

# International collaboration, funding and association with burden of disease in randomized controlled trials in Africa

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**Objective** This study aimed to assess whether randomized controlled trials conducted in Africa with collaborators from outside Africa were more closely associated with health conditions that have a burden of disease that is of specific importance to Africa than with conditions of more general global importance or with conditions important to developed countries. We also assessed whether the source of funding influenced a study's relevance to Africa.

**Methods** We compared randomized controlled trials performed in Africa that looked at diseases specifically relevant to Africa (as determined by burden of disease criteria) with trials classified as looking at diseases of global importance or diseases important to developed countries in order to assess differences in collaboration and funding.

**Findings** Of 520 trials assessed, 347 studied diseases that are specifically important to Africa; 99 studied globally important diseases and 74 studied diseases that are important to developed countries. The strongest independent predictor of whether a study was of specifically African or global importance was the corresponding author's country of origin: African importance was negatively associated with a corresponding author being from South Africa (odds ratio (OR) = 0.04; 95% confidence interval (CI) = 0.02–0.10) but there was little difference between corresponding authors from other African countries and corresponding authors from countries outside Africa. The importance of a study to Africa was independently associated with having more non-African authors (OR per author = 1.31; 95% CI = 1.08–1.58), fewer trial sites (OR per site = 0.69; 95% CI = 0.50–0.96), and reporting of funding (OR = 2.14; 95% CI = 1.15–4.00). Similar patterns were present in the comparisons of trials studying diseases important to Africa versus those studying diseases important to developed countries with stronger associations overall. When funding was reported, private industry funding was negatively associated with African importance compared with global importance (OR = 0.31,  $P = 0.008$  for African importance and OR = 0.51,  $P = 0.57$  for importance for developed countries).

**Conclusion** The relevance to Africa of trials conducted in Africa was not adversely affected by collaboration with non-African researchers but funding from private industry was associated with a decreased emphasis on diseases relevant to Africa.

**Keywords** Research; Research support; International cooperation; Randomized controlled trials; Cost of illness; Endemic diseases; Africa (source: MeSH, NLM).

**Mots clés** Recherche; Aide recherche; Essai clinique randomisé; Coopération internationale; Coût maladie; Maladie endémique; Afrique (source: MeSH, INSERM).

**Palabras clave** Investigación; Apoyo a la investigación; Ensayos controlados aleatorios; Cooperación internacional; Costo de la enfermedad; Enfermedades endémicas; África (fuente: DeCS, BIREME).

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Voir page 516 le résumé en français. En la página 516 figura un resumen en español.

## Introduction

Developing countries need to perform research, particularly on conditions and settings specific to their context, in order to maximize their yield from scarce health-care resources. Developing countries need support to conduct this research and to develop local research capacity. Increased research capacity in developing countries is believed to have beneficial consequences for developed nations, for example in preventing the global spread of infectious agents (1, 2). The nature of the support from developed countries has, however, been debated, and the

ethics of research collaboration between developed and developing nations have been widely discussed (3–5). Collaboration may sometimes be seen as reflecting a form of colonialism that serves the interests of foreign collaborators more than those of the host countries (6, 7). One means of improving the nature of the support from developed countries would be to allow local priorities to shape both basic and applied research studies (2, 5, 6, 8). However, a regional consultative process conducted in Africa in preparation for the International Conference on Health Research for Development in 2000 concluded that in

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the post-independence period priority setting has been haphazard and determined by institutions or individuals instead of being based on the needs of the country or region (9).

The empirical relationship between international collaboration and local relevance has not been quantitatively assessed. The relevance of interventions to a specific context is difficult to define in operational terms. Frequently suggested criteria for determining research priorities include, in addition to the burden of disease existing from a target condition, the expected effectiveness and cost of an intervention, the probability of finding a solution, the effect on equity (i.e. the likely impact of the research on the poorer segments of the population), the feasibility of the research, its ethical acceptability, and the impact on capacity strengthening (10). Most of these criteria are difficult to assess objectively, require specialist knowledge of a wide range of local conditions, and vary greatly depending on local conditions. Because an operational definition that incorporates all of these factors remains elusive, we limited our study to burden of disease as expressed in disability-adjusted life years (DALYs) for which widely accepted quantitative estimates by geographical region are available.

This study aimed to assess whether randomized controlled trials conducted in Africa with collaborators from outside Africa were more closely associated with health conditions that have a burden of disease that is of specific importance to Africa than with conditions of more general global importance or with conditions important to developed countries. We also assessed whether the source of funding influenced the relevance of a study to Africa. This study received ethical approval from the Research Ethics Committee of the University of Cape Town.

## Methods

### Definitions

We compared trials performed in Africa that studied diseases specifically relevant to Africa with two groups of control trials: those that studied diseases of a more general global importance (globally relevant diseases) and those that studied diseases relevant to developed countries.

We categorized diseases according to the size and distribution of the burden of disease in 1990 in Africa, globally, and in established market economies (developed countries) (11) (Table 1). Diseases categorized as being specifically African diseases were those that were important to Africa in both absolute and relative terms (burden of disease > 500 000 DALYs and burden of disease in sub-Saharan Africa > 50% of global burden of disease). These diseases included HIV/AIDS, malaria, trypanosomiasis, schistosomiasis, onchocerciasis, and measles. Globally relevant diseases were those important to Africa in absolute terms but not in relative terms (burden of disease > 500 000 DALYs and burden of disease in sub-Saharan Africa < 15% of global burden). Altogether 19 categories of disease met these criteria (Table 1). Diseases categorized as relevant to developed countries were those that were not important to Africa in either absolute or relative terms (burden of disease < 500 000 DALYs and burden in sub-Saharan Africa < 15% of global burden and burden of disease lower in Africa than in developed countries) but were important to developed countries (burden of disease > 200 000 DALYs). This group included 21 disease categories (Table 1). We used burden of disease estimates for 1990 because they may reflect health priorities at around the time that much of the research was performed. The categorization would have been similar using estimates of burden of disease for the year 2000.

### Trial database

We identified randomized controlled trials from a database that had been developed for a previous study (12) and updated for this project. The database included randomized controlled trials performed in sub-Saharan Africa involving human participants and targeting one or more health problems in the Global Burden of Disease taxonomy (11). We included multinational trials if some participants were recruited in sub-Saharan Africa. We excluded African trials enrolling non-local populations (e.g. tourists), trials addressing issues that could not be related to a disease or group of problems (such as health systems issues, pain and anaesthesia, general operative techniques, or smoking

Table 1. Inclusion criteria for randomized controlled trials looking at diseases specifically important to Africa, globally important diseases and diseases important to developed countries<sup>a</sup>

Characteristics	Study category		
	Diseases specifically important to Africa (n = 347)	Globally important diseases (n = 99)	Diseases important to developed countries (n = 74)
Definition	Burden of disease > 500 000 DALYs <sup>b</sup> and burden of disease in sub-Saharan Africa > 50% of global burden of disease	Burden of disease > 500 000 DALYs and burden of disease in sub-Saharan Africa < 15% of global burden	Burden of disease < 500 000 DALYs and burden in sub-Saharan Africa < 15% of global burden and burden of disease lower in Africa than in established market economies; burden of disease in developed countries > 200 000 DALYs
Disease categories (No. trials analysed)	HIV/AIDS (58); malaria (189); trypanosomiasis (2); schistosomiasis (42); onchocerciasis (31); measles (25)	Anaemia (33); liver cancer (4); diabetes (10); depression (8); epilepsy (3); alcohol dependence (2); ischaemic heart disease (13); cerebrovascular disease (1); chronic obstructive pulmonary disease (3); asthma (16); osteoarthritis (6)	Malignant neoplasms of oesophagus (6), stomach (1), lung (5), breast (5), ovary (2); leukaemia (1); psychoses (5); dementia (1); Parkinson disease (2); multiple sclerosis (1); drug dependence (1); panic disorder (3); peptic ulcer (24); rheumatoid arthritis (6); dental caries (10); edentulism (1)

<sup>a</sup> Trials involving multiple diseases in different case groups or control groups were excluded, except those involving anaemia in malaria; these were categorized as being specifically important to Africa.

<sup>b</sup> DALYs = disability-adjusted life years.

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cessation) and studies performed in northern Africa (part of the Middle Eastern Crescent region in the Global Burden of Disease estimates) (11). Letters, conference abstracts and secondary reports referring to methods described in earlier papers were not included.

To assemble the database we searched MEDLINE (to the end of 2002), the Cochrane Controlled Trials Register (Issue 1, 2003), and the African Trials Register of the South African Cochrane Centre. The latter has been developed from seven international and African databases plus hand searching of 12 African journals. Terms reflecting controlled trials were conjugated with "Africa", "sub-Saharan Africa" and specific geographical locations.

### Data extraction

In order to assess whether there were differences among trials categorized as being of importance to Africa, of global importance or importance to developed countries, we collected information on the year of publication, the institutional affiliation (university, government, private industry, private non-industry, other) and country affiliation of the first author and the corresponding author, the number of authors, the number and proportion of authors affiliated with non-African countries, whether the design was multicentre or single site, the number of sites, whether there was collaboration between two or more African countries, and whether any funding sources were reported.

We categorized authorship as African (including only sub-Saharan locations) and non-African. African authorship was further categorized as either South African (which accounted for approximately half of the trials) or other African. When authors had multiple affiliations that included a non-African institution, they were categorized as non-African. If the corresponding author was not identified, we assumed the first author to be the corresponding author.

We categorized trials reporting funding sources according to the country of origin of the funding body (South Africa, other African, non-African, or a combination of African and non-African) and type of funding institution (government, university, private industry, private non-industry, other, or a combination). We regarded foreign-based research councils with sites in Africa as non-African.

A single author (GHS) extracted data from the full report of each eligible trial. We assessed the reliability of data extraction by duplicate independent extraction of a 10% random sample by a second author (VP). There was very good agreement for all items and  $\kappa$  coefficients varied between 0.72 and 1.00.

### Statistical analysis

The main association of interest was whether collaboration with non-African authors or funding sources increased or decreased the odds of a trial studying a disease of importance to Africa. Assuming a 25% prevalence of collaboration with non-African sources in trials addressing specifically African health conditions (estimated from a small pilot study), 321 cases and 107 controls (in each control group) were required to detect a twofold difference in the odds of a study being of importance to Africa, with 80% power at  $\alpha = 0.05$ .

For each of the trial parameters listed above, we used logistic regression to estimate the odds of a study being of African importance versus global importance and African importance

versus importance to developed countries. We then considered parameters with  $P < 0.10$  in univariate analyses in a multivariate model, with backward elimination of variables according to likelihood ratio criteria in order to find independent parameters associated with African importance. Analyses were conducted using SPSS statistical software version 11.0 (SPSS Inc., Chicago, IL).  $P$ -values are two-tailed.

## Findings

### Trials identified

Of 1297 trials in the database, 607 (46.8%) examined disease conditions defined in this study. We excluded 83 (13.7%) of the 607, primarily because they were letters or conference abstracts. We could not locate full-text versions of a further four trials (0.7%). We analysed the remaining 520 trials. Of these, 347 studied diseases of specific interest to Africa; 99 studied diseases of global importance; and 74 studied diseases important to developed countries (Table 1). Ten of the trials were performed in two countries; six were conducted in three countries; and three were conducted in four countries. Two trials in South Africa also had sites in Côte d'Ivoire and the United Republic of Tanzania.

The institutional and national affiliations of researchers and funding sources are shown in Table 2 and Table 3. The trials had a median of five authors (interquartile range = 3–7), with a median proportion of non-African authors of 37.5% (interquartile range = 0–75%) (data not shown). A total of 315 trials (60.6%) reported funding sources. The majority (286; 90.8%) had received funding from non-African sources; in 256 (81.3%) cases there was no concomitant funding from African sources.

### African importance compared with global importance

In univariate analyses, the trials that looked at diseases of importance to Africa differed significantly from those looking at diseases of global importance with respect to the country of origin and institutional affiliation of the first and corresponding authors ( $P < 0.001$ ). Trials of African importance had been published more recently, had a larger number of authors, a larger number of non-African authors, and were more likely to report any source of funding ( $P < 0.001$  for all). There was also a suggestion that trials of African importance involved fewer sites ( $P = 0.069$ ). In multivariate modelling, the strongest independent predictor was the country of origin of the corresponding author ( $P < 0.001$ ) (Table 4). African importance was negatively associated with having a corresponding author from South Africa, but there was little difference between having corresponding authors from other African countries and non-African countries. African importance was also independently more common when any source of funding was reported ( $P = 0.017$ ) and with increasing numbers of non-African authors ( $P = 0.006$ ); it was less common as the number of study sites increased ( $P = 0.029$ ).

### African importance compared with developed countries

The trials that studied diseases important to Africa also differed significantly from trials of diseases relevant to developed countries in terms of the country of origin and type of institutional affiliation of the first and corresponding authors, as well as in the year of publication, the number of authors, the number of

Table 2. Randomized controlled trials by category of disease and characteristics of study

Characteristics of studies	Category of disease studied by randomized controlled trials <sup>a</sup>			Total
	Specifically African	Globally important	Important to developed countries	
<i>First author's affiliation</i>				
Government	144 (41)	18 (18)	2 (3)	164 (32)
University	180 (52)	70 (71)	63 (85)	317 (60)
Private industry	2 (1)	2 (2)	0	4 (1)
Other private	13 (4)	1 (1)	1 (1)	15 (3)
Other	6 (2)	7 (7)	8 (11)	21 (4)
Unknown	2 (1)	1 (1)	0	3 (1)
<i>Corresponding author's affiliation</i>				
Government	132 (38)	17 (17)	3 (4)	152 (29)
University	186 (54)	69 (70)	62 (84)	317 (61)
Private industry	8 (2)	5 (5)	1 (1)	14 (3)
Other private	13 (4)	1 (1)	1 (1)	15 (3)
Other	8 (2)	7 (7)	7 (9)	22 (4)
Unknown	0	0	0	0
<i>Funding source</i>				
Government	143 (41)	10 (10)	7 (9)	160 (31)
University	3 (1)	2 (2)	0	5 (1)
Private industry	22 (6)	11 (11)	9 (12)	42 (8)
Other private	12 (4)	4 (4)	4 (5)	20 (4)
Other	0	0	0	0
Combination	70 (20)	14 (14)	4 (5)	88 (17)
Unknown	97 (28)	58 (59)	50 (68)	205 (39)

<sup>a</sup> Figures in parentheses are percentages. Percentages may not sum to 100% due to rounding.

non-African authors, the proportion of non-African authors and whether any source of funding was reported ( $P < 0.001$  for all). The data also suggested that trials of African importance involved fewer study sites ( $P = 0.055$ ) and were less likely to be multicentre investigations ( $P = 0.054$ ).

In multivariate modelling, the strongest independent predictor of a trial's importance to Africa was country of origin of the first author ( $P < 0.001$ ), with less importance to Africa occurring among trials with a first author from South Africa, and with little difference between trials with authors from other African countries and those with non-African first authors (Table 4). African importance was also independently more common when any source of funding was reported ( $P = 0.001$ ) as well as with increasing numbers of non-African authors ( $P = 0.002$ ); it was less common as the number of study sites increased ( $P = 0.003$ ).

Overall, associations were stronger when trials of African importance were compared with trials of diseases important to developed countries than when trials of African importance were compared with trials of diseases of global importance (Table 4). For both comparisons, there was no significant interaction between the country of origin of the corresponding author or first author and the other parameters that were independently related to African importance. Thus, analyses excluding South African trials yielded similar results for these other parameters (data not shown).

### Associations with funding

Analyses limited to studies with reported sources of funding yielded similar results. In addition, the source of funding was a significant independent determinant of African importance

versus global importance. In the multivariate model we found that private industry funding was negatively associated with a study having African rather than global importance when we adjusted for the country of the corresponding author, the number of sites and the number of non-African authors (odds ratio = 0.31; 95% confidence interval = 0.13–0.74;  $P = 0.008$ ). There was little difference between trials that had both private industry funding and non-industry funding compared with trials that had only industry funding. A similar decrease in emphasis on diseases of African importance occurred with private industry funding when trials of African importance were compared with trials of diseases relevant to developed countries (multivariate odds ratio = 0.51) but was not statistically significant ( $P = 0.57$ ). This was probably the result of our limited sample size. (Funding sources were reported in only 24 trials of diseases relevant to developed countries.)

### Discussion

The findings of this study suggest that the relevance to Africa of trials conducted in Africa is not adversely affected by collaboration with non-African researchers. In fact, non-African authorship was far more strongly associated with relevance to Africa than was South African authorship. The reporting of funding was also associated with importance to Africa. In studies that reported their source of funding, the involvement of private industry was associated with a decreased emphasis on diseases relevant to Africa (in comparison with diseases that were important globally).

We focused on randomized controlled trials because they are considered to be the standard experimental design for generating reliable evidence in evaluating interventions for clinical

Table 3. National affiliations of researchers and funding sources

Study characteristic	Category of disease studied by randomized controlled trials <sup>a</sup>			Total
	Specifically African	Globally important	Important to developed countries	
<i>First author's affiliation</i>				
South Africa	8 (2)	49 (52)	59 (80)	116 (23)
Other African	129 (39)	22 (23)	8 (11)	159 (32)
Non-African	197 (59)	24 (25)	7 (9)	228 (45)
<i>Corresponding author's affiliation</i>				
South Africa	8 (2)	50 (53)	58 (78)	116 (23)
Other African	102 (31)	21 (22)	8 (11)	131 (26)
Non-African	221 (67)	24 (25)	8 (11)	253 (51)
<i>Funding source</i>				
South Africa	3 (1)	8 (8)	10 (14)	21 (4)
Other African	6 (2)	2 (2)	0	8 (2)
Non-African	218 (63)	27 (27)	11 (15)	256 (49)
Combination of African and non-African sources	23 (7)	4 (4)	3 (4)	30 (6)
Not reported	97 (28)	58 (59)	50 (68)	205 (39)

<sup>a</sup> Figures in parentheses are percentages. Percentages may not sum to 100% due to rounding.

practice, and their results are directly applicable to local health care. There have been systematic efforts to identify randomized controlled trials (13), and this facilitated our identification of as complete a sample as possible. The low relevance to Africa of trials conducted by South African authors is disquieting. We performed a separate analysis of South African and other African authors a priori because we had previously suspected the differences that were confirmed in this study. These differences may be due at least in part to the fact that the burden of disease in South Africa differs from that of other sub-Saharan countries. For example, malaria occurs in relatively limited geographical areas in South Africa; the full impact of HIV/AIDS was felt relatively late in its southward progression through Africa; and onchocerciasis and trypanosomiasis are rare. South African burden of disease data are not available for 1990, but by 2000 the only disease categorized as African in this study that featured in the top 20 causes of years of life lost was HIV/AIDS (14). However, about 60% of the South African trials in our study were performed before the transition to democracy, and they could thus reflect earlier research priorities. The lag between the advent of democracy in 1994 and the publication of trials planned since then means that insufficient trials are available to assess changes occurring since democracy.

The association between the importance of a trial to Africa with the reporting of funding may be due in part to the fact that smaller studies without formal funding may have reflected individual researchers' personal priorities. It is also possible that funding from large non-profit organizations, international sources and governments is likely to have been reported but smaller grants from private industry for smaller projects are more likely to have remained unreported. Generally, the use of African populations by pharmaceutical companies to obtain data for interventions to be marketed elsewhere or targeted towards more affluent markets in Africa, could explain the negative association between industry funding and African importance. Industry priorities seem to be guided by the eventual possibility of finding a global market (15) or at least affluent markets in countries.

Table 4. Multivariate analysis of factors associated with African importance of research versus global importance or importance to developed countries

Characteristic	Odds ratio <sup>a</sup>	
	African importance vs global importance	African importance vs importance to developed countries
<i>First author's affiliation</i>		
South Africa	NS <sup>b</sup>	1.00 <sup>c</sup>
Other African	NS	156 (38.9–626)
Non-African <sup>d</sup>	NS	179 (16.1–1988)
<i>Corresponding author's affiliation</i>		
South Africa	0.04 (0.02–0.10)	NS
Other African	1.00 <sup>c</sup>	NS
Non-African <sup>d</sup>	0.82 (0.34–1.95)	NS
<i>Reported funding</i>	2.14 (1.15–4.00)	8.84 (2.34–33.4)
<i>No. of sites (per study)</i>	0.69 (0.50–0.96)	0.34 (0.17–0.69)
<i>No. of non-African authors (per study)</i>	1.31 (1.08–1.58)	2.52 (1.40–4.55)

<sup>a</sup> Figures in parentheses are 95% confidence intervals.

<sup>b</sup> NS = not significant.

<sup>c</sup> Reference value.

<sup>d</sup> Non-African category also includes international affiliations.

The limits of burden of disease as a marker for relevance have been discussed in the Introduction. An operational definition of collaboration is also problematic, and the definition used in this study (institutional affiliation) is not fully informative. Further quantitative and qualitative research is needed to examine the objectives and nature of collaboration, such as who initiated the research and the criteria used to assess priorities. Health-systems research was excluded from our study if it did

not focus on a specific condition. Given the critical importance of health services in the delivery of effective interventions, further investigation should include a broader range of health-services research.

We did not find that collaboration with non-African researchers makes it less likely that research conducted in Africa will be relevant to Africa, but funding from industry and a lack of reporting of funding were associated with less of a chance of a study being relevant to Africa. This preliminary evidence suggests that extra-African research collaboration, using non-industry-based funding, should continue to be fostered to sup-

port research in Africa. Improvements are needed to objectively assess the local importance of research projects to facilitate research. Further research should also examine the objectives and nature of collaborations. ■

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**Competing interests:** none declared.

## Résumé

### Essais contrôlés randomisés menés en Afrique : collaboration internationale, financement et association avec la charge de morbidité

**Objectif** Cette étude vise à évaluer si les essais contrôlés randomisés effectués en Afrique avec des collaborateurs extérieurs à l'Afrique sont plus étroitement associés à des pathologies dont la charge de morbidité est particulièrement importante en Afrique qu'avec d'autres ayant une importance mondiale plus générale, ou qu'avec des pathologies importantes pour les pays développés. Nous avons également évalué si la source de financement avait une influence sur l'utilité d'une étude pour l'Afrique.

**Méthodes** Nous avons comparé des essais contrôlés randomisés effectués en Afrique et s'intéressant à des maladies particulièrement importantes pour l'Afrique (sélectionnés selon des critères de charge de morbidité) à des essais considérés portant sur des maladies d'importance mondiale, ou sur des maladies importantes pour les pays développés, en vue d'évaluer les différences observées dans le niveau de collaboration et de financement.

**Résultats** Sur les 520 essais évalués, 347 concernaient des maladies particulièrement importantes pour l'Afrique ; 99 des maladies importantes sur le plan mondial et 74 des maladies importantes pour les pays développés. Pour savoir si une étude est importante surtout pour l'Afrique ou au plan mondial, le facteur prédictif indépendant le plus fort est le pays d'origine de l'auteur : l'importance de l'étude pour l'Afrique est négativement associée à un auteur originaire d'Afrique du Sud (Odds ratio (OR) = 0,04,

intervalle de confiance à 95 % (IC) = 0,02-0,10), mais on relève peu de différences entre des auteurs provenant d'autres pays africains et des auteurs de pays extérieurs à l'Afrique. L'importance d'une étude pour l'Afrique est indépendamment associée au fait d'avoir davantage d'auteurs non africains (OR par auteur = 1,31 ; IC à 95 % = 1,08-1,58), moins de sites d'essais (OR par site = 0,69 ; IC à 95 % = 0,50-0,96) et une indication de financement (OR = 2,14 ; IC à 95 % = 1,15-4,00). On a retrouvé les mêmes caractéristiques dans les comparaisons qui ont été faites entre les essais s'intéressant à des maladies importantes pour l'Afrique et ceux étudiant des maladies importantes pour les pays développés, les associations étant dans l'ensemble plus fortes. Lorsque l'origine des fonds est indiquée, le financement par le secteur privé est négativement associé à l'importance pour l'Afrique par comparaison avec l'importance pour l'ensemble du monde (OR = 0,31, p = 0,008 pour les maladies importantes pour l'Afrique et OR = 0,51, p = 0,57 pour les maladies importantes pour les pays développés).

**Conclusion** L'utilité pour l'Afrique des essais effectués sur ce continent n'a pas été négativement influencée par la collaboration avec des chercheurs non africains, mais le financement privé est associé à une attention moindre portée aux maladies importantes pour l'Afrique.

## Resumen

### Colaboración internacional y fuentes de financiación: relación con la carga de morbilidad en ensayos controlados aleatorizados en África

**Objetivo** El objeto de este estudio fue determinar si diversos ensayos controlados aleatorizados realizados en África con colaboradores de fuera del continente estaban más estrechamente relacionados con problemas de salud asociados a una carga de morbilidad de especial relevancia para África que con dolencias de importancia mundial más general o con enfermedades importantes para los países desarrollados. También evaluamos si la fuente de financiación influía en la pertinencia del estudio para África.

**Métodos** Comparamos diversos ensayos controlados aleatorizados llevados a cabo en África y centrados en enfermedades específicamente pertinentes para África (según el criterio de la carga de morbilidad) con otros ensayos clasificados como centrados en enfermedades de importancia mundial o en afecciones relevantes para los países desarrollados, a fin de evaluar las diferencias en cuanto a colaboración y financiación.

**Resultados** De los 520 ensayos evaluados, 347 estudiaron enfermedades específicamente importantes para África; 99

estudiaron enfermedades relevantes a nivel mundial, y 74 estudiaron enfermedades importantes para los países desarrollados. La variable predictiva independiente más robusta respecto a si un estudio era de interés mundial o sólo para África fue el país de origen del autor al que debía enviarse la correspondencia: la relevancia para África estaba relacionada negativamente con el hecho de que un coautor encargado de la correspondencia fuera de Sudáfrica (razón de posibilidades (OR) = 0,04; intervalo de confianza (IC) del 95% = 0,02-0,10), pero había poca diferencia entre los autores encargados de la correspondencia de otros países africanos y los autores con esa función de países no africanos. La importancia de un determinado estudio para África estaba relacionada de forma independiente con los siguientes factores: un mayor número de autores no africanos (OR por autor = 1,31; IC95% = 1,08-1,58), un menor número de sitios de ensayo (OR por sitio = 0,69; IC95% = 0,50-0,96), y la aportación de datos sobre la financiación (OR = 2,14; IC95% = 1,15-4,00). Se

observaron pautas similares en las comparaciones de ensayos de estudio de enfermedades importantes para África frente a otros de estudio de enfermedades importantes para los países desarrollados, con relaciones más sólidas en general. Cuando se informaba sobre los fondos empleados, la financiación por la industria privada estaba negativamente relacionada con la importancia para África en comparación con la importancia mundial (OR = 0,31,  $P = 0,008$

en el caso del interés para África, y OR = 0,51,  $P = 0,57$  en el caso del interés para los países desarrollados).

**Conclusión** El interés para África de los ensayos realizados en este continente no se vio perjudicado por la colaboración de investigadores no africanos, pero la financiación por la industria privada sí se asoció a un menor énfasis en las enfermedades pertinentes para África.

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## Arabic

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### References

1. Walt G. Globalisation of international health. *Lancet* 1998;351:434.
2. Harris E, Tanner M. Health technology transfer. *BMJ* 2000;321:817-20.
3. Schuklenk U, Ashcroft R. International research ethics. *Bioethics* 2000;14:158-72.
4. Benatar SR, Singer PA. A new look at international research ethics. *BMJ* 2000;321:824-6.
5. Edejer TT. North-South research partnerships: the ethics of carrying out research in developing countries. *BMJ* 1999;319:438-41.
6. Costello A, Zumla A. Moving to research partnerships in developing countries *BMJ* 2000;321:827-9.
7. Trostle J. Research capacity building in international health: definitions, evaluations and strategies for success. *Social Science and Medicine* 1992;35:1321-4.
8. Horton R. Development aid: manna or myth? *Lancet* 2000;356:1044-5.
9. Mugambi M, Onsea G. *Regional consultative process: Africa*. Geneva: Council on Health Research and Development; 2000 (Report prepared for the International Conference on Health Research for Development, Bangkok, Thailand, 2000).
10. Currat LJ. Complementary approaches for priority setting in health research: review and perspectives. In: Davey S, editor. *The 10/90 report on health research 2000*. Geneva: Global Forum for Health Research; 2000. p. 17-42.
11. Murray CJL, Lopez AD. *The global burden of disease: a comprehensive assessment of mortality and disability from diseases, injuries and risk factors in 1990 and projected to 2020*. Cambridge (MA): Harvard School of Public Health on behalf of WHO and the World Bank: 1996.
12. Isaakidis P, Swingler GH, Pienaar E, Volmink J, Ioannidis JPA. Burden of disease and randomised evidence in sub-Saharan Africa. *BMJ* 2002;324:702-4.
13. Dickersin K, Scherer R, Lefebvre C. Identifying relevant studies for systematic reviews. *BMJ* 1994;309:1286-91.
14. Bradshaw D, Groenewald P, Loubscher R, Nannan N, Nojilana B, Norman R, et al. *Initial burden of disease estimates for South Africa, 2000*. Cape Town: South African Medical Research Council; 2003.
15. Henry D, Lexchin J. The pharmaceutical industry as a medicines provider. *Lancet* 2002;360:1590-5.