

# Medicine and public health in a multiethnic world

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### ABSTRACT

Achievement of medical and public health goals requires mutual understanding between professionals and the public, a challenge in diverse societies. Despite their massive diversity humans belong to one species, with race and ethnicity used to subgroup/classify humans and manage diversity. Classifications are contextual and vary by time, place and classifier. As classifications show major variations in health status, and risk factors, research using race and ethnicity has accelerated. Medical sciences, including epidemiology, are learning fast to extract value from such data. Among the debatable issues is the value of the relative risk versus absolute risk approaches (the latter is gaining ground), and how to assess ethnicity and race (self-assignment is favoured in the UK and North America, country of birth in continental Europe). Racial and ethnic variations in disease and risk factors are often large and usually unexplained. There is a compelling case for ethnic monitoring, despite its difficulties, for tackling inequalities and as a foundation for research. Medical and public health goals require good data collected in a racism-free social environment. Health professionals need to find the benefits of exploring differences while avoiding social division. Advances in health care, public health and medical science will follow.

**Keywords** ethnicity, health services, public health, population groups, race

### Introduction: health, health care, migration and multiethnic societies

Optimizing the health of individuals (medicine) and of populations (public health) is an enormous challenge that is easier when health professionals, patients and the general public have a shared understanding of the goals. Shared understanding comes both informally, from a commonality of experience including schooling, language, media exposure and friendships, and formally, from education. Most modern day urban populations, including those in much of Western Europe and North America, are multiethnic societies where there is huge diversity in birthplace, upbringing, education, language and religion, which poses challenges in achieving such shared understanding for professionals and the public alike.<sup>1,2</sup> This is partly a result of variations in health knowledge, beliefs, attitudes and behaviour of populations.<sup>3</sup> Health care systems, and individual health professionals, need to learn about such variations, adapt accordingly and deliver high-quality services. Equally, members of a diverse society need to learn about how the institutions work.

As the ethnic diversity in most countries will continue to increase, both from the offspring of recent migrants and from future migrations, health professionals need to reflect on the implications of multiethnic societies for their work.<sup>4</sup>

This paper aims to give an overview of the public health and clinical issues (see Box 1 for its scope) and to suggest ways of resolving problems and maximizing opportunities offered by multiethnic societies.

Migration creates multiethnic societies. Modern humans migrated from Africa some 50–70 000 years ago. Although migration has been central to the success of humans, most societies have negative views on migration, at least on immigration and immigrants. Europe has been, and continues to be, a major exporter of migrants, with Ireland and Scotland being leading nations in this. Reasons for migration include trade, search for work and workers, further education, personal aspirations, political refuge and curiosity. Migration both enriches and stresses nations, offering opportunities and challenges for health improvement and, sadly, illness and death, often through the carriage and transmission of infections<sup>5</sup> and sometimes through conflict. Understanding the spectrum of human diversity needs concepts that capture the idea of human subgroups and of these the most important ones are species, race and ethnicity.

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**Box 1 Scope of the paper**

- the multiethnic society,
- migration,
- species, race and ethnicity,
- problems and benefits of using ethnicity and race in health,
- use and interpretation of variations in disease and health status by ethnic group,
- difference between inequalities and inequities,
- importance to medical sciences and clinical practice of inequalities and inequities,
- a vision of the doctor of the future.

**Human species, race and ethnicity and classifications arising**

The following interlinked questions are central to the ethnicity and health field:

What is a species? Do human species coexist? How many human species are there on the earth today? What is race? What is ethnicity?

Species are classes of living things that are similar genetically, and therefore in appearance. Members of a species, by definition, can interbreed with each other under natural circumstances and produce offspring that are healthy and fertile. The question of whether humans comprise one species (monogeny) or several species (polygeny) was a matter of intense scientific controversy.<sup>6</sup> It is easy to imagine, in the heyday of global exploration, how bewildering and wondrous it would have been for Black Africans, White Europeans, Eastern Indians and Polynesians, for example, to intermingle for the first time—quite unprepared by prior first-hand knowledge or images. The crucial question of whether humans were one or more species was resolved by Johann Blumenbach.<sup>7,8</sup> All humans on the earth now are agreed to be *Homo sapiens sapiens*.

There is recent evidence, although still controversial, that another human species called *Homo floresiensis* coexisted in Indonesia as recently as 8–10 000 years ago.<sup>9</sup> *Homo neanderthalis* and *Homo sapiens* definitely coexisted in Europe about 25 000 years ago.<sup>10</sup> Our modern human species comes in many varieties.<sup>7</sup> The same applies to dogs, which are varieties of wolves (*Canis lupus*). Subgrouping human varieties, however, is both difficult and controversial.

Race and ethnicity are the concepts humans use to define subgroups of species. Race is the group a person belongs to, or is perceived to belong to, because of physical features reflecting ancestry and, therefore, genetics. Increasingly the race concept has incorporated a common social and political

heritage.<sup>11</sup> In the medical science arena the concept of race is being displaced by ethnicity.<sup>12</sup> Ethnicity is the group a person belongs to, or is perceived to belong to, because of culture, language, diet, religion, ancestry and physical features. In this conceptualization ethnicity subsumes race.<sup>13</sup> Assessing a person's ethnicity is not easy and it is hard to devise a set of labels that are acceptable and useable in a classification, but we have experience from many countries that upholds its value.<sup>11</sup> National history, population composition and socio-political factors all exert important influence on the classification. Classification is essential to the next (public health) step of assessing health status.

**Assessing and utilizing variations by ethnic group**

Given an acceptable concept of ethnicity (or race) and a set of ethnic (or racial) groupings that the public and/or professionals are willing to utilize, data sets can be analysed by ethnic group. Despite the limitations of ethnicity as an epidemiological variable it remains powerful, particularly for public health applications demonstrating inequality in disease and health care.<sup>11</sup> Despite controversies about the costs, problems and benefits of such data, and particularly the fear of the return of racist science,<sup>14</sup> the amount of research on ethnicity and race has accelerated.<sup>12</sup>

There are many challenges in relation to the collection, interpretation and utilization of information on ethnic variations in health and health care. Among the key principles currently being established is the primacy of the absolute risk approach, which examines the patterns within each group using numbers and rates.<sup>11</sup> Following this fundamental step, to refine understanding, the results are compared with other ethnic groups—the relative risk approach (for several decades this has been dominant). The interpretation of data, and sense of priorities, is strikingly different from these two approaches.<sup>15</sup> Table 1 revisits a classic example.<sup>16</sup> The right-hand column of Table 1 presents the top five causes of death based on the standardized mortality ratio (SMR) (relative approach) and captures 4.3% of all deaths and puts emphasis on homicide, hepatic cancer and TB, etc. The left-hand side of Table 1 uses absolute risks and captures 60.3% of all deaths, with emphasis on cardiovascular and lung diseases. The absolute risk approach is designed to show frequency of outcomes and tends to emphasize similarities whereas the relative risk approach is designed to demonstrate differences. The debate on the merits and weaknesses of these two approaches is still topical, especially as we try to narrow inequalities.<sup>17,18</sup> Clearly, the question and context are central to decisions on which to use.

**Table 1** Deaths and Standardized mortality ratios (SMRs)<sup>a</sup> in male immigrants from the Indian sub-continent (aged 20 and over; total deaths = 4352)

By rank order of number of deaths (absolute risk approach)			By rank order of SMR (relative risk approach)		
Cause	Number of deaths (SMR)	% Total deaths	Cause	SMR (number of deaths)	% Total deaths
Ischaemic heart disease	1533 (115)	35.2	Homicide	341 (21)	0.5
Cerebrovascular disease	438 (108)	10.1	Liver and intrahepatic bile duct neoplasm	338 (19)	0.4
Bronchitis, emphysema and asthma	223 (77)	5.1	Tuberculosis	315 (64)	1.5
Neoplasm of the trachea, bronchus and lung	218 (53)	5.0	Diabetes mellitus	188 (55)	1.3
Other non-viral pneumonia	214 (100)	4.9	Neoplasm of buccal cavity and pharynx	178 (28)	0.6
<b>TOTAL</b>	<b>2626</b>	<b>60.3</b>		<b>187</b>	<b>4.3</b>

This table is adapted from the version published by Senior and Bhopal<sup>16</sup> and republished by Bhopal.<sup>11</sup>

<sup>a</sup>SMRs, comparing with the male population of England and Wales, which was by definition 100.

Generally, for health needs assessment the absolute risk approach will be preferred, and for aetiological research the relative one. Wherever possible, however, writers should give both. This will prevent the twin problems of neglecting outcomes where there is little difference by ethnic group, or neglecting rare problems where there is a big difference.

Another ongoing debate is how to assess ethnicity to classify people. While self-report of ethnicity is subjective and changeable, it has found favour in the UK and North America. In much of Europe questions about ethnicity and race are not currently acceptable and country of birth (or parental/grand parental birth) is favoured.<sup>11</sup> This is, however, a tradition that we can foresee changing rapidly. Whatever method is used misclassification is a problem and one that deserves further research.

Whether the indicator of ethnicity is self-reported, assigned by an observer, or based on country of birth (or some other proxy), ethnic group variations are often very large.<sup>11</sup> Death

**Table 2** Newcastle Heart Project: current self-reported smoking prevalence in Indians, Pakistani, Bangladeshi and European populations (%)

	Indian	Pakistani	Bangladeshi	South Asian groups combined	European
Men	14	32	57	33	33
Women	1	5	2	3	31

This is a small extract from a table in ref. 20 and also published in ref. 11.

rates from infection for Aboriginal and non-Aboriginal infants born in Western Australia, 1980–2001, for example, showed a 7-fold variation in remote areas that only dropped to 4-fold in metropolitan areas.<sup>19</sup> Table 2 extracts illustrative data from the Newcastle Heart Project on smoking prevalence.<sup>20</sup> The massive 10–20-fold inequality, especially in women, is mostly real (little altered by adjusting using carbon monoxide breath tests). The results for men teach us the lesson of within-ethnic group heterogeneity. At the time of this work (mid-1990s), it was customary in the UK to examine Indians, Pakistanis and Bangladeshis as one combined group variably labelled as Asian, South Asian, Asian Indian, etc.<sup>13</sup> In the USA where, mostly, data are still reported for a combined Asian category that includes South Asians and Far Eastern Asians, the resulting statistics are mostly meaningless.<sup>21</sup> Coronary heart disease (CHD), for example, is relatively common in South Asians and relatively rare in Chinese and Japanese. So combining such populations leads to a misleading average. If issues such as definition, classification, stability of response to classification, misclassification bias and heterogeneity could be clarified internationally, the value of ethnicity as a public health and epidemiological variable would be much greater.

The consequences for medicine and public health of large ethnic variations are great, but action is difficult because their causes are often not widely understood. To take an example, the blood pressure of Bangladeshi people, including those living in England and Wales, is comparatively low.<sup>22</sup> As high blood pressure is the dominant risk factor for stroke we would predict low stroke mortality. This is not so—the SMR in Bangladeshi men around the 2001 census was 249 (95% CI: 213, 292). Such unexplained observations spark off exploratory hypotheses (vitamin D deficiency, infection, combining smoking and chewing tobacco, and squatting and straining at stool) as offered by Bhopal *et al.*<sup>22</sup> on stroke and Bangladeshis, and a more formed adipose tissue compartment overflow hypothesis as presented by Sniderman *et al.*<sup>23</sup> to explain the higher risk of diabetes and its precursors, and cardiovascular disease in South Asians. To take another paradoxical example, first emphasized by Marmot *et al.*,<sup>24</sup> why do

South Asians have high rates of diabetes and cardiovascular disease yet low rates of cancer that share some of the risk factors, e.g. colorectal and breast cancer (e.g. fat consumption). These kind of paradoxical findings abound and warrant proper investigation and explanation. In addition to facets of ethnicity (identity, religiousity, etc.) investigators should examine changes that arise after migration and across generations and economic strata.

### **Forces generating ethnic health inequalities, and the issues of inequality, racism, ethnic coding and genetic variations**

Egalitarianism is enshrined in international law applying to UN members but equality cannot be achieved easily, if at all, for health status. Ethnic inequalities in health status are inevitable (but not fixed) for they are generated by biological and social forces summarized in Box 2. These forces are all amenable to change—even genetic effects can sometimes be modified by environmental manipulations.

#### **Box 2 Forces generating ethnic inequalities**

Differences in:

- culture and lifestyle,
- social, educational and economic status,
- environment before and after migration,
- genetic and generational effects,
- access to and concordance with health care and health advice.

The crucial and difficult question, in relation to the law, is whether ethnic inequalities are also inequities, i.e. injustices that warrant redress? (Equity is fairness.) Inequalities are differences, although the word is interpreted sometimes as undesirable differences. In the USA disparities is preferred<sup>21</sup> but it is a synonym for difference and inequality without the nuance of injustice and unfairness that inequity has. The concept is worth reflecting on. Do the lower prevalence of smoking in Chinese women compared with White women, and the lower life expectancy of African Americans compared with White Americans, represent inequities?

The lower prevalence of smoking in Chinese women than in White women (in the UK and USA) is a difference.<sup>25</sup> There is an element of undesirability—we would like White women to have the same low prevalence that Chinese women have. I do not, however, see any injustice. If the smoking prevalence in Chinese was higher than in White women we might wonder whether smoking cessation services were failing Chinese women, possibly because services

were not cross-culturally adapted and so less effective. But, smoking cessation services have been designed for the general, predominantly White, population. So, in this example inequity in service provision is not the relevant issue, and the difference probably lies in cultures that promote or inhibit initiation of smoking. The lower life expectancy of African Americans, by contrast, seems to be an injustice. It is, arguably, the consequence of several centuries of unfair laws, policies and social behaviours that successively enslaved, suppressed and discriminated against people of African origins in the USA. If this analysis is correct the continuing gap in life expectancy in African Americans and White Americans (more than 4 years in women and more than 6 years in men) deserves redress through the attention of law, policy and publicly directed local action.<sup>26</sup>

Racism sometimes underpins inequities. Racism derives from a belief that one race (or ethnic, religious or like group) is superior to another. Racism leads to prejudice which leads to social structures and laws that generate inequity. While some adverse outcomes demonstrable by ethnic group are not a consequence of ethnicity *per se*, e.g. smoking related lung cancer, others are, e.g. the adverse effects of racism. Recently overt racism has been suppressed through international, supranational and national laws but it remains in the beliefs and attitudes (and infrequently in overt behaviours) of many individuals and in institutional structures and policies.<sup>27</sup>

To demonstrate equality and equity (or the opposite) requires ethnically disaggregated vital statistics and health care utilization data, which requires recording ethnic group (and, ideally, also language preferences, religion and possibly country of birth). Getting such data of the required quality and completeness has proven nigh impossible.<sup>11</sup> There seem to be many obstacles. The most cogent argument against collecting ethnicity is fear that such data could be abused. Opponents rightly remind us of the actions of the Nazis under Hitler, where such data were used to enact racist policies.<sup>28</sup> Fascism and scientific racism could return to Europe so this worry is not a trivial one. Indeed, there is the continuing promotion of Hitlerian views, especially through the internet. We have seen that ethnic group conflict can break out with devastating consequences, usually in association with political and/or economic change, e.g. as in India during partition in 1947, the break up of Yugoslavia, the Rwandan Conflict between Tutsi and Hutu and the intermittent conflicts with racial elements in Holland, France and the UK in recent years. To manage the risk the collection of data needs to be accompanied by widespread action to combat racism, and in the absence of 'prejudice-based medicine'.<sup>29</sup>

In the fifth edition of his influential book 'Man's Most Dangerous Myth' Montagu wrote that the race problem

seemed to have grown more troubling than ever. His analysis was that the popular understanding of ‘race’ comprised the physical appearance of the individual, which was genetic, plus the intelligence of the individual, plus the ability of the group to which the individual belongs to achieve a high civilization. He said, ‘Nothing could be more unsound, for there is no genetic linkage whatever between these three variables’ (ref. 30, p. 31). The popular understanding, as pinpointed by Montagu, still needs challenging.

An emergent problem is that the traditional concept of race as genetic difference is gaining new influence with the rise of genetics and pharmacoepidemiology.<sup>31,32</sup> The licensing by the FDA of a drug for self-defined black people, following a trial demonstrating the efficacy of isosorbide dinitrate plus hydralazine (BiDil) in black patients,<sup>33,34</sup> was a unique and controversial decision that has reignited the race, medicine and genetics debate. We can foresee an explosion of research utilizing self-reported (or assigned) race and ethnicity as proxies for genetic differences. New guidelines urging caution are appearing.<sup>35</sup> As emphasized by Kaplan and Bennett,<sup>36</sup> genetic hypotheses should be firmly grounded in existing evidence, clearly stated, and rigorously tested but following this advice is hard.

There are some important genetically founded ethnic health differences—the challenge is one of balanced interpretation.<sup>37</sup> Clinicians will find themselves walking the tightrope as they follow the excitement of the debate and research on race, genes and disease, with the abyss of racist science threatening. They will also face clinical dilemmas, e.g. in determining who is Black and therefore suited to BiDil and who is not.

### Race and ethnicity in clinical and public settings: a vision

Race and ethnicity can lead to stereotyping, stigma and racism but they have potential value in health care in multi-ethnic societies. Doctors should be excited by diversity and respond positively.<sup>38</sup> Clinical history taking usually includes describing race or ethnicity but usually superficially, leading Caldwell<sup>39</sup> to question the use of race or ethnicity as mere labels, e.g. black or white, without attention to the social, environmental, cultural or lifestyle implications that ethnicity points to.

Health professionals need to respond effectively to the varying health behaviours, beliefs and attitudes in different ethnic subgroups of their patients.<sup>11</sup> They also need to attend to differences in the pattern of diseases, language and

culture. On a broader perspective they must respond to calls for a service sensitive to cultural differences either from patients directly or from planners, policy-makers or funders/commissioners of services. The nature of effective responses is a topical subject of debate, research and development. As a starting point, to achieve this clinicians of every ethnic group need to examine their personal biases, and reflect on the possibility of institutional racism in their own organizations. Doctors have to help implement the laws requiring equal opportunities and the elimination of racial discrimination in the public sector.<sup>11</sup> Doctors who improve services for ethnic minorities should, surely, be explicitly recognized in the awards and promotions systems<sup>11</sup> where contributions to promoting equality and equity should be explicitly elicited.

Some of the learning needs of doctors are shown in Box 3.

Migration and the resultant multiculturalism can contribute to the goals of better health for the entire population, excellence in clinical care and advancement in science. For example, health targets could be set to achieve the best available within each society. So, in the UK we could aspire to the low rates of CHD in the Chinese, the low prevalence of smoking in Sikh men and women, the low rate of obesity in Caribbean men and the low rate of hepatitis B in White populations. These targets will change as disease rates change with time, e.g. with acculturation, but the principle still holds (with the exception of genetically determined outcomes).

Excellence in clinical care can come from the mutual learning possible within a diverse, international workforce. Advances in science are already coming from generating and exploring paradoxes such as high stroke and low blood pressure in Bangladeshis. Such advances require health professionals to have a deep understanding of both the benefits and dangers to clinical medicine and public health of the concepts of race and ethnicity.

#### Box 3 Future doctors’ learning needs

Understanding of:

- unity yet diversity of humanity;
- importance of ethnicity, religion and language in managing the patient at the clinic and bedside;
- how people from different cultures maintain their health;
- health beliefs and attitudes of the ethnic minority populations they serve;
- clinical and public health reasoning for recording, analysing, emphasizing and discussing the patient’s (and population’s) ethnic group.

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