# Universal Demographic Data Collection Standardization for Better Decision-Making

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*Global health care providers, health care networks, health care institutions, market researchers, as well as other public and private entities, could greatly benefit from universal demographic data standardization. The authors analyze data from data collection systems found in The United States, Israel, and Europe. Each data collection system varies enough to prohibit information and knowledge exchanges. One use of data is to gain local insights to adapt to changing trends, however, in a global market varying data sets and interpretations could hinder accurate decision-making.*

## INTRODUCTION

With the globalization of markets, as well as communities becoming more diverse, the lack of a universal demographic data collection standardization system could prevent sustainable public health growth and hinder economic development. There are currently no standardized global demographic census and statistics data collection models or systems (Thomas & Yahav, 2016). Countries collect data utilizing differing inputs, models, and systems. These differences prohibit global communities to study, measure, categorize, and relate the data because it is not transferrable due to the lack of correlating variables. Global health care providers, health care networks, health care institutions, market researchers, as well as other public and private entities, could greatly benefit from universal demographic data standardization. This paper will propose a universal demographic data collection system by presenting an adaptable model, framework, transferrable data sets, and collection techniques.

### Objective

The authors propose that a more detailed demographic data collection system could lead to better health care decisions. Additionally, the authors introduce a universal demographic census and statistics data collection model and examine its economic feasibility.

### Design

The study was conducted utilizing quantitative and qualitative data published in peer-reviewed journals and demographic census bureau information collection agencies.

## CURRENT DEMOGRAPHIC DATA COLLECTION METHODS

Thomas and Yahav (2016), analyzed data collection systems from The United States, Israel, and Europe and found the variables, datasets, and measurements to be non-transferrable to outside states. Most developed and emerging countries conduct regular census surveys. The purpose of a census is to allow researchers an opportunity to observe or question a defined target population (Hair Jr., Wolfinbarger Celsi, Ortinau, & Bush, 2013). The census is used to assist decision-makers solve complex societal and economic challenges. If measurements are inaccurate the data findings are invalid, accurate decision-making is hindered. The global inefficiency of current demographic data collection systems, due largely in part by nonuniformity of datasets, is invalid and may be cultivating health disparity gaps, socio-economic equity and equality gaps, and global socio-economic crises.

### Macro-Overview of United States, Israel, and Europe's Datasets

The United States federal guidance requires a minimum of five racial categories (American Indian or Alaska Native, Asian, Black or African American, Native Hawaiian or Other Pacific Islander, and White) for data collection on race since the revision for the 2000 Census, and two categories for ethnicity (Hispanic or Latino or Not Hispanic or Latino) (Executive Office of the President, Office of Management and Budget (OMB), Office of Information and Regulatory Affairs, 1997) (Thomas & Yahav, 2016). These categories are used as datasets for decision-making purposes.

The United States Census collects income, education, family size, and other social factors through a variety of surveys and programs (United States Census Bureau, N.D.). Surveys and questionnaires differ in questions, sample size, and methodology (United States Census Bureau, N.D.). This information is used to assist policy makers with information needed for programmatic decisions (United States Census Bureau, 2012). Economic Census is delivered to nearly 4 million businesses with paid employees (United States Census Bureau, 2012). Education and social information is collected from The Current Population Survey and the U.S. Bureau of Labor Statistics (United States Census Bureau, 2016).

Israel has implemented a dissimilar demographical data collection method. Israel collects demographic data by religion and population group (CBS, Stastical Abstract of Israel 2010, 2010) (Thomas & Yahav, 2016). Groupings by religion include: Jewish, Muslims, Christians, Druze, Others (CBS, Stastical Abstract of Israel 2010, 2010). The difference between population and religion groupings are the inclusion of religion by Arab race. Jewish Israelis are Jewish as a race and a religion (Jewish Virtual Library, 2016) (Thomas & Yahav, 2016). These categories are used as datasets to assist Israeli decision-makers.

Israel collects socio-economic factors using two methods, surveying and estimation (Central Bureau of Statistics, N.D.). The Social Survey is ongoing and provides information on living conditions and popular perceptions and opinions of the public (Central Bureau of Statistics, N.D.). In addition, the Social Survey collects information on demographic, geographic, and socio-economic information (Central Bureau of Statistics, N.D.). The methodology of data collection comprises of surveying permanent non-institutional population aged 20 years or older. New immigrants who have been present for at least six months are included in the survey. The latest report states the final sampling size of 7,500 persons (Central Bureau of Statistics, N.D.).

The European Commission collects population data utilizing a variety of characteristics, which are in turned used as datasets. These characteristics include marital status, citizenship and country of birth (European Commission, 2015). The methodology used by the European Commission to collect the data requires EU Member States' National Statistical Institutes and almost all non-EU member states to provide demographical data to Eurostat several times a year (European Commission, 2015) (Thomas & Yahav, 2016).

The European Commission collects socio-economic data utilizing a quarterly and annual approach (European Union, 2016). The survey covers the entire country and is extended to only private households where one member is under the age of 77 (European Union, 2016). The planned sampling size is around 14,625 households (European Union, 2016). The Labor Force Survey is based on a two-stage stratified cluster sample. In the first stage 2,446 districts are selected with the second stage having a randomly equal number of eight households selected (European Union, 2016).

## KNOWN ISSUES OF CURRENT DEMOGRAPHIC DATA COLLECTION METHODS

Nonuniformity in structural modeling for hypothesis with variable relations result in biased findings and errors (Schmidt & Hunter, 2015). Biased-results and errors on individual research could cause large scale errors on meta-analysis with significant ramifications. Reporting biased-results and errors are not intentionally committed. Measurement errors, sampling errors, data errors, along with other factors distort raw data (Schmidt & Hunter, 2015).

### Information Interpretation

Interpreting and understanding information is also limited to one's parameters of their current state of understanding, knowledge (or education), internal/external influences, culture, and emotions (Curras, 2013). Information is being produced at a rate faster than what humans are currently capable of processing (Curras, 2013). Filtering information by applying universal framework is nonexistent. Thus fosters, if not encourages, an individualized process of interpretation, processing, and application of data to form judgements and make decisions. This is especially relevant to those in decision-making positions. Whether the decision-maker is a policy advisor, health care professional, or business executive the 'freedom' of information interpretation has the potential to cause a health care or economic crisis.

### Global Health Care Implications

Business has morphed into a global environment (Peng, 2014). It is virtually impossible to conduct business without some element of globalization. This includes international business activities and domestic business activities because many domestic business markets and suppliers are globalized (Peng, 2014). Businesses that lack accurate data are less likely to have the ability to make informed decisions. This could impact investments, funding, and budget allocations. Health care, science, and research, all are businesses and recipients of investments and funding. In addition, all are gravely impacted by the lack of accurate, specificity, sets of data, and quality. The lack of uniformity and global framework could be perpetuating health care disparities in domestic and international societies. This could be linked to the high cost of health care for individuals, states, and private insurance companies (Powell, 2016). In addition, inaccurate data and information could be perpetuating the low rate of global health care communication, patient safety, and effective care between high-income countries and low-income countries. Countries participating in health care trade or collaborative positions are well aligned for win-win outcomes.

### Implications to the American Health Care System

While access to health care has increased in America, physician reimbursement rates have decreased. Some states within America are reducing or cutting programs that assist the marginal with access to quality health care, or health care services. For example, in 2016 Connecticut reduced budgets for hospitals, psychiatric centers for children, and substance and mental health services (Cummings, 2016). The health care landscape in America continues to change. Providers and health care networks are expected to provide equitable, culturally-responsive, personalized care, but may now lack monetary resources.

Networks and physicians may be unable to accurately identify their patient-base due to inadequate data collection and data elements (Agency for Healthcare Research and Quality, 2014). State decision-makers could be unknowingly utilizing invalid data for reference when making important decisions.

### Implications to the Israeli Health Care System

While all Israeli citizens have state insurance (Penn Leonard Davis Institute of Health Economics, 2014), health care disparities and equity gaps exist most notably between the south and north (New Israeli

Fund, 2014). The cost of a national health care plan, paired with access and equity issues, is causing economic concerns for Israel (Penn Leonard Davis Institute of Health Economics, 2014). As decision-makers work towards bridging equity gaps the vast amount of benefits and opportunities for translational research cannot be utilized due to the lack of a global system that promotes uniformity and standardization. If data were collected and shared within a validated manner, medical leadership and innovation could advance national and global prevalence, communication, and shared contributions (Antman, 2015). Investors and decision-makers could foster an effective system that could bridge health care gaps between Israel's north and south while contributing to the overall global advancement of public health, science and patient care. Such pioneering could bring new investors, relieving some of the financial burden Israel is now carrying (Roman, 2015).

## Implications to the European Health Care System

Like Israel, Europe has a national insurance system. The health care system is primarily built from political, historical, and socio-economic traditions (European Parliament, 1998). However, individual countries have begun to allow a competitive market by permitting private insurance companies to enter (European Parliament, 1998). While the market may be diversifying, health policy-making is guided by the principle of subsidiary and the approval of national laws is excluded in Article 129 of the European Union Treaty (European Parliament, 1998).

Within the European Union, one current issue is the differing demographic data collection methodology. For example, health care mortality and morbidity are determined by age and gender and do not include race, ethnicity, or socio-economic factors. "Leading causes of death allow determination of health care needs for different genders, age groups, races, and social classes," (European Parliament, 1998). *See Table 1.* In addition, collecting demographic data with limiting variables perpetuate inequities in health care, access to health care, and inhibit financial decision-making. While most of the literature researched compared countries within the European Union, the lack of global research and collaborations within the European Union's National Health System restricts foreign direct investment, cross-border services, and global trade (Smith, Chanda, & Tangcharoensathien, 2009).

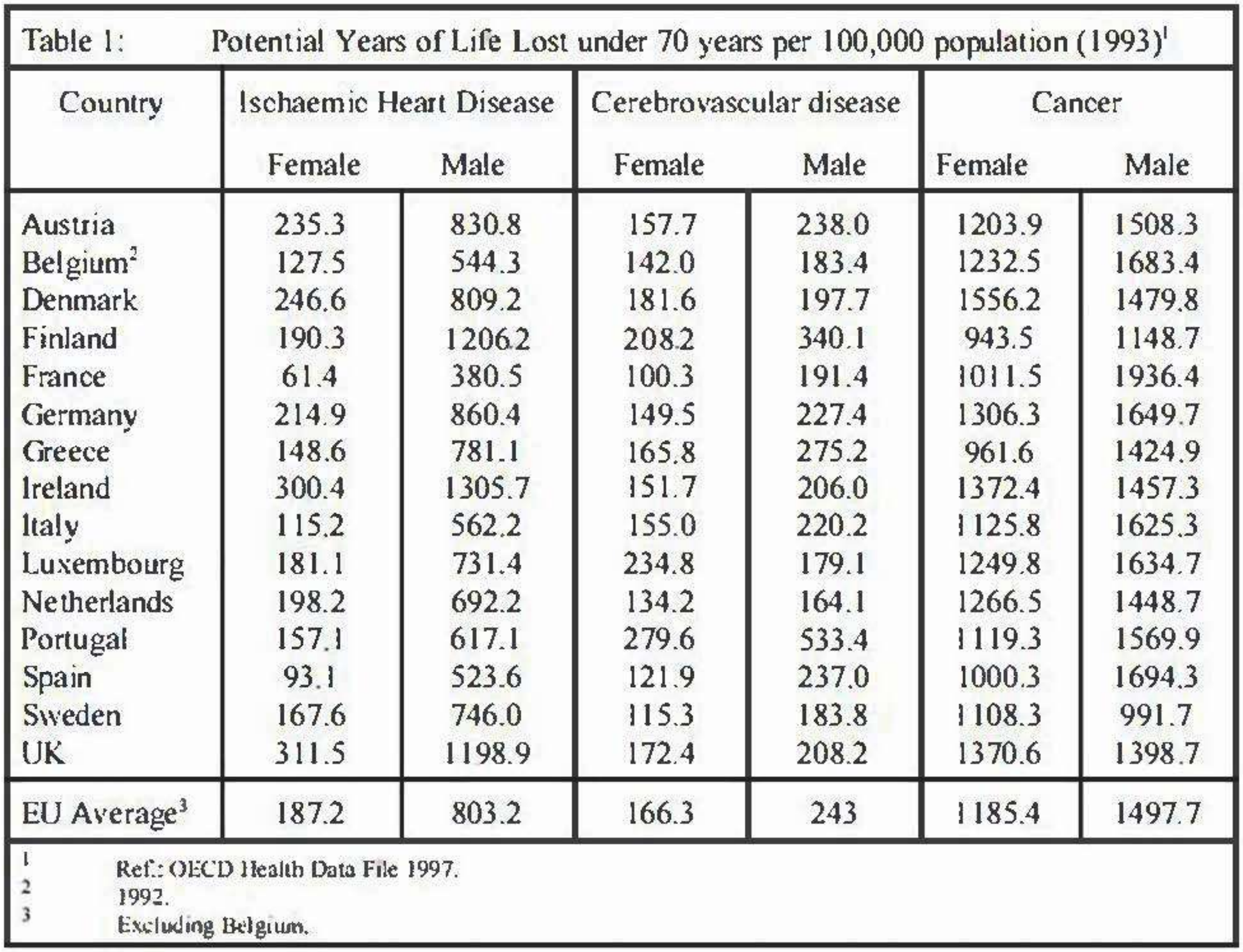

Table 1: Potential Years of Life Lost under 70 years per 100,000 population (1993)[1]

| Country | Ischaemic Heart Disease | | Cerebrovascular disease | | Cancer | |
|---|---|---|---|---|---|---|
| | Female | Male | Female | Male | Female | Male |
| Austria | 235.3 | 830.8 | 157.7 | 238.0 | 1203.9 | 1508.3 |
| Belgium[2] | 127.5 | 544.3 | 142.0 | 183.4 | 1232.5 | 1683.4 |
| Denmark | 246.6 | 809.2 | 181.6 | 197.7 | 1556.2 | 1479.8 |
| Finland | 190.3 | 1206.2 | 208.2 | 340.1 | 943.5 | 1148.7 |
| France | 61.4 | 380.5 | 100.3 | 191.4 | 1011.5 | 1936.4 |
| Germany | 214.9 | 860.4 | 149.5 | 227.4 | 1306.3 | 1649.7 |
| Greece | 148.6 | 781.1 | 165.8 | 275.2 | 961.6 | 1424.9 |
| Ireland | 300.4 | 1305.7 | 151.7 | 206.0 | 1372.4 | 1457.3 |
| Italy | 115.2 | 562.2 | 155.0 | 220.2 | 1125.8 | 1625.3 |
| Luxembourg | 181.1 | 731.4 | 234.8 | 179.1 | 1249.8 | 1634.7 |
| Netherlands | 198.2 | 692.2 | 134.2 | 164.1 | 1266.5 | 1448.7 |
| Portugal | 157.1 | 617.1 | 279.6 | 533.4 | 1119.3 | 1569.9 |
| Spain | 93.1 | 523.6 | 121.9 | 237.0 | 1000.3 | 1694.3 |
| Sweden | 167.6 | 746.0 | 115.3 | 183.8 | 1108.3 | 991.7 |
| UK | 311.5 | 1198.9 | 172.4 | 208.2 | 1370.6 | 1398.7 |
| EU Average[3] | 187.2 | 803.2 | 166.3 | 243 | 1185.4 | 1497.7 |

[1] Ref.: OECD Health Data File 1997.
[2] 1992.
[3] Excluding Belgium.

Source: (European Parliament, 1998)

## DEMOGRAPHIC AND HEALTH FRAMEWORK AND DATA COLLECTION GLOBALIZATION

### Current Global Framework

The World Health Organization (WHO) conducted a study entitled, "Demographic and health surveillance: longitudinal ethical considerations." The purpose of WHO's study was to identify drivers of health care inequities, current regulatory framework, ethical issues surrounding Demographic and Health Surveillance (DHS). DHS identified a gap between practice, research and surveillance (Carrel & Rennie, 2008). Council for International Organizations of Medical Sciences (CIOMS) released new epidemiology guidelines which addresses observational or other studies that take place at community or population levels (Carrel & Rennie, 2008). However, these standards are applied to biomedical research. The new recommendations include and emphasize individual-level, informed and culturally sensitive approaches (Carrel & Rennie, 2008).

WHO and International Network of field sites with Continuous Demographic Evaluation of Populations and Their Health (INDEPTH) recommend any parties interested in initiating DHS to establish three committees: a scientific advisory committee, a management committee and an intuitional review board (Carrel & Rennie, 2008). Moreover, individuals and/or institutions must decide whether their goal is to treat the disease or to focus, treat and study patients or participants. Reliable surveillance on health and demographic patterns are essential. DHS surveillance is only effective when the entire population is monitored and accurate information on demographics and health patterns can be gathered (Carrel & Rennie, 2008). There is no global mandated framework; one must subscribe to DHS's and INDEPTH's recommended framework. However, those who do, position themselves, and their countries, to participate in global health care trade and foreign direct investments, relieving financial burdens and pioneering research and medical aid to bridge health care inequalities.

### *Global Data Collection Inefficiencies*

In 2008, the Agency for Health Care Research and Quality conferred with more than 50 leaders from public and private organizations to discuss challenges associated with the collection, aggregation, reporting and interpretation of health data information (The Foundation of Research and Education (FORE) of the American Health, Information Management Association (AHIMA) and the Medical Group, Management Association Center for Research (MGMA CFR), 2006). Attendees discussed data collection issues, excess cost, and other quality and performance reporting. Their goal was to identify approaches that could be adapted nationwide within a period of five years or less (FORE, et. al., 2006). However, if this concept was expanded to a globalized approach, it could still prove sustainable. Their action plan consisted of the following:

> Prioritizing and standardizing performance measure sets across medical specialties and care settings. Such an effort must ensure that data gathered support the informational needs of providers as well as payers, public health researchers, policymakers, and others using performance data to make decisions. 1) Facilitating a process of obtaining regular input from stakeholders about standards for administrative and clinical measurements of provider performance. 2) Developing common definitions and terminology for performance measurement. Reaching national agreement on the basic, uniform data set to serve as a starting point from which to measure health care quality, and a standard minimum demographic data set. 3) Harmonizing possible measures between physician and hospital settings and within each setting. Such an effort could further streamline measure development and endorsement, which has been under way through the efforts of the AQA (formerly known as the Ambulatory Care Quality Alliance) and National Quality Forum (NQF). 4) Helping define the process of integrating administrative and key clinical data with the aim of promoting full electronic health record (EHR) functionality and efficient data extraction for multiple uses. 5) Developing guidelines for establishing, validating, and approving metrics to measure and report quality. 6) Defining standards that bring together state concerns so that regional and local performance measurement initiatives can align with national initiatives. 7) Designing strategies that can help advance the universal adoption of affordable electronic data systems by all health care data collectors. 8) Advising efforts by public and private stakeholders to develop common national standards that outline a national framework for the secondary use of health data with appropriate protections for legitimate secondary use. 9) Engaging with Federal, State, and local agencies to work within the data gathering goals that are developed. (FORE, et. al., 2006)

Summarized, issues regarding performance measurement data collection and reporting consist of variations in data collection, systems and metrics being organized and categorized in a controlled manner (FORE, et. al., 2006). Documentation and data quality issues within the health care organization tend to be incomplete, disparate electronic systems with failure to understand coding and performance measurements, inconsistent policies and practices. In addition, organizational and cultural factors inhibit accurate data when the process of analyzing and reporting performance measures are inconsistent, complex, and unstable. Finally, technological barriers include costs, security and privacy, and the need for lead national and international efforts to address ownership, especially to streamline data sets for population health and quality measurements (FORE, et. al., 2006).

It is without doubt international leaders must come together to lead surveillance and globalized standards in analysis, measurements, and data sets. Every country must prioritize adapting and surveying a globalized health care methodology for best practices. This priority must be upheld and remain coordinated against all competing priorities.

## ETHNICITY AND SOCIO-ECONOMIC EFFECTS

Socio-economic factors, including societal norms, values, traditions, education, and social/political environment impact minority health (Geiger, 2003). However, science has identified various ethnicities could have a biological, or genetic, proneness to specific diseases (Geiger, 2003). Atypical medical conditions are more prevalent in Middle Eastern and North Africans. Unique health care needs due to the rapid increase in population, rate of consanguinity, and genetic differences requires new protocols and patient specific care (Thomas & Page, 2016) (El-Hazmi et al, 2011). Cancer, stroke, and coronary heart disease has been linked to ethnicity (Geiger, 2003). Research differentiating between ethnicity effects vs socio-economic effects is needed. In addition, recent suggestions indicate a need for ethnic-based scientific research.

## REDEFINING DEFINITIONS AND DATA VARIABLES

There appears to be ambiguity and/or confusion regarding the terms “race” and “ethnicity.” One factor contributing towards the ambiguity and confusion is the usage of terms being used almost solely by the United States (Morning, 2005). In fact, the United States uses the terms interchangeably (Morning, 2005). Race is defined as, “A group of people identified from other groups because of supposed physical traits shared by a group of people,” (The Free Dictionary, 2016). According to Free Dictionary (2016), race is not a recognized biologically valid classification. Because the United States is almost alone in using the term “race” (Morning, 2005), the removal of the term is recommended.

On the other hand, ethnicity is universally understood. For clarification purposes, the term ethnicity refers to, “a social group that shares a common and distinctive culture, religion, language or the like,” (Dictionary.com, 2016). If modifications to global framework include a universally agreed upon definition, and race as a category is removed, it is possible to utilize ethnicity as a measurable and shared variable. *See Appendix A and B for a valid ethnicity model example.*

Socio-economic variables, data preparation, and data collection variables could provide helpful information for health care, science, as well as other industries. However, how the data is collected, interpreted, and used impacts validity (Vyas, 2016). Interpretation of an individual’s socio-economic status requires the interpreter to understand the social gradient. The World Health Organization defines the social gradient relative to health, “There is a social gradient in health that runs from top to bottom of the socioeconomic spectrum. This is a global phenomenon, seen in low, middle and high income countries. The social gradient in health means that health inequities affect everyone,” (World Health Organization, 2006). Creating global variable sets, data preparation methodology, and data collection variables policies would require leaders from international public and private organizations to work together. Once variables, data preparation and collection standards are set, the interpretation of the data must be specific to the geographical region the data was gathered within. For example, researchers could not transpose data collected from Silicon Valley, California residents and compare it to Oakland, California residents (Vyas, 2016). Appendix C provides possible a starting point for leaders to build from.

## CONCLUSION

Countries collect data utilizing differing inputs, models, and systems. These differences prohibit global communities to study, measure, categorize, and relate the data because it is not transferrable due to the lack of correlating variables. The global efficiency of current demographic data collection systems is invalid and may be cultivating health disparity gaps, socio-economic equity and equality gaps, and global socio-economic crises. While all three methodologies have independent strong points, it is unclear if one method is superior to another due to the overwhelming health disparities in all of the before mentioned countries. The lack of uniformity and global framework could be perpetuating health care disparities in domestic and international societies.

Interpreting and understanding information is also limited to parameters of ones current state of understanding, knowledge (or education), internal/external influences, culture, and emotions (Curras, 2013). Countries participating in health care trade or collaborations position themselves for win-win scenarios. Issues regarding performance measurement data collection and reporting consist of variations in data collection, systems and metrics being organized and categorized in a controlled manner (FORE, et. al., 2006). It is without doubt international leaders must come together to lead surveillance and globalized standards.

Global data collection framework requires definition and variable modifications. The term “race” is primarily used by the United States. It is possible to collect ethnicity, using alternative variables which also identify ‘race.’ Including socio-economic variables, and comparing the data within specific geographical regions cultivates valid interpretations. Identifying definitions, variable sets, and data interpretation policies will assist researchers interpreting the data in a manner which fosters positive decision-making.

The cost benefit analysis of expanding demographic data collection may not be the proper criterion to forward initiatives for healthy societies because, “is not easy to estimate the monetary costs of a particular policy, but in many cases it is even more difficult to estimate the monetary benefits.” (Herrmann, 2015). A cost benefit analysis is appropriate for individual economic actors that operate within rigid and confining budget constraints (Herrmann, 2015). Therefore, it makes may make little sense to use a cost benefit analysis to understand the overall impact on a globalized scale unless we include the expansion of social protection systems and sustainable development in the benefit-cost ratio (Herrmann, 2015).

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# APPENDICES

## Appendix A – Countries Included in Regional Groupings

Countries included in Regional Groupings Organizing scheme borrowed from United Nations Statistical Division. Countries marked with an asterisk * are those whose censuses from the 1995-2004 period were used for this study (United Nations Statistical Division, 2003).

**North America**
Anguilla*
Antigua and Barbuda
Aruba
Bahamas*
Barbados
Belize*
Bermuda*
British Virgin Islands
Canada*
Cayman Islands
Costa Rica*
Cuba
Dominica
Dominican Republic
El Salvador
Greenland
Grenada
Guadeloupe
Guatemala*
Haiti*
Honduras*
Jamaica*
Martinique
Mexico*
Montserrat
Netherlands Antilles
Nicaragua*
Panama*
Puerto Rico*
Saint Kitts and Nevis
Saint Lucia*
Saint Pierre and Miquelon
Saint Vincent and the Grenadines
Trinidad and Tobago*
Turks and Caicos Islands
United States*
U.S. Virgin Islands*

**South America**
Argentina*
Bolivia*
Brazil*
Chile*
Colombia
Ecuador
Falkland Islands (Malvinas)
French Guiana*
Guyana*
Paraguay*
Peru*
Suriname*
Uruguay*
Venezuela*

**Africa**
Algeria
Angola
Benin
Botswana*
Burkina Faso
Burundi
Cameroon
Cape Verde*
Central African Republic
Chad
Comoros
Congo
Cote d'Ivoire
Democratic Republic of the Congo
Djibouti
Egypt*
Equatorial Guinea
Eritrea
Ethiopia
Gabon
Gambia
Ghana*
Guinea*
Guinea-Bissau
Kenya*
Lesotho*
Liberia
Libyan Arab Jamahiriya
Madagascar
Malawi*
Mali
Mauritania
Mauritius*
Morocco*
Mozambique*
Namibia*
Niger
Nigeria
Réunion
Rwanda
Saint Helena
Sao Tome and Principe
Senegal*
Seychelles*
Sierra Leone
Somalia
South Africa*
Sudan
Swaziland*
Togo
Tunisia
Uganda
United Rep. of Tanzania*
Western Sahara
Zambia*
Zimbabwe*
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Morning Ethnic Classification in International Perspective

**Europe**
Albania*
Andorra
Austria*
Belarus*
Belgium*
Bosnia and Herzegovina
Bulgaria*
Channel Islands (Guernsey) *
Channel Islands (Jersey) *
Croatia*
Czech Republic*
Denmark

Estonia*
Faeroe Islands
Finland*
France*
Germany
Gibraltar
Greece*
Holy See
Hungary*
Iceland
Ireland*
Isle of Man*
Italy*
Latvia*
Liechtenstein*
Lithuania*
Luxembourg*
Malta*
Monaco*
Netherlands
Norway*
Poland*
Portugal*
Republic of Moldova*
Romania*
Russian Federation*
San Marino
Slovakia
Slovenia*
Spain*
Svalbard and Jan Mayen Islands
Sweden
Switzerland*
Former Yugoslav Republic of Macedonia*
Ukraine*
United Kingdom*
Yugoslavia*

**Asia**
Afghanistan
Armenia*
Azerbaijan*
Bahrain*
Bangladesh
Bhutan
Brunei Darussalam
Cambodia*
China*
Cyprus*
Democratic People's Republic of Korea
East Timor*
Georgia*
Hong Kong*
India*
Indonesia*
Iran
Iraq*
Israel*
Japan*
Jordan
Kazakhstan*
Kuwait*
Kyrgyzstan*
Lao People's Dem. Republic*
Lebanon
Macao*
Malaysia*
Maldives*
Mongolia*
Myanmar
Nepal*
Palestinian Territory*
Oman
Pakistan*
Philippines*
Qatar
Republic of Korea*
Saudi Arabia
Singapore*
Sri Lanka*
Syrian Arab Republic
Tajikistan*
Thailand*
Turkey*
Turkmenistan*
United Arab Emirates
Uzbekistan*
Vietnam*
Yemen*

**Oceania**
American Samoa*
Australia*
Cook Islands*
Fiji*
French Polynesia*
Guam*
Kiribati*
Marshall Islands
Micronesia (Federated States of)*
Nauru*
New Caledonia*
New Zealand*
Niue
Norfolk Island
Northern Mariana Islands*
Palau
Papua New Guinea*
Pitcairn
Samoa
Solomon Islands*
Tokelau*
Tonga*
Tuvalu*
Vanuatu*
Wallis and Futuna Islands*

## Appendix B – Ethnic Categories

Ethnic categories through continental origins a valid collection method used to collect ethnicity, which could also identify race (Morning, 2005).

Instructions: Please identify which ethnic group you identify with by marking an X in ONE section from A to F. Ethnicity is defined as a social group that shares a common and distinctive culture, religion, language or the like.

A. ☐ African
Please write in your specific background: ________________________

B. ☐ Asian
Please write in your specific background: ________________________

C. ☐ European
Please write in your specific background: ________________________

D. ☐ North American
Please write in your specific background: ________________________

E. ☐ Oceanic
Please write in your specific background: ________________________

F. ☐ South American
Please write in your specific background: ________________________

G. ☐ Two or More (Mixed ethnicity)
Please write in your specific background: ________________________

## Appendix C – Socio-Economic Categories

Please indicate your gender: ________Male ______Female Other: _ ______________________
Age: _______
Religion:________________________
Dietary or Medicine Restrictions (Including religious restrictions): _______
Primary Language: _____________________________
Secondary Language: ___________________________
Highest level of education completed? ______________
Income/Trade: _________________________________

☐ I receive government assistance ☐ Trade (for food, housing, or other basic needs)

☐ My salary is ______________________ Circle one: per day, week, month, annual, or other: ___________________________

My income is: ☐ Reliable ☐ Somewhat reliable ☐ Somewhat unreliable ☐ Not reliable