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Assessing Equity in Clinical Practice Guidelines

Antonio Miguel Dans, professor¹
Leonila Dans, associate professor²
Andrew David Oxman, researcher³
Vivian Robinson, research associate⁴
Joselito Acuin,⁵
Peter Tugwell, director⁶
Rodolfo Dennis, professor⁷
Deying Kang, associate professor⁸

1. Department of Medicine, Philippine General Hospital, Manila, The Philippines
2. Department of Clinical Epidemiology, University of the Philippines and Department of Pediatrics, Philippine General Hospital, Manila, The Philippines
3. Norwegian Health Services Research Centre, Oslo, Norway
4. Centre for Global Health, University of Ottawa, Ottawa, Ontario, Canada
5. Dela Salle University Medical Center, Cavite, Philippines
6. Centre for Global Health, University of Ottawa, Ottawa, Ontario, Canada
7. Clinical Epidemiology Unit, Universidad Javeriana, Department of Medicine, Fundacion Cardioinfantil, Bogota, Colombia
8. Department of Clinical Epidemiology and EBM, West China Hospital, Sichuan University, Chengdu, China

Address for correspondence:

Prof. Antonio Miguel L. Dans
Mezzanine Floor, Section of Adult Medicine
Department of Medicine
Philippine General Hospital
Taft Ave., Manila
tdans@zpdce.net

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A COMPETING INTEREST STATEMENT

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Introduction

Recognition of the need for systematically developed clinical practice guidelines (CPGs) has increased dramatically over the past twenty years. CPGs have focused primarily on the *effectiveness* of interventions, explicitly or implicitly addressing the question: Will adherence to a recommendation do more good than harm? At times they have also focused on the *cost-effectiveness* of interventions: Are the net benefits worth the costs? They rarely have focused on *equity*:¹ Are the recommendations fair?

The Knowledge Management Program of the International Clinical Epidemiology Network (INCLIN) attempts to improve the process of CPG development by formulating strategies to consider not just technical issues (effectiveness, and efficiency), but socio-political dimensions as well (equity and local appropriateness). This paper discusses a proposed lens for evaluating how well CPG's address issues of equity.

Braveman and Gruskin define equity as “the absence of disparities in health that are systematically associated with social advantage or disadvantage.”² Conversely, Whitehead defines inequity as: “differences in health which are not only unnecessary and avoidable but, in addition, are considered unfair and unjust.”³ Inequities in health and health care are common and well documented in both poor and affluent countries around the world.⁴ Disadvantaged populations invariably have poorer health,⁵ poorer access to health care,⁶ and receive poorer quality health care.⁷ To the extent that guidelines influence practice, they can either reduce or exacerbate inequities.

We propose five criteria to help users of CPGs address inequities in guidelines, using examples from the literature and personal experiences to illustrate how consideration of equity can influence CPGs. The five criteria, which we refer to as an “equity lens,” are summarised in Table 1.

We begin with a scenario using an example from the Philippines, where guidelines for detection and management of dyslipidemia were recently formulated. We use their experience to demonstrate how the lens may be used by individuals reading CPG’s, or by organizations developing them.

Scenario: The Philippine Heart Association planned to develop new clinical practice guidelines for the diagnosis and management of dyslipidemia. Prevailing socioeconomic difficulties dictated that the guidelines should not aggravate existing inequities in health care. For this reason the 1995 Philippine Lipid Guidelines were appraised, specifically to determine whether issues of equity were adequately addressed.

1. Do public health interventions in the guidelines address a priority problem for disadvantaged populations?

Although guidelines usually address problems of individual patients, they may also address public health issues such as health screening or primary prevention. Because health care resources are limited, guideline developers should **prioritize** these public health interventions to help disadvantaged populations.

The Global Forum for Health Research stated that while the greatest burden of disease in rich countries was due to degenerative diseases e.g. heart disease and cancer, in Africa, infectious diseases e.g. AIDS and pneumonia were still the main problems (figure 1).⁸

Low and middle-income countries thus need to re-evaluate priorities and not just blindly apply international recommendations or guidelines from other countries.

Even *within* countries, risk factors and disease vary widely. Table 2 compares nutrition data in two regions in the Philippines⁹ with under-nutrition as the pre-eminent problem in the rural, and overweight the bigger problem in the urban region. Only a minority of the overweight in both settings satisfied the criteria for obesity (national prevalence of 6.6%⁹ compared to 65.7% among Americans¹⁰). Clearly, a national campaign for weight reduction (**advocated by some public health officials**) would be irrelevant - especially in rural areas.

Oftentimes, good data for priority setting and resource allocation are not available for disadvantaged groups. When CPGs do not provide such information, readers should consider relevant data from local sources. General recommendations should be corroborated by a discussion of the burden of disease in disadvantaged populations.

Scenario: The 1995 Philippine Lipid Guidelines addressed screening and treatment of healthy populations, but did not assess the local burden of the lipid problem. In contrast, a recently concluded national survey on lifestyle-related diseases in the Philippines reported smoking as the most important risk factor for cardiovascular disease. With a high prevalence of 35%, smoking caused more cardiovascular deaths among Filipinos in

2003 than hypertension, high cholesterol, obesity and diabetes combined (see below).⁹

Whereas in 2003, Philippine national expenditures for hypertension and lipid lowering drugs were \$138 million and \$23 million respectively¹¹, less than a million dollars was spent on smoking cessation programs.

Risk factor	Prevalence (%)	Attributable deaths in 2003*
Diabetes	4.6	4,148
Hypercholesterolemia (TC > 240)	8.5	5,730
Obesity (BMI > 30)	5.0	800
Hypertension	17.0	14, 015
Current Smoking	35.0	28, 694

* deaths from stroke and CVD

2. Is there a reason to anticipate different effects of interventions in disadvantaged and privileged populations?

Intervention studies are normally designed to evaluate average effects across all of the included patients. It is often unclear whether these overall results provide a good estimate of the effects for specific subgroups of patients.¹² Randomized trials and systematic reviews¹³ rarely report impact across socioeconomic strata,¹⁴ and are most often done in rich countries.¹⁵ Across patient groups or populations, effects of interventions may vary due to differences in 1) biology, 2) patient adherence, and 3) baseline risks.¹⁶

An illustration of a biologic difference is the variable effects of antihypertensives in black and white Americans. Hypertension in blacks is mediated by mechanisms that result in

salt retention, while in whites, it is largely attributed to an excess of adrenergic activity. Thus, hypertensive blacks respond well to diuretics, while hypertensive whites respond better to adrenergic blockers.¹⁷ Another example is the poor immunologic response to vaccination seen in malnourished children.^{18, 19}

Secondly, differences in patient adherence may impact on the effectiveness of an intervention. In Colorado, USA among 17,358 women studied, non-whites were less likely to adhere to recommended mammography screening than were whites. Less educated women were also less likely to adhere.²⁰ To the extent that screening mammography is effective, such differences could result in more deaths from breast cancer among the disadvantaged. Similarly, disadvantaged populations were less likely to comply with school-based hepatitis B immunization programs.²¹ Guidelines should thus consider practical strategies to enhance adherence in disadvantaged populations, e.g. transportation incentives were more effective than personalized letters to increase cervical cancer screening rates among low-income women.^{22,23}

Thirdly, differences in baseline risk can impact on the effectiveness of interventions across populations. For example, penicillin treatment of streptococcal pharyngitis reduces the incidence of rheumatic fever (RF) by 70%.²⁴ In low-risk areas where RF is rare (about one in a million), routine antibiotics for strep throat are frequently not recommended,²⁵⁻²⁶ as about 1,400,000 patients would need to be treated to prevent one case of RF. In contrast, RF is increasing in incidence in low-income countries and among indigenous populations in developed countries such as Australia's Aboriginal population and in some

American intermountain populations.^{27,28} Poverty, malnutrition, congestion, and a shortage of health-care resources increase the incidence of RF up to a thousand fold (1,000 in a million).²⁹ Reducing this risk by 70% with penicillin could prevent 700 cases of RF for every million patients treated, and instead of treating 140,000 patients to prevent one case, only 1,400 patients would need to be treated, clearly more cost-effective. Unfortunately, penicillin prophylaxis is least used where it is needed most.³⁰

In summary, to determine whether a guideline is likely to reduce or aggravate inequities, it is important to consider whether there are differences in biology, in adherence, or in baseline risk that could result in important variation in the effectiveness of the intervention.

Scenario: Potential differences in treatment effectiveness between Caucasians and Asians were not discussed in the 1995 Philippine Guidelines. However, the panel preparing new guidelines concluded that: 1) no biologic differences are anticipated between Filipinos and Caucasians in terms of the effect of lipid lowering drugs, so the reported reductions in coronary artery disease (CAD) are probably applicable locally; 2) adherence among Filipinos will probably be comparable, provided the drugs are affordable and diagnostic tests are available; and 3) baseline risk for CAD among Filipinos is about 1/5 of that in the US.³¹ As a consequence, the number needed to treat (NNT) to prevent one case of CAD would be five times greater among Filipinos.

3. Are the effects of the intervention valued differently by disadvantaged compared to privileged populations?

Even if an intervention has the same effects in disadvantaged populations, the expected outcomes of the intervention may be valued differently.³² Such perceptions and preferences may impact significantly on the evaluation of a health intervention.

Typically, guideline panel members use their own values in deciding about the “trade-offs” between the expected benefits and harms. When their values are similar to other stakeholders, this is not a problem. Unfortunately, health providers often have different values from their patients.

For example, patients with atrial fibrillation assign more value on avoiding stroke and less value on avoiding bleeding (an adverse effect of the treatment, warfarin), compared to the physicians treating them.³³ Even between groups of physicians, there may be important differences in how outcomes are valued. In hypercholesterolemia and hypertension, specialists as a group are more likely to recommend aggressive screening, and have lower thresholds for using expensive drugs than non-specialists.³⁴

Disparities in health care arising from differences in values pose a difficult problem.

Values of groups of people are difficult to measure, and as such studies measuring these differences are rare. When there are important “trade-offs” between the risks and benefits of an intervention, eliciting preferences directly from disadvantaged patients using *decision aids* may be the best approach. Preferences must be elicited in a clear, non-threatening, culturally sensitive manner targeted at an appropriate level of education. For

example, a recent pilot study found that adolescents' values and perceived decision-making needs were different from those identified by sexual health counsellors in Thailand.³⁵ Similarly, decision-making needs of disadvantaged women in Chile did not match perceived needs of clinicians in community health centers.³⁶

If a guideline has explicitly described "trade-offs" from the point-of-view of disadvantaged populations, one can assume that such stakeholders were either involved in its formulation or were consulted about their concerns and preferences. Unfortunately, such explicit descriptions are rarely included in CPGs.³⁷

Scenario: Upon appraisal of the 1995 Philippine Lipid Guidelines, it was evident that informed lay people (i.e. a biostatistician and a nutritionist) were involved. Apart from this, however, there was no attempt to explicitly incorporate patients' values in the recommendations. Furthermore, no studies of how Filipinos value the effects of treating hypercholesterolemia were found. Thus, the new Guideline Panel recommended use of culturally appropriate decision aids to incorporate patient values in decisions about treatment.

4. Is specific attention given to minimizing barriers to implementation in disadvantaged populations?

There is ample evidence to suggest that adherence to guidelines is frequently poor,³⁸ and that passive implementation strategies, such as traditional continuing medical education activities, simply publishing or mailing the guidelines generally have little, if any effect on professional practice.³⁹ For patients to benefit from guidelines, strategies are needed to address barriers to implementation.^{40, 41} Implementation strategies should be tailored to

the specific needs of disadvantaged populations. More active strategies may require more resources, and thus guideline developers must consider the costs of these strategies.

One such barrier is poor access to care. For example, magnesium sulphate more than halves the risk of eclampsia in women with pre-eclampsia.⁴² The drug itself, though inexpensive, is not available in some settings and, because it is ordinarily administered in obstetric units, access may vary widely within a country, particularly between rural and urban areas.⁴³

Another barrier to implementing guidelines is physician adherence. For example, ethnic minority patients are less likely than whites to receive guideline-concordant care for depression in the USA.⁴⁴ Once identified, the reasons for non-concordant care need to be assessed, and a strategy for addressing these implemented.

A third barrier to implementation is the values of society itself. For example, poorer quality of care for diarrhea among girls in Egypt may arise from the higher value that society places on boys.⁴⁵ For a similar reason, girls have been found to have lower immunization coverage than boys in Bangladesh.⁴⁶ One might argue that such societal values should simply be accepted. On the other hand, these gender biases are unfair, and may need to be challenged during guideline implementation. Another example of values that should be challenged relates to a difference in future time perspective.⁴⁷

Disadvantaged populations may be less able to project long-term consequences of an action or intervention and ascribe less value to future events, compared to privileged populations. In economic terms, disadvantaged populations have a higher “discount rate,”

i.e. the present monetary value of an event depreciates faster because of their inability to project into the future. While there are no proven interventions that may resolve such differences, appreciating that they exist can lead to the development of different approaches. an educational intervention, for example, could possibly alter this perception and subsequently lead to wider acceptance of a health intervention.

Scenario: The 1995 Philippine guidelines on hypercholesterolemia did not include specific dissemination nor implementation strategies for disadvantaged populations. As a result, utilization studies showed very little impact of the previous guidelines on practice patterns in both privileged and disadvantaged populations.⁴⁸

5. Do plans for assessing the impact of the recommendations include disadvantaged populations?

Studies of the health status of disadvantaged populations have found large disparities that are both unjust and avoidable, and therefore inequitable.^{5,6,7} For example, in Bangladesh and the Philippines, despite fertility control programs intended for disadvantaged populations, fertility rates continue to be higher among the poor (Table 3).⁴⁹ Similarly, in Latin America, fertility rates are higher among those with low level of maternal education.⁵⁰

Specific categories of disadvantaged populations have been listed in Table 1.⁵¹ These factors identify subgroups that potentially need to be monitored to adequately assess impact.

Scenario: Though, the previous guidelines on dyslipidemia did not include plans to evaluate their impact, the information gaps identified during its formulation, triggered several studies. Among these was a national survey of lifestyle related diseases and risk factors according to age, gender, region (urban and rural) and annual income. The survey fuelled the formulation of new recommendations, monitoring and related implementation strategies.

Discussion

We have identified five questions that will help users evaluate the extent to which clinical guidelines impact on disadvantaged populations and health inequities. These criteria are summarized in Table 1. While this equity lens is intended for users of CPGs, guidelines developers and policy makers might also use them to identify issues in formulating, implementing and evaluating their recommendations.

Equity research has focused to a large extent on documenting and analysing existing inequities and, to a lesser extent, on interventions targeted at the sources of these inequities.^{52,53} In contrast, this lens may be most useful as a strategy to avoid exacerbating inequities and for ensuring that efforts to improve the quality of care routinely focus on addressing equity as well as effectiveness and efficiency.

Resolution of the scenario: The previous Philippine guidelines on dyslipidemia was at risk of aggravating existing inequities due to its: 1) failure to assess the importance of the

problem in disadvantaged populations, 2) non-consideration of differences in baseline risks leading to reductions in the absolute effectiveness of intervening, 3) failure to consider the values of disadvantaged populations, 4) lack of specific strategies for implementation in disadvantaged populations, and 5) lack of specific plans for monitoring the impact of the guidelines among disadvantaged populations. For these reasons, the Philippine Heart Association decided to develop new guidelines that address these shortcomings.

Table 1. The equity lens

Criteria	Why it is important	What to look for in recommendations
1. Do the public health recommendations in the guidelines address a priority problem for disadvantaged* populations?	Some guideline statements address public health issues which will entail allocation of resources. Guideline developers must make sure these are priorities for disadvantaged populations.	Discussions on the burden of disease in disadvantaged populations.
2. Is there a reason to anticipate different effects of intervention in disadvantaged* and privileged populations?	Overestimates of effectiveness may lead to inappropriate use of resources for ineffective technology, while underestimates may lead to lost opportunities for better health. Both situations may aggravate disparities.	Discussions on differences between disadvantaged and privileged populations, in terms of biology of the disease, adherence and baseline risks.
3. Are the effects of the intervention valued differently by disadvantaged* compared to privileged populations?	Disadvantaged populations may value an outcome differently, resulting in changes in the balance between benefits, harms and costs.	Values may be assessed in guideline development panels through consultations with disadvantaged populations, involvement of their caregivers, reference to relevant research, or transparent reflection.
4. Is specific attention given to minimizing barriers to implementation in disadvantaged* populations?	Disadvantaged populations usually have limited access to health care.	Discussions of barriers to implementation in disadvantaged populations, and identification of strategies to overcome these barriers.
5. Do plans for assessing the impact of the recommendations include disadvantaged * populations?	Recommendations may have different effects in disadvantaged populations even after consideration of the first four questions. The only sure way to find out is by monitoring impact in disadvantaged populations.	Plans for monitoring disadvantaged groups according to place of residence, race, occupation, gender, religion, education, socioeconomic status or social network and capital.

* To identify disadvantaged populations, we have adopted a framework for looking at potential equity gradients defined by the mnemonic PROGRESS . This refers to various groups vulnerable to inequity by virtue of Place of residence, Race, Occupation, Gender,

Religion, Education, Socioeconomic status and Social network and capital. This PROGRESS framework, developed by Tim Evans and Hilary Brown²² is currently being tested by the Cochrane Collaboration Health Equity Field as a means of evaluating the impact of interventions on health equity.⁵⁴

Table 2. Prevalence rates for obesity and under-nutrition in an urban and rural area in the Philippines

Region	% Overweight	% Undernourished
Urban *	33.7	21.9
Rural #	15.0	36.8

* National Capital Region

Autonomous Region of Muslim Mindanao.

Source: National Nutrition and Health Survey, Philippines, 2004.

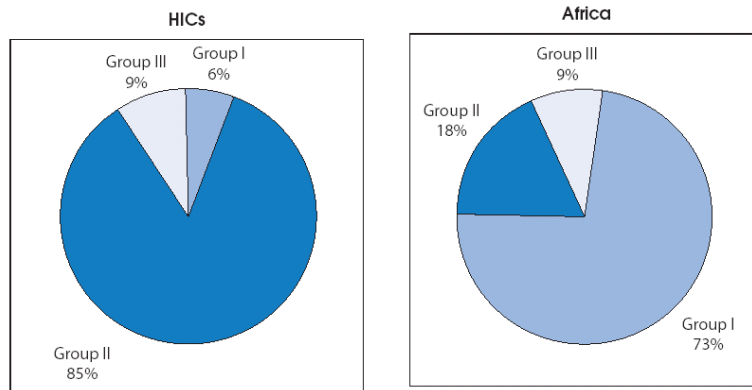
Table 3. Family planning in the Philippines and Bangladesh by socio-economic quintile

Family Planning in Philippines and Bangladesh, by Socio-economic Quintile

Family Planning Indicators	Poorest Quintile	Second Quintile	Middle Quintile	Third Quintile	Richest Quintile	Population Average
Total Fertility Rate (Number of births per woman age 15-49)						
Philippines (1996)	6.5	4.7	3.6	2.9	2.1	3.7
Bangladesh (1996/7)	3.8	3.8	3.5	3.1	2.2	3.3
Use of Modern Contraception (% of currently married women using a modern method)						
Philippines (1996)	18.6	26.1	32.7	32.7	28.2	28.0
Bangladesh (1996/7)	38.8	40.8	43.7	38.8	48.5	42.1

Sources: DHS data reported in Gwatkin, et al. 2000a and 2000b.
 Note: year in bracket is DHS reporting year.

Figure 1. Comparison of burden of disease in high income countries and Africa



Group I - communicable diseases such as AIDS and pneumonia, maternal, perinatal, nutritional conditions, Group II – non-communicable diseases such as heart disease and diabetes, Group III – injuries

Ref: Global Forum for Health Research

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