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Plenary

Global inequalities in assessment of migrant and ethnic variations in health

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SUMMARY

This paper briefly recaps the role of migration in creating multi-ethnic societies, the main types of migration and/or ethnicity studies, and the power and potential of such studies. Next, the paper examines whether opportunities are being grasped globally, and whether information systems exist to grasp these opportunities. The paper concludes that there are massive global inequalities in the use of migration status and ethnicity as epidemiological variables, to the detriment of global health. A strategic approach to improve matters is outlined.

Migration and the multi-ethnic society

Migration has forged one of the greatest changes in the shape of our societies and the way in which we live – the multi-ethnic society. Such societies are based on the principles of equality of human rights, although achieving this is proving to be difficult, especially in the face of racial discrimination.[1] The world's peoples, in all their splendid variety – of color, shape, hair, dress, food and religion – are on show on the streets of every major city of the world. International comparisons of disease patterns, often combined with studies of migration, have, perhaps more than any other type of epidemiology, shown the dominance of the environment in shaping disease patterns.[2,3] Modern-day, multi-ethnic societies provide opportunities for epidemiologists to perform similar work, but with greater potential to develop and test hypotheses within single countries and world regions.[1] However, such opportunities have been taken too rarely, and only in a handful of countries, mainly in Western Europe, North America and Australasia.

Migration is intrinsic, not just to human behavior, but to our success as a species. We have, in the space of some 60–80 thousand years, settled and thrived on most of the earth, getting as far as Australia.[4] Although migration accounts for our success historically, and probably continues to do so, migrants are seldom welcome, presumably because they change the *status quo*. Discussions of motivations for migration tend to emphasize economic factors, and possibly downplay factors such as curiosity, education, adventure and a wish for change. Whatever the motivations and the nature of the welcome – usually more hostile than friendly, even in tolerant countries such as the UK – migration is a growing phenomenon.[5,6] The International Organization for Migration suggests that more than 175 million people migrated internationally between 1990 and 2000, and that more than 10% of the world's population lives in a country that is not

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their birthplace. In some cities such as London or New York, the proportion born abroad may be as high as 20% or more. The children of the migrants, together with the migrants, create the multi-ethnic society.

A brief overview of race and ethnicity as epidemiological concepts

The health status and risk factor patterns tend to be very different by migrant and/or ethnic group, creating interesting and important opportunities and challenges for epidemiology. The concepts required to study such variations are complex, and centre around race and ethnicity. These concepts were explained and terms were defined in a recent glossary and textbook.[1,7] In brief, all humans belong to a single species (*Homo sapiens*) but the species comes in many varieties, whether described by physical features or by cultures. Traditionally, the concept of race was biological, whereby people were grouped according to their physical features (reflecting their ancestry); historically, this was done by the observer, but more recently, it has been done by individual themselves. This biologically founded concept has not withstood scrutiny and is being superseded by the term 'ethnicity',[8] with calls for 'race' to be abandoned.[3] Ethnicity groups people according to their cultural characteristics and geographical origins, and is broad enough to subsume physical features (i.e. race). Ethnicity is mainly self-assigned, although proxy measures such as name and country of birth are widely used. Afshari and Bhopal's analyses of MEDLINE publications show the rapid growth in the use of the term 'ethnicity', which has overtaken 'race', even in the USA.[8,9] Henceforth, the term 'ethnicity' is used in this paper to include its proxy measures and race.

The extent of ethnic inequalities in health

With the exception of variations by country and age, arguably, no other epidemiological variable is as potent as ethnicity in exposing population-level differences in major risk factors and diseases.[1] While many of these differences reflect migration from one country to another (and hence mainly affect the migrant generation),[2] others are long lasting. This is because they are either deeply embedded in the culture (e.g. taboos against smoking among Indian women),[10] or (more rarely) they are genetic, the latter being overemphasized historically.[11] The dimension and range of inequalities has been reviewed elsewhere,[1,12] but some apt examples include:

- huge differences in life expectancy between populations (e.g. 10–15 years between Aboriginal and White Australians,[13] and 7 years between African Americans and White Americans)[14];
- approximately three-fold higher mortality rates for cardiovascular diseases in comparisons of Pakistani and Chinese populations in England[15];
- approximately 10–20-fold variations in the prevalence of smoking in women living in England, with exceptionally low rates in South Asian women[16];
- four- to six-fold higher prevalence of diabetes in South Asians compared with White populations[17]; and
- much lower rates of colorectal cancer in most ethnic minority groups in the UK compared with White populations.[2]

These types of observations are leading to public health action and to novel and interesting hypotheses (e.g. the adipose tissue compartment[18] and mitochondrial efficiency[19] hypotheses for metabolic dysfunction, and examination of the protection afforded by spices for colorectal cancer.[20])

Given the enormous potential of ethnicity, there is a clear need for global research, surveillance and public health action. This study examined whether such work is underway.

Availability of ethnic health status indictors globally

This study aimed to identify large-scale health data sets with information on ethnicity (or other relevant proxy measure) in global databanks. A two-step approach was taken in order to identify relevant data sets. First, the websites of the following major global organizations were identified and accessed: World Health Organization (WHO), World Bank, US Department of Health and Human Services' Office of Global Health Affairs, Centers for Disease Control and Prevention Coordinating Office for Global Affairs, USAID's Global Health, United Nations, Pan American Health Organization, Global Forum for Health Research, Bill & Melinda Gates Foundation, European Union and Oxfam. The websites were searched directly through the available search option on each site using the following keywords: 'ethnicity', 'country of birth', 'nationality', 'religion', 'race OR racial' and 'migration OR migrants'. As a second step, the WHO Global Health Observatory (including the WHOSIS statistical system and the WHO global infobase on chronic diseases and risk factors) was accessed and examined in detail for availability of data providing information on ethnic health status indicators.

The results from the data searches using specific keywords differed substantially in magnitude according to the particular website. For example, the five search words generated a total of 16,001 hits on the WHO site (see Table 1). In comparison, there were only 13 matches on the website of the US Department of Health and Human Services' Office of Global Health Affairs. Where large number of hits were generated for a particular search word or website, a random sample was selected for detailed content analysis. In no instances were the search hits linked to any useful data on ethnic health status indicators, but these flagged up news releases, fact sheets etc. available in vast numbers on these websites. Similarly, examination of the WHO's Global Health Observatory, which is WHO's main health statistics repository, clearly showed that, to date, no ethnicity-coded data on major health indicators are available globally for either descriptive or comparative epidemiological purposes.

This screening of websites and health databases of major global organizations is the first step in mapping and quantifying the lack of available data on ethnic health status indicators globally. In some cases, global health databases can already provide statistical information on a range of health indicators by age, gender and, sometimes, other characteristics

Table 1 – Analysis of information related to ethnic health status indicators on websites of major global organizations: example of the WHO.

Website searched[a]	Hits (number) per search term	Results content description**		
		Direct link to ethnic health status indicators or relevant data	Reports describing ethnicity and health but not specific data	Other information (e.g. ethnicity and health factsheets)
-World Health Organization (WHO) http://www.who.int/en/	-Ethnicity (4430)	0	36	8
	-Country of birth (141)	3	3	8
	-Nationality (1470)	2	3	10
	-Religion (2840)	1	6	21
	-Race OR racial (1960)	0	5	15
	-Migration OR migrants (5160)	0	8	42

Note: The following were subject to content analysis: all hits less than 100; 10% random sample of hits numbering between 100 and 1000; 1% random sample of hits over 1000.
a Search was performed on 28.07.2011.

such as income and education level. Moreover, background descriptions (e.g. in WHO's country profiles) often include information on the ethnic breakdown of populations, but there is a large gap to bridge between such demographic data and the generation of data on health status indicators that can be meaningfully disaggregated by ethnicity or other proxy measures.

Biomedical research on ethnicity and health across the world – where is it being done and where is it neglected?

Table 2 shows preliminary work indicating very large differences in the attention being paid across the world. While the USA, the UK and a few other countries have taken advantage of the epidemiological insights and public health advantages of these concepts, this is not the case in much of the world. In due course, the authors will undertake a detailed MEDLINE-based analysis on these matters. However, preliminary analysis does back up the findings in Table 2.

A global strategy for ethnicity and health research, and conclusions

The World Health Assembly has passed important resolutions on the need to examine and improve the health of migrant populations, and resultant WHO consultations have placed a heavy emphasis on information, particularly health surveillance.[6] The Health Metrics Network recognizes the importance of disaggregating health data by ethnic group.[21] On a global scale, however, there are no data. Fortunately, there is foundational experience from selective countries which can be scaled up.

In order to succeed, there is a need for a global strategic perspective and leadership, inclusion of migrant and ethnic health indicators in surveillance systems, and large-scale multi-ethnic research programmes, especially international studies. The principles and recommendations in Scotland's ethnicity and health research strategy may have broader applications.[22] Coordination is required, and that will be best done through WHO and the International Organization for Migration which have jointly spearheaded high-level international dialogue.[6]

Table 2 – Google Scholar search for articles on epidemiology, ethnicity or migration in seven countries.

Country	Hits for migration (thousands)	Hits for ethnicity (thousands)
USA	128	145
UK	63	81
Australia	44	33
China	29	33
Brazil	19	13
Russia	14	18
Nigeria	14	17

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REFERENCES

1. Bhopal RS. *Ethnicity, race, and health in multicultural societies; foundations for better epidemiology, public health, and health care.* Oxford: Oxford University Press; 2007.
2. Arnold M, Razum O, Coebergh JW. Cancer risk diversity in non-western migrants to Europe: An overview of the literature. *Eur J Cancer* 2010;**46**:2647–59.

3. Adelstein AM, Marmot MG, Bulusu L. Migrant studies in Britain. *British Medical Bulletin* 1984;**40**:315–9.
4. Mellars P. Going east: new genetic and archaeological perspectives on the modern human colonization of Eurasia. *Science* 2006;**313**:796–800.
5. Regional Office for Europe. *How health systems can address health inequities linked to migration and ethnicity*; 2010. Copenhagen.
6. World Health Organization. *Health of migrants – the way forward: report of a global consultation*. Geneva: WHO; 2010. p. 1–119.
7. Bhopal R. Glossary of terms relating to ethnicity and race: for reflection and debate. *J Epidemiol Community Health* 2003;**58**:441–5.
8. Afshari R, Bhopal RS. Changing pattern of use of 'ethnicity' and 'race' in scientific literature. *Int J Epidemiol* 2002;**31**:1074.
9. Afshari R, Bhopal RS. Ethnicity has overtaken race in medical science: MEDLINE-based comparison of trends in the USA and the rest of the world, 1965–2005. *Int J Epidemiol* 2010;**39**:1682–3.
10. Bush J, White M, Kai J, Rankin J, Bhopal R. Understanding influences on smoking in Bangladeshi and Pakistani adults: community based, qualitative study. *BMJ* 2003;**326**:962–5.
11. Duster T. Medicine. Race and reification in science. *Science* 2005;**307**:1050–1.
12. Davey Smith G, Chaturvedi N, Harding S, Nazroo J, Williams R. Ethnic inequalities in health: a review of UK epidemiological evidence. *Crit Public Health* 2000;**10**:377–408.
13. Marmot M. Social determinants of health inequalities. *Lancet* 2005;**365**:1099–104.
14. Sloan FA, Ayyagari P, Salm M, Grossman D. The longevity gap between Black and White men in the United States at the beginning and end of the 20th Century. *Am J Public Health* 2010;**100**:357–63.
15. Wild SH, Fischbacher C, Brock A, Griffiths C, Bhopal R. Mortality from all causes and circulatory disease by country of birth in England and Wales 2001–2003. *J Public Health (Oxf)* 2007;**29**:191–8.
16. Becker E, Boreham R, Chaudhury M, Craig R, Deverill C, Doyle M, et al. *Health survey for England 2004 – the health of minority ethnic groups*. London: National Centre for Social Research; 2006.
17. Unwin N, Alberti KG, Bhopal R, Harland J, Watson W, White M. Comparison of the current WHO and new ADA criteria for the diagnosis of diabetes mellitus in three ethnic groups in the UK. *Diabet Med* 1998;**15**:554–7.
18. Sniderman AD, Bhopal R, Prabhakaran D, Sarrafzadegan N, Tchernof A. Why might South Asians be so susceptible to central obesity and its atherogenic consequences? The adipose tissue overflow hypothesis. *Int J Epidemiol* 2007;**36**:220–5.
19. Bhopal RS, Rafnsson SB. Could mitochondrial efficiency explain the susceptibility to adiposity, metabolic syndrome, diabetes and cardiovascular diseases in South Asian populations? *Int J Epidemiol* 2009;**38**:1072–81.
20. Aggarwal BB, Kunnumakkara AB, Harikumar KB, Tharakan ST, Sung B, Anand P. Potential of spice-derived phytochemicals for cancer prevention. *Planta Med* 2008;**74**:1560–9.
21. Health Metrics Network. *Assessing the national health information system: an assessment tool – version 4*. Geneva: World Health Organization; 2008.
22. The Scottish ethnicity and health research strategy working group. *Health in our multi-ethnic Scotland future research priorities (full report)*. Edinburgh: NHS Health Scotland, Scottish Government; 2009. p. 1–84s.