Public Health Interventions to Reduce Inequalities: What Do We Know Works?

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ABSTRACT

This commentary focuses on the notion of “what works” to reduce health inequalities. It begins by noting the need for and presence of a wide range of methodologies and approaches internationally. It then argues that it is useful to map out these contributions and those in the present Supplement against a set of principles (Macintyre, 2007) to guide the selection and implementation of public health interventions explicitly aiming to reduce health inequalities. The chosen principles derive largely from efforts to reduce steep and persistent Scottish health inequalities by social class. The commentary summarizes Macintyre’s analysis of the main characteristics of public health interventions. It then notes that the present Supplement provides clear examples of population-health interventions and their health impacts that are inequality-reducing. The suggested approach and principles align with calls for the use of structural changes in the environment, early-life interventions, reductions in preventive-care barriers, and a harm-reduction philosophy. The commentary concludes that there remains much to learn and to do in order for public health intervention research to clearly demonstrate how to effectively reduce health inequalities in a lasting manner.

La traduction du résumé se trouve à la fin de l’article.

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This CJPH Supplement has much to teach us about “what works” to reduce health inequalities, based on a wide range of methodologies and approaches internationally. It is therefore useful to map out the contributions to the Supplement against one of the best-thought-out sets of principles to guide the selection and implementation of public health interventions explicitly aiming to reduce health inequalities, especially those by social position. Kudos for having authored the aforementioned principles go to Prof. Sally Macintyre, Director of the MRC Social and Public Health Sciences Unit in Glasgow, Scotland (a much larger and more established Unit than that headed by this writer in Edinburgh since 2008). In 2007, Professor Macintyre enunciated these principles in a little-known but extremely useful Working Paper,¹ originally written for the Scottish Government as it embarked upon a broad initiative of diverse pilot projects to try and reduce Scottish health inequalities by socio-economic status – some of the steepest and most persistent in the Western World.^{2,3}

Box 2 in Prof. Macintyre’s article (see page 10 of <http://www.sphsu.mrc.ac.uk/reports/OP017.pdf>) summarizes her analysis of the main characteristics of public health interventions – including some primary-care-based policies and programs – which are *a priori* more likely to reduce rather than increase or maintain health inequalities, especially by social class. A fundamental feature of them all is that they tend to operate at a higher societal level than one-on-one clinical interventions. The reason for this generalization is not hard to fathom: individuals’ access to high-quality one-on-one interventions, especially in health and social care, and their long-term compliance with medical or hygienic measures to prevent future illness, are both typically differential across the social classes. The more deprived the individual and his/her family and neighbourhood, the more events tend to conspire against him or her obtaining excellent preventive advice, and faithfully

following it for the long periods of life usually required for full health benefit. Universally legislated measures, on the other hand, tend to reach everyone to the same extent, and that reach tends to last over time. Furthermore, such measures, if well designed, tend to work far “upstream”, reducing adverse exposures to unhealthy influences, or lack of healthy influences, to a greater degree in those with the highest risk, who are typically the most disadvantaged. Whether that exposure is smoking, poor-quality diet, excess alcohol consumption, or lack of fluoride in the water supply, the effect is the same: high-level taxation and/or subsidies, and regulatory measures to universalize (fluoride) or limit access (for example to youth, in the case of alcohol and tobacco) typically work best to reduce systematic inequalities in exposure to the determinants of health, and thus inequalities in health outcomes down the line.

The papers in this CJPH Supplement provide several excellent examples of such interventions, and in some cases document thoroughly that the health impacts seen as a result are inequality-reducing. The most obvious example is the paper by McLaren and Emery, analyzing a Canadian national dental examination survey in children for socio-economically differential caries rates, by fluoridation status of the community of residence. Convincingly, the “Decayed, Filled or Missing” rate, a standard survey measure of cumulative caries incidence, is substantially reduced among children of parents with only high-school-level education, in Canadian settings with fluoridated water supplies. When one thinks of the likelihood of socio-economically equal uptake and long-term compliance with personally purchased and consistently utilized topical fluoride dental applications, or oral fluoride dosing, it is surely not surprising

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that community water supply fluoridation works more equitably. [That this does not appear to be true, in this study, for the apparent excess of caries in the wealthiest families' children might be an artefact of increasingly aggressive detection and treatment of caries in routine dental care. In the present era of much-reduced overall population rates of caries, this could simply be a consequence of newly under-employed dentists dutifully carrying out treatment of very mild cases in those children whose parents can and do pay for regular private dental care, which is – remarkably – still not covered by Canadian Medicare after all these years.]

The paper by Lawless et al. evaluates the South Australian state policy requiring an explicitly “health in all policies (across sectors)” approach – analogous to similar policies in Quebec and Sweden. It reminds us that many of the most important potential policy levers, for influencing the broad determinants of health in modern societies, lie well outside the formal health services sector. This approach conforms to Macintyre's principles calling for the use of “Structural changes in the environment; Legislative and regulatory controls; Fiscal policies; Income support; and Reducing price barriers.”

Other characteristics of the interventions described and evaluated in these Supplement papers also conform to Prof. Macintyre's typology, particularly her advice to “Start young.” For example, the papers by Laurin et al., Muhajarine et al., and Jack et al. all describe interventions aimed at the first years of life, thereby conforming to Clyde Hertzman's recent⁴ cover headline in the BMJ: “Get them while they're young.” It is notable, however, that there is great variety in the approaches used, which are, respectively: implementation of the kindergarten Early Development Instrument (Clyde's focus for over a decade now in British Columbia) in a Montreal community-action-oriented project; the national-level Canadian Prenatal Nutrition Program (with its careful targeting and higher coverage of high-risk populations); and the Nurse-Family Partnership Program pioneered by Dr. David Olds and colleagues in the US, and now piloted in low-income, first-time mothers in Hamilton, Ontario.

Similarly motivated, but aimed at improving overall population coverage with basic childhood vaccinations in Saskatoon, the paper by Cushon et al. shows the great merit in using high-intensity outreach, involving initial reminder letters to low-income-neighbourhood parents, with professional home visits where no response occurs, to reduce local inequalities in childhood immunization. It does seem remarkable to me (having first done this in a community clinic in northwest Toronto in 1979-80) that, even in a country with over 40 years of “free” medical care (at the point of use), there is still considerable disparity in the uptake of one of the most cost-effective preventive interventions we have in childhood – basic immunization. Yet, even in 2012, it falls to creative Public Health Units such as Saskatoon's to do the outreach footwork, to prevent innocent children from paying the price because their parents' lives and priorities are not conducive to obtaining proven-effective preventive care. Surely that outreach should have been fully incentivized in every primary care practice/PHU in Canada many decades ago! In sum, the four diverse interventions described in these papers, all aimed at early life, surely conform to Prof. Macintyre's principles “Prioritize disadvantaged groups” and “Offer (them) intensive support.”

The paper from Burkina Faso by Samb and Ridde goes one step further in adhering to Macintyre's principle “Reduce price barriers

(to healthy goods and services).” It describes the positive effects on community mobilization of subsidizing point-of-care user fees in the publicly funded health care system of one of Africa's poorest nations. For those of us who have followed the history of this pernicious user-fee policy, widely supported by the World Bank in recent decades as a means to increase the “economic sustainability of public care systems” in the developing world, it is heartening to see this rollback of an international development assistance policy that can only be described as diabolical. At long last, this foreign-aid equivalent of iatrogenic medical practice (doctor-caused disease) is on the retreat.

Finally, one of the papers in this Supplement, by Rowe et al. from Australia, concerns the universal application of a harm-reduction principle in line with, but apparently more voluntary than, Macintyre's point “Legislative and regulatory controls” – namely, the implementation of systematic police instruction in how to target higher-risk licensed drinking premises and use a hierarchical set of variably aggressive policing measures in these premises, to change serving and drinking behaviour over time. While the intervention may have had a voluntary element, it is notable that the implementation arm involved the police, who have significantly more forceful measures available to them, for deployment in the case of non-compliance.

So there is much here that conforms to Macintyre's helpful 2007 guidance on “What works to reduce health inequalities.” That some of the evaluations reported in these papers are not able to demonstrate large and unequivocal reductions in well-measured health outcomes should not be surprising, for that is what makes public health intervention research on health inequalities so challenging. As we have found out in our support in Scotland of a wide variety of “incubator project grants” for such interventions⁵ (see www.scphrp.ac.uk for details), the precise and valid measurement of reductions in socio-economic health inequalities often falls short of our expectations. Sometimes this is simply because the requisite measurement systems are not in place. [However, anonymized record linkage of routinely collected administrative data, especially across public service sectors, is proving very promising for this purpose, as the Manitoba Centre for Health Policy has repeatedly shown⁶]. Other times, the methodological challenge seems to have more to do with not being able to come up with an evaluative study design that is both scientifically robust and at the same time ethical and feasible (especially in terms of setting up equivalent “control” populations, for example by using staggered time-series across communities receiving the intervention earlier versus later, which can often be legitimately justified by cost and logistical considerations.) In still other situations, it may be that we have just not figured out correctly what the most appropriate health outcomes are, and the relevant time-frame of delay to full intervention impact. Frank and Haw³ point out, for example, that some quite statistically sophisticated countries seem to be largely unaware – unlike Canada, where this is long-established wisdom – that monitoring overall societal, or social-position-specific, trends in rates of low birth rates alone, can no longer be relied upon to show declines that unequivocally reflect better maternal and child health. A major reason for the obsolescence of this time-honoured early-life public health statistic lies in the increasingly aggressive, but generally ethically justifiable, practices of high-risk prenatal care. That care consists of inducing labour or performing a Caesarean many weeks

ahead of full term, in an ever-larger proportion of women (some of them much older and more overweight than pregnant women in the past) whose pregnancies show signs of intra-uterine growth retardation or fetal distress. Each time fetal survival or health is traded off against birth weight, the latter outcome looks a bit worse at the population level, even if the former outcome is better.

It is all these challenges that have led research-agency thinkers and researchers in the UK recently to enunciate some broad guidance for doing high-quality public health intervention research,⁷ particularly that involving “natural experiment” designs. Indeed, the Canadian Population Health Intervention Network (PHIRN – see www.rrasp-phirn.ca/) has been hard at work in recent years to advance our knowledge of this field, in which Canada is widely considered an international leader. But there is still much to do to ensure that a similar journal Supplement on public health intervention research, perhaps in another 10 years’ time, demonstrates more convincingly that we know not only how to follow Macintyre’s sage advice on how to reduce health inequalities, but also how to execute evaluation studies that show that we’ve done it – convincingly.

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RÉSUMÉ

Ce commentaire porte sur la notion de « ce qui fonctionne » pour réduire les inégalités de santé. Nous commençons par signaler le besoin et la présence d’un vaste éventail de méthodes et d’approches dans le monde. Nous faisons ensuite valoir l’utilité d’établir des correspondances entre ces apports, et ceux du présent supplément, et un ensemble de principes (Macintyre, 2007) afin d’orienter la sélection et la mise en œuvre d’interventions de santé publique visant explicitement à réduire les inégalités de santé. Les principes choisis découlent dans une large mesure d’efforts menés en Écosse pour réduire des inégalités de santé prononcées et persistantes entre les classes sociales. Nous résumons l’analyse par Macintyre des principales caractéristiques des interventions de santé publique. Nous notons ensuite que le présent supplément donne des exemples clairs d’interventions en santé des populations et de leurs effets sanitaires qui ont pour effet de réduire les inégalités. L’approche et les principes suggérés sont en harmonie avec les appels à utiliser des changements structurels dans l’environnement, à intervenir au stade précoce de la vie, à réduire les obstacles aux soins préventifs et à adopter une philosophie de réduction des méfaits. Nous concluons en disant qu’il reste beaucoup à apprendre et à faire pour que la recherche sur les interventions de santé publique montre clairement comment réduire les inégalités de santé de façon efficace et durable.