. At the beginning of this period, Ontario reported an overall level of vaccination of either 81.7 percent (if using the 5+ aged population) or 88.5 percent (12+ population). At the end of the period, the respective levels were 83.2 percent and 90.2 percent. All vaccination levels were in the range that should have produced a steady decline in infections if the vaccines were as effective as the 90-95 percent originally claimed.

As Figure 1 shows, however, infections

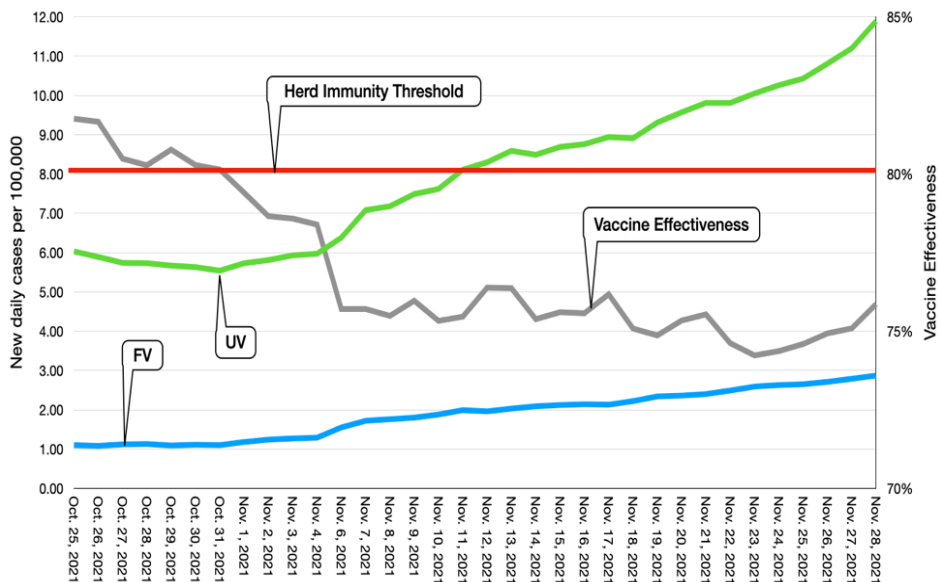


Figure 1. The incidence of Covid-19 infections, as measured by new daily cases per 100,000, increased for both fully vaccinated (FV) and unvaccinated (UV) people in Ontario in the five-week period from late October to the end of November 2021. Based on these daily incidence numbers, the vaccine effectiveness (VE) gradually decreased, becoming insufficient to achieve herd immunity on about November 1. (Note: VE reflects total FV and UV populations, which were not adjusted/weighted for potential differences in average age, health or prior infection, as such data were not reported by the Government of Ontario beyond October 24, 2021. Chart created by Jim Mason, PhD, using Government of Ontario case data)

per 100,000 population increased markedly during this period (which as we know predated the Omicron wave). Clearly, the vaccines were not preventing the spread

vaccinated as well as the unvaccinated populations.

At the start of this period, the effectiveness of the vaccine, calculated

81.8 percent (versus the 90-95 percent originally reported) (without adjusting or weighting for potential differences in age, health or prior infection between the fully vaccinated and unvaccinated populations, which was not possible using the study dataset as this granularity in the data does not extend beyond October 24). At this level of effectiveness, in order to achieve the HIT of 80 percent, the vaccination level would need to be 97.8 percent. But since the actual vaccination level was less than this, cases continued to grow.

At the end of the period, the vaccine effectiveness, calculated in the same manner, had sagged to about 75 percent. This was less than the HIT, so the critical vaccination level now was greater than 100 percent – 106.7 percent in fact – becoming unattainable. On about November 1, the vaccine effectiveness became less than that required to achieve herd immunity in Ontario.

After the End of November 2021

While that seems bad enough, something even more dramatic happened between the end of November and the present time that has serious implications for the utility of the entire vaccination campaign.

Figure 2 plots the number of new daily cases among the unvaccinated and fully vaccinated, in absolute terms and as cases per 100,000 population, relative to the value recorded on October 25 (which should be read as “1”). Figure 3 plots the cumulative number of new cases since October 25 among the fully vaccinated and the unvaccinated. Figure 3 also charts the vaccinated-to-unvaccinated ratio in new daily cases.

Until about mid-December, both groups experienced similar sorts of changes relative to October 25. In mid-December new daily cases among the vaccinated began to soar, reaching a peak on January 1 over 100 times the number of new daily cases at the start. This drove cases per 100,000 up as well, reaching a peak on January 4 almost 32 times the value on October 25. Case numbers and cases

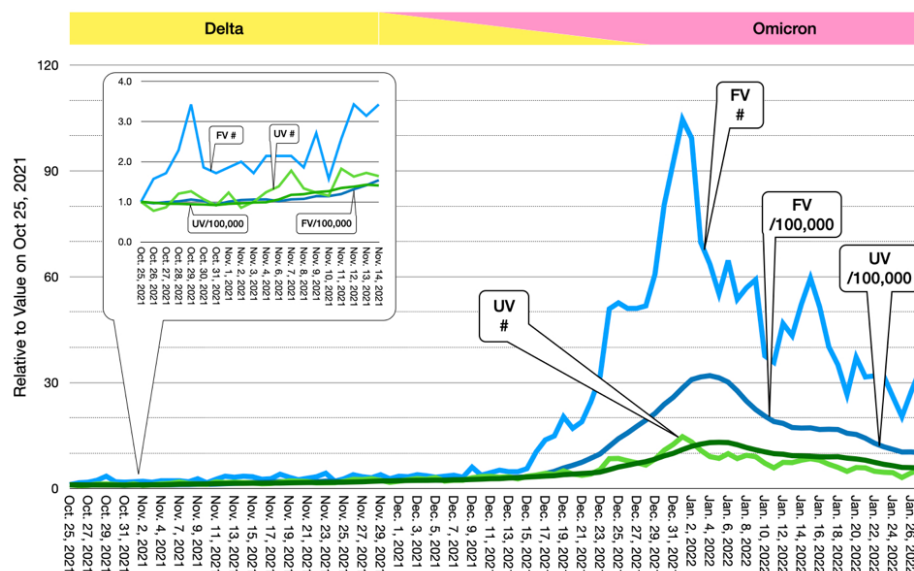


Figure 2. New daily cases among the fully vaccinated (FV) in Ontario exploded around the middle of December, increasing to over 100 times the number recorded on October 25. This caused the incidence of infection per 100,000 population among the FV to increase by a factor of over 30 relative to October 25. New daily cases and new daily cases per 100,000 among the unvaccinated (UV) showed a much smaller increase during the study period. (Chart created by Jim Mason, PhD, using Government of Ontario case data)

of the Covid-19 virus and transmission was occurring in large numbers among the

using new daily infections per 100,000 as the measure of percentage infected, was

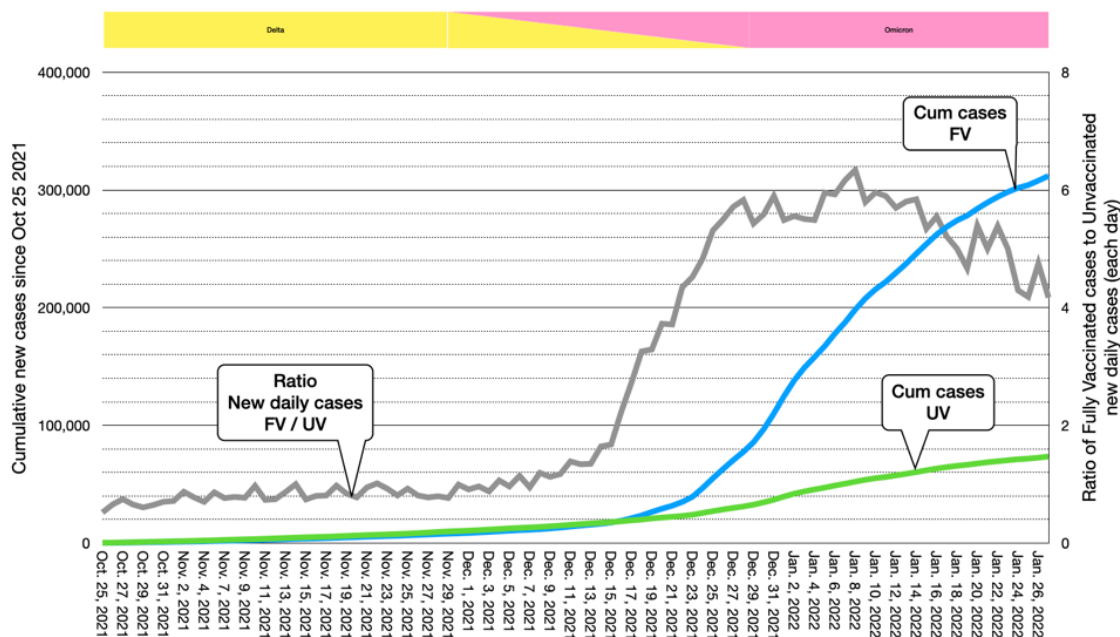


Figure 3. Since October 25 the total number of new Covid-19 cases among the fully vaccinated (FV) reached 3,284 times the starting figure by January 26. This total was also more than four times the total among the unvaccinated (UV). New daily cases among the FV grew from about half as many as among the UV to over six times as many. (Chart created by Jim Mason, PhD, using Government of Ontario case data)

per 100,000 among the unvaccinated also peaked around this same time, but both were only about 13 times the values on October 25. Since by this time the vaccinated represented the vast majority of the population, the absolute numbers were also overwhelmingly among the vaccinated.

Figure 3 shows that while the total number of new cases among the unvaccinated grew to 402 times the number on October 25 (73,495 versus 183), among the vaccinated this figure shot up by a factor of 3,284 (311,947 versus 95). Whereas on October 25 there were half as many cases among the vaccinated as the unvaccinated, by January 8 there were more than six times as many (10,865 versus 1,714). By January 27 the total accumulated cases among the vaccinated (311,947) was over four times the number among the unvaccinated (73,495). Throughout this period, the vaccinated were dominating all the metrics.

Clearly, something happened that caused the vaccinated to become far more vulnerable than the unvaccinated. What might that have been?

Omicron Appears and Vaccinated Cases Soar More than 3,000-Fold

The Delta variant accounted for essentially 100 percent of the cases up to the end of November 2021, with Omicron then appearing, increasing to almost 100 percent of new cases by the end of December. This is indicated by the

coloured band at the top of the charts. No matter how you look at the data, since the appearance of Omicron, the vaccinated have dominated the metrics: more new daily cases, more new daily cases per 100,000 population, and more total cases since October 25. This indicates a vaccine with collapsing effectiveness.

This process is illustrated graphically in Figure 4 which plots the new daily cases per 100,000 (percentage of group infected) for both the fully vaccinated and the unvaccinated, overlaid by the corresponding vaccine effectiveness determined in the same manner as described above. Also indicated are the HITs

for both Delta and Omicron. Omicron is estimated to have an R0 3.19 times that of Delta, or 16.2, which puts the corresponding HIT amidst Omicron at 93.8 percent.

As can be seen, since about November 1 the real-world effectiveness of the vaccine has been insufficient to achieve herd immunity even if 100 percent of the

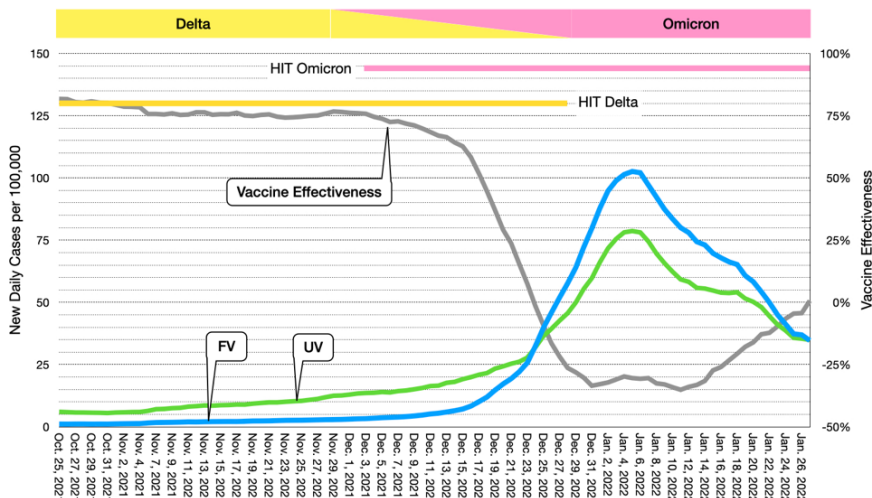


Figure 4. Incidence of infection among the fully vaccinated (FV) and unvaccinated (UV) as measured by new daily cases per 100,000 over the period late October 2021 to the end of January 2022, together with the vaccine effectiveness derived from these numbers. According to these data, the mRNA vaccines are completely ineffective against Omicron, making it impossible to achieve the herd immunity threshold even with 100 percent vaccination. (Chart created by Jim Mason, PhD, using Government of Ontario case data)

population were vaccinated. With the advent of Omicron, the gradual degradation in effectiveness that was occurring with Delta became a precipitous collapse.

Treating the period between October 25, 2021 and January 27, 2022 as a “clinical trial” involving nearly 15 million subjects, and using the total number of new daily cases and the average population sizes inferred from the new daily cases per 100,000 for each of the vaccinated and unvaccinated groups, reveals a vaccine effectiveness of basically zero. The green and blue lines in Figure 4 show that essentially the same fraction of each population has become infected during this period.

These results are consistent with the findings of a recent paper by a team of 13 scientists, *Effectiveness of COVID-19 vaccines against Omicron or Delta symptomatic infection and severe outcome*, which concluded that two doses of mRNA vaccine provide zero effectiveness against Omicron, with three doses providing 37 percent effectiveness during the study period. A VE of just 37 percent would only be useful for containing a virus with a basic reproduction number of 1.6 or less. The Covid-19 ancestral strain's R0 was 2.9, which corresponds to a HIT of 65 percent and, therefore, requires a vaccine with at least this effectiveness. With Omicron's R0 of 16.2, 37 percent effectiveness is all-but immaterial, requiring a theoretical vaccination rate of 253 percent to achieve the HIT.

Everyone is now, in effect, unvaccinated. That is, the mRNA vaccines are completely ineffective at preventing transmission of

the Covid-19 virus. Omicron (and possibly Delta) appears to be a vaccine-resistant strain. How did this happen?

Basic Biology Provides an Explanation

Any time during a virus's genomic replication, random undirected mutations – copying mistakes – occur. It has been

The effectiveness of the current vaccines against the Omicron variant is, for all intents and purposes, zero. Ontario's entire population is now effectively unvaccinated. Moreover, it has become impossible to reach herd immunity even with 100 percent vaccination.

well-established that the vast majority of these have either no effect or a harmful effect on the survivability of the organism in the environment in which it finds itself. Very occasionally a mutation will happen that provides a survival advantage in this environment. This strain – or variant – of the organism will, as a result, thrive and fairly quickly come to dominate the population in this environment. This is classic mutation and natural selection.

In the case of the Covid-19 virus, since the vaccines do not prevent an individual from becoming infected, the virus will quite frequently find itself faced with an immune response that was induced by the vaccine. If one or more mutations occur that provide a survival advantage in this environment, this mutated strain of the virus will soon dominate the population in the infected

(though vaccinated) host and will be the strain that the host will shed and transmit to others. Since other vaccinated people will have a similar immune response, they will be particularly susceptible to this variant which will, therefore, spread easily throughout the vaccinated population. This is similar to how antibiotic-resistant strains of bacteria arise.

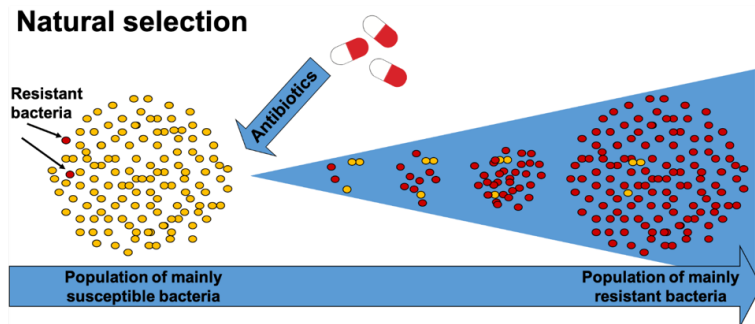
But why would this happen with the Covid-19 virus?

Suboptimal Immune System Training

The mRNA vaccines “train” our immune system using only a synthetic replica of the spike portion of the virus. This has the advantage that the training occurs without any real virus being present, so the chance of viral infection through vaccination is zero. It is like a military training exercise that does not use live ammunition. No one is going to get wounded or killed by the ammunition.

A significant disadvantage, however, is that the immune system is working with less than a complete picture. Traditional vaccines use the entire virus, providing the immune system with much more information to be used in its process of recognition and in developing its defence. The Covid-19 vaccines are limited to the information contained in the synthetic spike protein. If one or more mutations occur that change the real spike protein sufficiently, the immune system might no longer recognize it. Rather than mounting an already-learned defence, it will need to build a new defence. In effect, the vaccinated person has become unvaccinated because the virus has changed.

Natural selection



Antibiotic-resistant strains of bacteria occur as the result of random mutations that confer a survival advantage – in this case resilience against an antibiotic. The same principles of natural selection and survival apply to the coronaviruses, including Covid-19, which through multiple series of mutations appears to have become able to evade or resist the previously developed vaccines.

By analogy, consider training a facial recognition system using only an artist's rendering of the left eyebrow of the person being sought, versus using a high-resolution photograph of the entire face. A relatively small difference in the shape of the eyebrow might render the first system ineffective, whereas the second system, having much more information to use, would not likely be fooled.

This is certainly consistent with the evidence regarding Omicron. The recent suggestion by Pfizer that a new, Omicron-specific version of the vaccine needs to be developed tacitly confirms this. Retraining our immune systems in another suboptimal manner, however, would seem to simply restart the same process.

What are the implications for compulsory vaccinations, vaccine mandates and vaccine passports?

Discrimination on the Basis of Vaccination Status is Unjustifiable

The vaccines do not provide strong and lasting immunity and, consequently, do not stop transmission of the virus.

This allows vaccine-resistant variants to arise and incubate in infected vaccinated people as a result of the inevitable processes of mutation and natural selection. Because infected vaccinated people have peak viral loads that some research has shown to be equal to those of infected unvaccinated people, they transmit the virus efficiently. Because other vaccinated people have similar immune system environments, the vaccine-resistant or -evading variants arising in infected vaccinated people spread easily to other vaccinated people.

Omicron appears to be such a vaccine-resistant or -evading strain. Based on the information from Ontario, the effectiveness of the current vaccines against this variant is, for all intents and purposes, zero. Ontario's entire population is now effectively unvaccinated. Moreover, it has become impossible to reach herd immunity even with 100 percent vaccination.

Switching to a vaccine that is updated based on the Omicron spike, as suggested

by Pfizer, will simply start the same cycle over again unless this new vaccine actually provides lasting immunity.

There may still be some benefits that accrue to the individual from being vaccinated as a result of decreased severity of symptoms and reduced probability of hospitalization and/or ICU admission. The inference of these benefits comes from the pre-Omicron era, however, and would need to be revisited with a focus on Omicron. The recent surge in cases among the vaccinated in Ontario has resulted in the vaccinated requiring more frequent hospitalization and ICU admission, to the point where, as of February 19, there were 2.9 times as many vaccinated in hospital (non-ICU) as unvaccinated and 1.1 times as many in ICU. The mantra that the unvaccinated are "overwhelming the healthcare system" is no longer accurate or defensible...if it ever was.

The segregation and discrimination based on vaccination status that have been widely imposed by governments are generally recognized as violations of several enumerated protected areas in the *Canadian Charter of Rights and Freedoms*. They have nonetheless been widely rationalized as falling under Section 1's "reasonable limits prescribed by law as can be demonstrably justified in a free and democratic society." The empirical evidence and the relevant science do not support the contention that these violations can be "demonstrably justified." They cannot be rationally sustained and need to be ended immediately.

The truckers had it right.

Editor's note: *An earlier version of this essay was submitted to three independent reviewers, two of whom have a scientific and/or mathematics background, and the third of whom has worked in health care throughout his career. A number of changes were made in response to their comments. C2C Journal and the author thank them for their kind assistance.*

Jim Mason earned a BSc in engineering physics and a PhD in experimental nuclear physics. His doctoral research and much of his career involved extensive analysis of "noisy" data to extract useful information,

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