Almanah 2014.: globalno zdravlje i kardiovaskularne bolesti

Almanac 2014: Global Health and Cardiovascular Disease

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SAŽETAK: Moderna definicija pojma globalnoga zdravlja obuhvaća više od brige o zanemarenim bolestima i nerazvijenim zemljama. Postojeće inicijative usredotočuju se na poboljšanje zdravlja, smanjenje nerazmjera te zaštitu od globalnih prijetnji, pokušavajući utjecati na zdravstvenu praksu, politiku i sustave. Zanimanje za istraživanje globalnoga zdravlja raste, s obzirom na epidemiološku tranziciju koja se trenutačno zbiva u zemljama s malim i srednjim BDP-om te rastući epidemiološki značaj kardiovaskularnih i drugih nezaraznih bolesti nauštrb zaraznih bolesti i prehrambenih deficijencija. Razni vidovi tih bolesti – dosad zanemareni, kao što su epidemiologija, prevencija, dijagnostika i liječenje, predmet su rasprave u publikacijama o globalnom zdravlju, što vodi do boljeg razumijevanja zdravlja kao javnoga dobra neovisnoga o državnim granicama. Znanstveni dokazi podupiru šire inicijative u kojima vlade, udruge i civilno društvo moraju dijeliti odgovornosti i financijsko breme kako bi postigli zdravstvenu ravnopravnost - glavni cilj globalnoga zdravlja.

SUMMARY: The modern definition of Global Health has expanded its scope beyond neglected diseases and low-income and underdeveloped countries. The current initiatives focus on improvement of health, reduction of disparities and protection against global threats, seeking for interaction with health practices, policies and systems. There has been a growing interest on Global Health research, given the epidemiological transition currently underway in low and mid-income countries and the increasing epidemiological importance of cardiovascular and other non-communicable diseases, to the detriment of infectious diseases and nutritional deficiencies. Various aspects – formerly neglected – of these diseases, such as epidemiology, prevention, diagnosis and therapy, have been addressed in Global Health publications, leading to a better understanding of the importance of health as a public good, beyond borders. Scientific evidence supports broader initiatives in which governments, foundations and the civil society must share responsibilities and funding to achieve health equity, the main goal of Global Health.

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UVOD

Globalno zdravlje, nekoć zvano i međunarodno zdravlje,[1] uključuje mnogobrojne oblike zdravstvene politike, epidemiologije, prevencije, dijagnostike i liječenja zanemarenih bolesti te nije ograničeno na zemlje s niskim BDP-om. Pojam globalnoga zdravlja utemeljen je na četiri osnovne ideje: (**A**) kliničke odluke utemeljene na podatcima i dokazima; (**B**) usredotočenost na populaciju umjesto na pojedince; (**C**) društveni ciljevi; (**D**) prevencija a ne liječenje.[2] Općenito, globalno

INTRODUCTION

Global Health, formerly referred to as 'International Health',[1] involves numerous aspects of health policies, epidemiology, prevention, diagnosis and therapy for neglected diseases and is not restricted to low resource regions. It is supported by four main bases: (**A**) clinical decision based on data and evidence; (**B**) population-based rather than individual focus; (**C**) social goals; (**D**) preventive rather than curative care.[2] Broadly, Global Health has been defined

se zdravlje definira kao unaprjeđenje zdravlja diljem svijeta, smanjenje nerazmjera i zaštita od globalnih prijetnji koje ne ovise o državnim granicama.[3] Edukacijski konzorcij za globalno zdravlje ističe svoj odnos sa zdravstvenom praksom, politikom i sustavima, s naglaskom na razlike umjesto na sličnosti među zemljama.[4] Američki Institut za medicinu sročio je zadatak Edukacijskog konzorcija kao zaštita interesa društva kroz osiguravanje uvjeta u kojima ljudi mogu biti zdravi.[5]

Globalno zdravlje šire je od bavljenja zaraznim ili zanemarenim bolestima i nerazvijenim područjima te se usredotočuje na multidisciplinarnost, interdisciplinarnost i prevenciju, a cilja na jednakost i zdravlje vidi kao javno dobro, neovisno o državnim granicama.

Cilj ovog rada procjena je doprinosa časopisa *Heart* znanju o globalnom zdravlju vezanom uz kardiovaskularne bolesti (KVB). Pregledali smo članke objavljene tijekom razdoblja od svibnja 2012. do travnja 2014. godine. S obzirom na široki raspon važnih tema, podijelili smo ovaj članak u odjeljke o razumijevanju epidemiološke tranzicije KVB, trendovima u pobolu i smrtnosti, oblicima vaskularnih bolesti ne-KVB, kardiovaskularnim manifestacijama odabranih zaraznih bolesti, ostalim KVB i promoviranju kardiovaskularnoga zdravlja.

EPIDEMIOLOŠKA TRANZICIJA

U prošlom je stoljeću zbog unaprjeđenja zdravstvenih uvjeta svijet doživio promjenu vodećih uzroka smrti zbog zaraznih bolesti i nedostataka u prehrani na nezarazne bolesti kao što su novotvorine, dijabetes te plućne i kardiovaskularne bolesti.[6,7] Ta epidemiološka tranzicija posljedica je starenja populacije – uslijed nižeg nataliteta i više prosječne duljine života – i povećanom urbanizacijom koja, kao i globalizacija općenito, dovodi do oblika ponašanja koji povisuju kardiovaskularne rizične čimbenike za ishemijsku bolest srca (IBS) i moždani udar, glavne uzroke smrtnosti u svijetu.[7]

Štoviše, predložene su jednadžbe koje integriraju dob, čimbenike rizika i oblike ponašanja u varijabli nazvanoj dob kardiovaskularnog rizika kao praktična i intuitivna metoda komunikacije o kardiovaskularnom riziku.[8]

Iako se epidemiološka tranzicija već dogodila u zemljama s visokim BDP-om, kao što su SAD i Zapadna Europa, ona se trenutačno odvija različitim brzinama u zemljama s malim i srednjim BDP-om,[9] najčešće utječući na mlade osobe i iz siromašnijih etničkih skupina ili područja.[9,10] Primjerice, u subsaharskoj Africi su KVB kao što su reumatska srčana bolest i poremećaji vezani uz HIV vrlo rašireni, no hipertenzivna bolest srca i moždani udar postali su česti uzroci smrtnosti i invaliditeta, kao posljedica lošeg liječenja hipertenzije.[11] Svjetska zdravstvena organizacija (SZO) nedavno je uvela STEPS sustav praćenja bolesti koji ukazuje na to da su stope čimbenika rizika KVB još uvijek niže u tim zemljama nego u drugim državama svijeta – no ne može ih se više smatrati niskima – usprkos činjenici da je stopa IBS-a niska. U zemljama u kojima je već došlo do starenja populacije, primjerice zemljama Južne Amerike,[10,12] nezdravi životni stilovi postali su češći, što je dovelo do veće učestalosti aterosklerotske KVB u ranijoj dobi u usporedbi sa zemljama koje imaju više prihode.[7]

as "worldwide improvement of health, reduction of disparities and protection against global threats that disregard national boundaries".[3] The Global Health Education Consortium highlights its relation to "health practices, policies and systems, stressing the differences rather than commonalities between countries".[4] Its mission has been proposed by the US Institute of Medicine as: "fulfilling society's interest in assuring conditions in which people can be healthy".[5]

Global Health exceeds the boundaries of infectious or neglected diseases and underdeveloped areas and focuses on multidisciplinarity and interdisciplinarity, embraces prevention, seeks equity and emphasises health as a public good, beyond borders.

The aim of this paper was to assess the contribution of 'Heart' to Global Health knowledge related to cardiovascular diseases (CVDs), reviewing articles published in the past 2 years (from May 2012 to April 2014). Given the breadth of important topics, we categorised our review into studies relevant to understanding CVD epidemiological transition, trends in morbidity and mortality, aspects of vascular diseases and non-CVD, cardiovascular manifestations of selected communicable diseases, other CVDs and cardiovascular health promotion.

EPIDEMIOLOGICAL TRANSITION

In the last century, with the improvement in health conditions, the world has lived a change of the predominant causes of death from infectious diseases and nutritional deficiencies to non-communicable diseases (NCDs), such as cancer, diabetes, respiratory and cardiovascular diseases.[6,7] This 'epidemiological transition' resulted from population aging— due to lower fertility rates and greater life expectancy— and the rising rates of urbanisation that, along with globalisation, favoured health behaviours that raised the burden of cardiovascular risk factors for ischaemic heart disease (IHD) and stroke, the main causes of mortality worldwide.[7]

Indeed, equations that integrate age, risk factors and health behaviours in a variable defined as 'cardiovascular risk age' have been proposed as practical and intuitive methods for communicating about cardiovascular risk.[8]

Although the epidemiological transition has already occurred in high-income countries (HICs), like the USA and Western Europe, it is happening in different paces in low and middle-income countries (LMICs),[9] commonly affecting individuals at premature ages and from poorer ethnic groups or regions.[9,10] In the Sub-Saharan Africa, for example, CVDs such as rheumatic heart disease and HIV-related disorders are highly prevalent, although hypertensive heart disease and stroke have more recently became established causes of death and disability, resulting from poorly controlled hypertension.[11] Recent WHO STEPwise approach to surveillance (STEPS) surveys suggest that the rates of CVD risk factors are still lower in these countries than other regions of the world— but should not be considered low—although the rates of IHD remain low. In countries where population aging has evolved, such as in South America,[10,12] unhealthy lifestyles became more common, resulting in higher rates of atherosclerotic

Smatra se da napori da se prevenira, dijagnosticira i liječi IBS, moždani udar, i njihovi čimbenici rizika odgađaju povećanje smrtnosti i pobola uslijed veće učestalosti tih bolesti, koje se obično javljaju u životnoj dobi iznad 50 godina.[7] Podatci iz nordijskih zemalja pokazuju da takvi napori mogu, usprkos starenju populacije, dovesti do znatnog pada dobno standardizirane stope smrtnosti od KVB.[13]

TRENDOVI U POBOLU I SMRTNOSTI

Skupina KVB odgovorna je za oko trećinu smrtnih slučajeva diljem svijeta, ali i za veliki broj invaliditeta sa značajnim ekonomskim učinkom. Američko istraživanje je pokazalo da su KVB od 2000. godine do danas bile uzrokom 33,7% smrtnih slučajeva (od čega 42,5% IBS), s većom učestalosti u žena.[12]

Registrirano sniženje smrtnosti od KVB za 20% primijećeno je pretežito u zemljama visokih prihoda (oko 50-80%), a u padu su i stope smrtnosti i bolničkog liječenja.[14,15] No primijećeni su nerazmjeri između država, a čak i među različitim područjima iste države,[10] što može biti posljedica nejednakom pristupu zdravstvenom sustavu i preventivnim inicijativama.[9] Prosjek stopa smrtnosti od KVB u američkim zemljama nižeg i srednjeg prihoda je 56,7% viši u usporedbi sa zemljama visokih prihoda (**slika 1**)[12], a istraživanje provedeno u istom vremenskom razdoblju u Brazilu pokazalo je da iako su stope smrtnosti u padu, još su uvijek veće od onih u bogatijim zemljama.[10] U Kini pak smrtnost od IBS-a raste od 1984. god. uslijed učestalog pušenja, visokih vrijednosti kolesterola i starenja populacije.[9]

VASKULARNE I NEVASKULARNE BOLESTI

OBLICI PONAŠANJA I ČIMBENICI RIZIKA

Većina KVB može se pripisati malom broju čimbenika životnog stila[9] – prehrana, tjelesna aktivnost, pušenje i konzumacija alkohola. Pokazano je da lokalne i društvene osobitosti prehrane imaju značajan uzročno-posljedični odnos s KVB. Primjerice, viša razina n-3 polinezasićenih masnih kiselina u serumu, uobičajena za azijsku prehranu, pridonosi nižoj učestalosti koronarnih kalcifikacija u japanskih muškaraca, prema rezultatima petogodišnjeg kohortnog istraživanja.[16] Dansko kohortno istraživanje također je pokazalo negativnu povezanost između koncentracije n-3 polinezasićenih masnih kiselina u tkivima s novonastalom fibrilacijom atrija.[17] Istražuje se i utjecaj povećanog unosa kalcija na kardiovaskularnim rizik. U 1206 pacijenata s nekim akutnim kardiovaskualrnim događajem uključenih u njemačko KAROLA (*Langzeiterfolge der KARdiOLogischen Anschlussheilbehandlung*) istraživanje viša vrijednost kalcija u serumu bila je povezana s većim rizikom od kardiovaskularne (HR=2.76) i ukupne smrtnosti (HR=2.39) unutar 8 godina.[18] Paradoksalno, u drugom velikom njemačkom populacijskom kohortnom istraživanju, veći ukupni i prehrambeni unos kalcija smanjio je 11-godišnji rizik infarkta miokarda u 23,980 ispitanika bez kardiovaskularnih događaja, dok su rizik moždanog udara i smrtnost od KVB ostali nepromijenjeni.[19] Prilagođeno smanjenje unosa soli utvrđeno je kao mjera utemeljena na dokaCVD, that occurs in more premature ages when compared with HIC.[7] The efforts to prevent, diagnose and treat IHD, stroke and their risk factors delay the morbimortality from these diseases, which will then usually occur at ages above 50 years.[7] Data from Nordic countries registries show that despite the aging process, such efforts still result in steep declines in age standardised CVD mortality.[13]

CURRENT MORBIDITY AND MORTALITY TRENDS

It is estimated that CVDs account for about a third of all deaths worldwide, being also responsible for a great number of disabilities and significant economic impact. In the Americas, a study showed that from 2000 to the present, CVD comprised 33.7% of recorded deaths (with 42.5% attributed to IHD), with higher rates in women.[12]

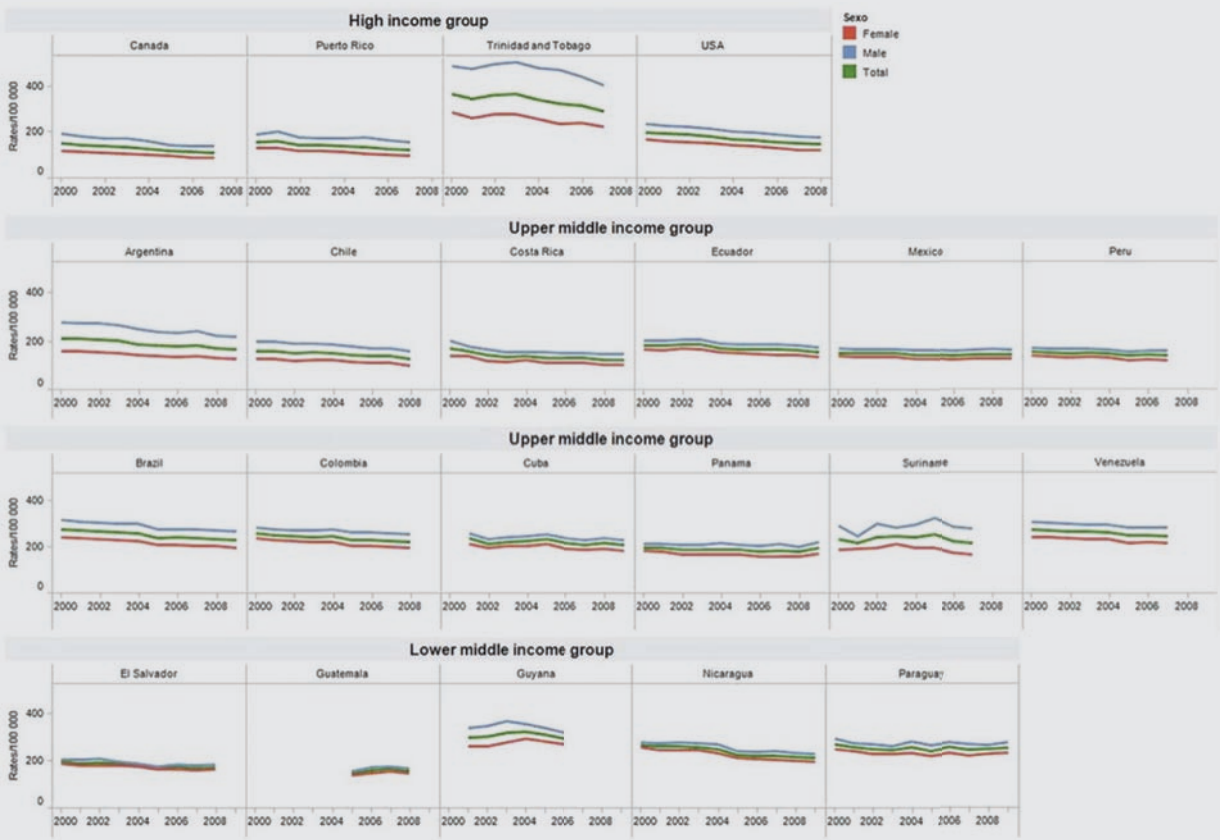
The 20% mortality reduction in the continent during this period has mainly occurred in HICs – around 50–80% – and mortality and hospitalisation rates are decreasing.[14,15] However, discrepancies can be observed across nations and even in regions of the same country,[10] which may reflect inequality in access to healthcare and preventive policies.[9] The median of CVD death rates of American LMICs, for example, is 56.7 higher compared with HICs (**Figure 1**)[12] and a study conducted in the same time frame in Brazil showed that, although falling, death rates are still higher than those observed in wealthier countries.[10] In China, on the other hand, IHD mortality increased since 1984, driven by persistent smoking, high cholesterol levels and population aging.[9]

VASCULAR AND NON-VASCULAR DISEASES

HEALTH BEHAVIOURS AND RISK FACTORS

Most of the CVD burden can be attributed to a small number of lifestyle factors[9]—diet, exercise practices, smoking and alcohol consumption. Among these health behaviours, the regional and social peculiarities of dietary habits are known to have a significant cause-effect relationship with CVD. For example, higher serum concentrations of n-3 polyunsaturated fatty acids, common in Asian diets, contributed to the lower incidence of coronary calcification in Japanese men in a 5-year follow-up cohort.[16] Similarly, in a Danish cohort a negative dose-response trend was observed between tissue concentrations of n-3 polyunsaturated fatty acids and the new onset of atrial fibrillation (AF).[17] The role of higher calcium intake on cardiovascular risk has also been under evaluation. In 1206 patients of the German KAROLA (*Langzeiterfolge der KARdiOLogischen Anschlussheilbehandlung*) study, after an acute cardiovascular event, higher baseline serum calcium levels were associated with higher risk of all cause (HR=2.39) and cardiovascular (HR=2.76) death at 8 years.[18] Paradoxically, in another large German population-based cohort, higher total and dairy dietary calcium intakes reduced the 11-year risk of myocardial infarction in 23.980 event-free participants, while stroke risk and CVD mortality were not affected.[19] Tailored salt restriction has been established as an evidence-based

FIGURE 1.



Trends in mortality due to cardiovascular diseases (ICD-10 I00–I99) (age-adjusted rates/100 000). Selected countries (upper, upper middle and lower middle income groups) in the Americas, 2000 to latest available year (adapted from de Fatima Marinho de Souza et al[12]).

zima za liječenje arterijske hipertenzije te u određenim slučajevima kao što su kronična bubrežna bolest i kod određenih etničkih skupina.[20]

Globalno zdravlje uzima u obzir i pušenje. Kulturne navike vezane uz pušenje naizgled imaju slične negativne učinke, no još uvijek ih se istražuje. Primjerice, u presječnoj studiji velike kohorte u Iranu dosljedno je pokazana povezanost između pušenja nargila i učestalosti KVB (HR=3.75), dok žvakanje duhana nije imalo isti učinak.[21]

OKOLINSKI ČIMBENICI

Iako povezanost nije tako čvrsto pokazana, u raspravi o epidemiologiji KVB moraju se spomenuti i okolinski čimbenici. Jedan od primjera je kardiovaskularna reakcija na temperaturne ekstreme. Hladno vrijeme povezano je s povećanim rizikom od infarkta miokarda u različitim populacijama, a čini se da kulturne navike zaštite od hladnoće tu imaju utjecaja.[22] Epidemiološki podatci nedavnog istraživanja u pet kineskih gradova pokazuju da izraženo toplo i hladno vrijeme nelinearno povećava smrtnost od IBS (18% i 48%).[23] Zagađenje

measure for hypertension, and also in particular situations—such as chronic kidney disease and specific ethnicities.[20]

Smoking habits have also been given attention in Global Health research. Cultural habits related to smoking seem to have similar deleterious effects, but are still under investigation. In a cross-sectional study in a large Iranian cohort, for example, the association of water-pipe smoking and CVD prevalence was consistently shown (HR=3.75), whereas chewing nass did not have the same effect.[21]

ENVIRONMENTAL FACTORS

Although less established, environmental characteristics must also be discussed in CVD epidemiology rounds. An example is cardiovascular response to extreme temperatures. Cold weather was associated with increased risk of myocardial infarction in different populations and this effect seems to be affected by cultural habits, such as behavioural protection.[22] Epidemiological evidence from a recent surveillance in five Chinese cities demonstrated that extremely hot or cold temperatures increased IHD mortality (18% and 48%, respec-

zraka također je moguć uzrok povećanja i kardiovaskularne i ukupne smrtnosti,[24] s izraženim posljedicama u žena poslije menopauze.[25] Nova meta-analiza 29 istraživanja potkrjepljuje tezu da malo povećanje čestica u zraku ima recipročni odnos s varijabilnosti srčanog ritma, markeru lošije kardiovaskularne prognoze.[26] Nadalje, izloženost biogorivu čini se povezanom s većom učestalošću karotidnoga plaka (OR=2.6).[27]

ETNIČKI ČIMBENICI

Istraživanja ukazuju na to da različite etničke skupine u populaciji također dovode do razlika u KVB i ishodima liječenja, što se može pripisati biološkim, kulturalnim, zdravstvenim i društvenim uzrocima.[28] Primjerice, postoji hipoteza da Afrikanci i/ili Azijati imaju višu stopu smrtnosti od IBS-a zbog bioloških čimbenika. U Indijaca u Aziji pronađena je povezanost između visokog titra antitijela citomegalovirusa i povećanog rizika od IBS-a, što može značiti da u toj populaciji infektivne bolesti utječu na povišenje smrtnosti uslijed KVB.[29] U Ujedinjenom Kraljevstvu je povećana koronarna smrtnost među južnoazijskim manjinama povezana s većom učestalošću IBS-a, uz sličnu stopu smrtnosti.[30]

Ovu tezu potkrjepljuje meta-analiza koja snažno pokazuje da pojedinci iz južne Azije imaju veću stopu smrtnosti zbog više stope IBS-a, iako im se prognoza na pojedinačnoj razini čini boljom nego kod populacije bijelaca, nakon prilagodbe na moguće čimbenike.[31]

Južnoazijska populacija također ima višu učestalost moždanog udara (OR=1.67), prema jednom britanskom britanskom poprečnom populacijskom istraživanju kod 6.292 pacijenta s fibrilacijom atrija.[32] Paradoksalno, u kanadskom kohortnom istraživanju kod pacijenta s novodijagnosticiranom arterijskom hipertenzijom, Južnoazijati imaju niži rizik od smrti i neželjenih kardiovaskularnih ishoda, usprkos nižim prihodima i većoj učestalosti hipertenzije u usporedbi s bijelcima.[33] Stopa periferne arterijske bolesti također je znatno niža u Južnoazijata, prema meta-analizi 15 istraživanja (**slika 2**).[34] Dakle, etničke osobitosti impliciraju skup metaboličkih, po-

tively), in a non-linear way.[23] Air pollution is also implied as a trigger for increased allcause mortality and cardiovascular mortality,[24] with pronounced effects demonstrated in postmenopausal woman.[25] A recent meta-analysis of 29 studies supported that slight increases in particulate matter have an inverse relation with heart rate variability, a marker of worse cardiovascular prognosis.[26] Similarly, exposure to biomass fuel seems to be associated with higher prevalence of carotid plaques (OR=2.6).[27]

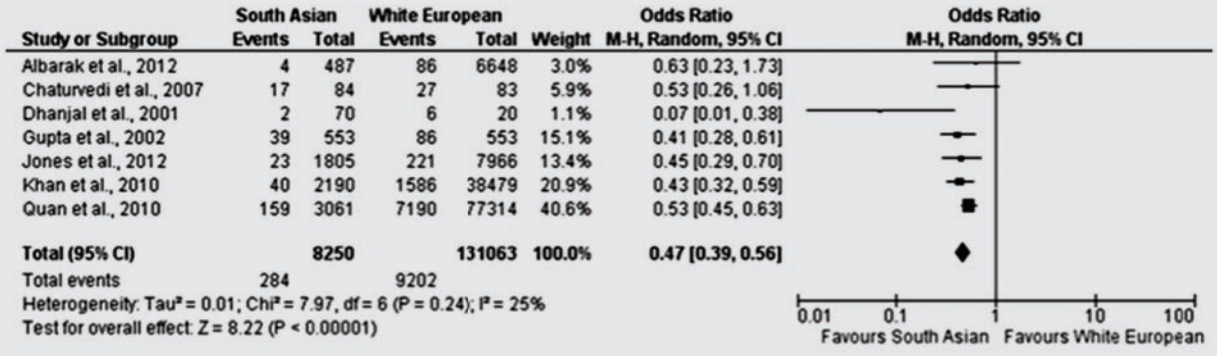
ETHNIC FACTORS

The ethnic composition of populations in also implied in differences in CVD burden and outcomes, which can be attributed to biological, cultural, healthcare and social issues.[28] For example, it has been suggested that Africans and/or Asians might have higher IHD mortality due to intrinsic biological aspects. In Asian Indians, a positive association between high cytomegalovirus antibodies titles and increased risk of IHD was found, suggesting that infectious disease prevalence may be involved in higher CVD mortality in this population.[29] In the UK, the increased coronary mortality among south Asian minorities was related to a higher incidence of IHD, with similar case fatality.[30]

These findings are supported by a meta-analysis that strongly showed that south Asians have higher mortality because of higher incidence of IHD, even though their individual prognosis appeared to be better than that of white populations after adjustment for confounding factors.[31]

This subpopulation also had a higher risk for stroke (OR=1.67) in another British cross-sectional study involving 6292 patients with AF.[32] Paradoxically, in a Canadian cohort involving patients with newly diagnosed hypertension, south Asians had lower risk of death and adverse cardiovascular outcomes, despite having lower incomes and higher rates of hypertension compared with white patients.[33] Peripheral artery disease prevalence was also significantly lower among South Asians in a meta-analysis of 15 studies (**Figure 2**).[34] Thus, a combination of metabolic, behavioural and environ-

FIGURE 2.



Forest plot of peripheral artery disease prevalence in coronary artery disease comparison studies, between South Asians and White Europeans (adapted from Sebastianski et al[34]).

našajnih i okolinskih čimbenika, pa su stoga nužne ranije preventivne intervencije.[30]

Etnička raznolikost i njezini multifaktorijalni mediatori možda također utječu na prediktivnu snagu stope kardiovaskularnog rizika: ni Framingham niti QRISK bodovna ljestvica nisu dobili dosljedne rezultate u tri etničke skupine u kohortnom istraživanju u pacijenata u primarnoj zdravstvenoj zaštiti u Londonu.[35] Razumijevanje etničkih razlika u zdravlju pomaže manjinama i pridonosi smanjenju zdravstvenih nejednakosti u općenitom smislu.

KARDIOVASKULARNE MANIFESTACIJE POJEDINIH ZARAZNIH BOLESTI

Pored IBS-a, učestalost drugih KVB također se razlikuje u visoko razvijenim zemljama u odnosu na srednje- i niskorazvijene zemlje. U srednje i niskorazvijenim zemljama često dolazi do ozbiljnih kardioloških posljedica uslijed endemskih bolesti vezanih uz dano društveno i ekonomsko stanje.

U Africi je utjecaj infekcija HIV-om znatan, pogotovu u subsaharskome dijelu, što utječe i na KVB. Prema rezultatima *Heart of Soweto* istraživanja, 10% pacijenata s novodijagnosticiranim KVB također su HIV-pozitivni, a najčešće KVB povezane s HIV-om su kardiomiopatije, bolesti perikarda i plućna hipertenzija.[36] Infekcija HIV-om je također povezana s iznenadnom srčanom smrti, a često i s infekcijom *Mycobacterium tuberculosis*. Gotovo svi perikardijalni izljevi u HIV-pozitivnih pacijenata u subsaharskoj Africi uzrokovani su tuberkulozom; povezanost s mioperikarditisom također je česta, a znatan dio, oko 40%, razvija se zajedno s sniženom sistoličkom funkcijom lijeve klijetke.[37] Bitan je čimbenik također i to da su kardiomiopatije uzrokovane HIV-om češće pri pojačanoj imunosupresiji i viremiji, dok primjerena antiretroviralne terapije smanjuje njihovu učestalost,[38] što može značiti da liječenje HIV-a može smanjiti kardiovaskularne posljedice.

U nekim su dijelovima Afrike zbog poboljšane pristupačnosti zdravstvenoj njezi i ehokardiografiji pronađeni slučajevi endomiokardijske fibroze u područjima gdje ta bolest dotad nije bila zamijećena. Iako su napravljeni veliki pomaci u razumijevanju epidemologije i u poboljšanju kliničke dijagnostike te farmakološkog i kirurškog liječenja, stopa je smrtnosti kod te bolesti nažalost još uvijek znatna.[39]

OSTALE KARDIOVASKULARNE BOLESTI

U pregledom radu o zatajivanju srca u Africi primijećeno je da su uzroci akutnog dekompenziranog zatajivanja srca većinom arterijska hipertenzija, kardiomiopatija i reumatska bolest srca – u 90% slučajeva, za razliku od Sjeverne Amerike i Europe gdje prevladava IBS (**slika 3**). Na tom kontinentu zatajivanje srca pogađa prvenstveno mlađe ljude (prosječna dob iznosi 52 godine), neovisno o spolu, a povezan je sa smrtnosti od 18% unutar šest mjeseci, slično kao i u ne-Afričkim registrima o zatajivanju srca, što implicira da je zatajivanje srca loša prognoza neovisno o području.[40]

Istraživanje u Tanzaniji pokazalo je da su pacijenti hospitalizirani zbog zatajivanja srca mlađi, a njihova smrtnost

mental factors are implied in these ethnic particularities, requiring earlier preventive interventions.[30]

Ethnic diversity and its multifactorial mediators may also influence the predictive power of cardiovascular risk scores: neither Framingham nor QRISK performed consistently well in the three ethnical groups evaluated in a primary care Londoner cohort.[35] The understanding of ethnic differences in health is beneficial to minorities and it contributes to decreasing health inequalities in a large sense.

CARDIOVASCULAR MANIFESTATIONS OF SELECTED COMMUNICABLE DISEASES

Besides IHD, the burden of other CVDs is also different between HICs and LMICs, with the latter dealing with severe cardiac consequences of endemic diseases, typical of their social and economic situation.

In Africa, the impact of HIV infection is considerable, especially in the sub-Saharan region, influencing CVDs. In the Heart of Soweto Study, 10% of patients with newly diagnosed CVD were HIV positive, and the most common HIV-related presentations were cardiomyopathy, pericardial disease and pulmonary hypertension.[36] HIV infection also seems to be associated with sudden cardiac death and its burden is increased by the common association with Mycobacterium tuberculosis infection. In HIV-infected patients in sub-Saharan Africa, close to 100% of pericardial effusions are due to tuberculosis; the association with myopericarditis is common and an important part of it (40%) evolves with decreased LVEF.[37] A factor of major relevance is that HIV-related cardiomyopathy is more common with increased immunosuppression and viraemia, whereas adequate antiretroviral therapy lowers its prevalence,[38] implying that controlling this disease may reduce its CVD consequences.

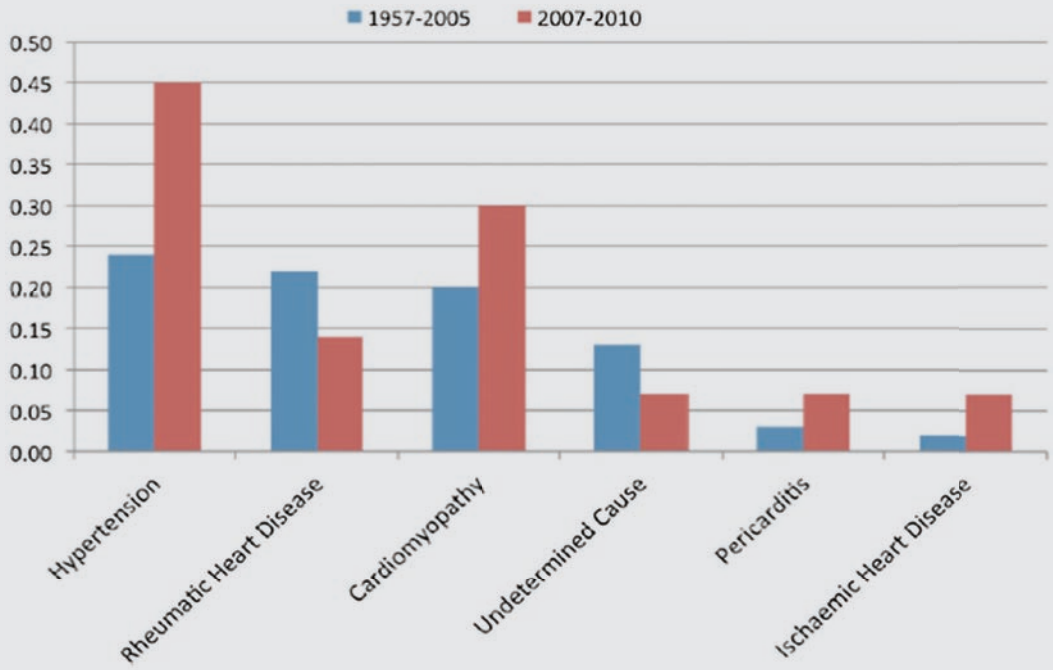
Increased access to medical care and to echocardiography in some parts of the continent has led to the recognition of endomyocardial fibrosis in areas in which the disease had not been previously reported. Although advances in establishing the epidemiology and improving clinical diagnosis and management through medical therapy and improved surgical techniques have been made, unfortunately the mortality related to this disease is still considerable.[39]

OTHER CARDIOVASCULAR DISEASES

In a review about heart failure (HF) in Africa, it was observed that the main aetiologies that resulted in acute decompensated HF were hypertension, cardiomyopathy and rheumatic heart disease, comprising 90% of cases, a pattern that contrasts with the predominance of IHD in North America and Europe (**Figure 3**). In this continent, HF affected mainly the young (mean age=52 years), without sex predominance, and is associated with 18% mortality at 6 months, similar to what has been observed in non-African HF registries, suggesting that HF has a dire prognosis independently of the region.[40]

In Tanzania, a study showed that patients hospitalised by HF were younger and their mortality was higher when com-

FIGURE 3.



Differences in the proportion of causal factors for heart failure in sub-Saharan Africa during the periods 1957–2005 and 2007–2010 (adapted from Sliwa and Mayosi[40]).

viša nego u razvijenim zemljama. Etiologija zatajivanja srca postupno postaje sve sličnija onoj u bogatijim zemljama, s porastom hipertenzije kao uzroka, a smanjenjem učestalosti reumatske bolesti.[41]

Hipertenzivna kardiomiopatija, nekoć smatrana rijetkošću u subsaharskoj Africi, također je postala rastuća epidemija u tom području te će, ako se ne poduzmu prikladne mjere, vjerojatno dovesti do povećanja broja pacijenata sa zatajivanjem srca, a možda i povećanog broja slučajeva IBS-a, fibrilacije atrija i moždanog udara.[42]

Vezano uz peripartalnu kardiomiopatiju nedavno južnoafričko istraživanje kod 176 pacijenata pokazalo je da njih 26% ima lošu prognozu (smrt, ejekcijska frakcija lijeve klijetke <35% ili teško simptomatsko zatajivanje srca), što ostavlja znatne posljedice, pogotova kada je poznato da bolest zahvaća žene u generativnoj dobi. Prediktori lošije prognoze su funkcijska klasa, ejekcijska frakcija lijeve klijetke i veličina lijeve klijetke na kraju dijastole.[43] Sažetak članaka o globalnom zdravlju objavljenih u časopisu *Heart* tijekom zadnje dvije godine na temu ostalih ne-vaskularnih bolesti prikazana je u **tablici 1**.

PROMOCIJA ZDRAVLJA, PREVENCIJA I LIJEČENJE KARDIOVASKULARNIH BOLESTI

Ozbiljnost problema vezanih uz KVB u trenutačnom kontekstu globalnog zdravlja čini ih zdravstvenim prioritetom. Izazov s kojim su suočene visokorazvijene zemlje jest održati smanjenje smrtnosti od KVB postignuto u zadnjim desetljećima[9,12] te ublažiti nejednakosti radom s manjinama koje u tim zemljama posebno pate od KVB, primjerice Afroamerikanci u

pared with developed countries. The aetiologies of HF are becoming progressively similar to wealthier countries, with an increase of hypertension and a decrease of rheumatic heart disease.[41]

Hypertensive cardiomyopathy, once considered rare in sub-Saharan Africa, also seems to be a growing epidemic in this area and, without appropriate control, it will probably result in new patients with HF, and it might increase the incidences of IHD, AF and stroke.[42]

Concerning peripartum cardiomyopathy, a recent South-African study with 176 patients showed that 26% had a poor outcome (death, LVEF <35% or severe symptomatic HF), what translates in great impact, especially if it is considered that this disease affects women in reproductive age. The predictors of worse prognosis were functional class, LVEF and LV end diastolic dimension.[43] A summary of Global Health articles published in Heart in the past two years about other non-vascular diseases is in **Table 1**.

HEALTH PROMOTION, PREVENTION AND CARE OF CARDIOVASCULAR DISEASES

The magnitude of the problem regarding CVD in the current context of Global Health makes facing these diseases a health priority. The challenge faced by HICs is to maintain their achievements in CVD mortality rate reduction conquered in the last decades[9,12] and also to reduce inequities, by promoting this decline in specific minority groups that suffer the greatest burden of CVD in these countries, such as the African Americans in the USA and the South Asians in the UK.[30,44]

TABLE 1. Main Global Health articles published in Heart from May 2012 to April 2014 about other non-vascular diseases.

Author/Year	Country/Region	Issue	Disease/Factors	Paper type	Study design	N	Main conclusions
Makubi *et al*, 2014	Tanzania/Africa	Aetiology and prognosis	HF	Original research	Prospective observational study	427	Patients with HF are younger than in the developed world. Aetiologies are similar—hypertension is becoming more and RHD less important.
Griffiths *et al*, 2014	UK/Europe	Therapy	HF	Original research	Cost-effectiveness model from a population-based cohort	6505	Ivabradine is likely to be cost-effective in eligible patients with HF in UK.
Syed *et al*, 2013	South Africa/ Africa	Prognosis	Tuberculous pericarditis and myopericarditis	Original research	Prospective observational study	81	Myopericarditis is common in tuberculous pericardial effusion and associated with HIV-related immunosuppression.
Ogah *et al*, 2013	Nigeria/Africa	Epidemiology	HTN	Review paper	Systematic review	N/A	Public health interventions are needed to control the growing HTN epidemic in sub-Saharan Africa.
Mocumbi *et al*, 2013	Mozambique/ Africa	Epidemiology, prevention and therapy	Endomyocardial fibrosis	Review paper	Literature review	N/A	Joint efforts may be necessary to overcome the lack of expertise and financial constraints for treatment of endomyocardial fibrosis.
Sliwa *et al*, 2013	South Africa/ Africa	Epidemiology, aetiology and prognosis	HF	Review paper	Literature review	N/A	Improvement of treatment and control of HTN play a central role for the improvement of cardiovascular health in Africa.
Zühlke *et al*, 2013	South Africa/ Africa	Epidemiology, diagnosis and prevention	CHD and RHD	Review paper	Literature review	N/A	Africa still carries a high burden of RHD, and management of simple CHD is yet to be addressed.
Blauwe *et al*, 2013	South Africa/ Africa	Epidemiology: predictors and outcomes	Peripartum cardiomyopathy	Original research	Prospective cohort study	176	Increased LVESD, lower BMI and lower serum cholesterol are predictors of poor outcome; older age and smaller LVESD are independently associated with a higher chance of LV recovery.
Syed *et al*, 2013	Nigeria/ Sub-Saharan Africa	Epidemiology	HIV-associated heart disease	Review paper	Literature review	N/A	10% of patients with newly diagnosed cardiovascular disease were HIV+; the most common presentations were HF (38%), pericardial disease (13%) and PAH (8%), with association with immunosuppression and viraemia.

BMI, body mass index; CHD, congenital heart disease; HF, heart failure; HTN, hypertension; LV, left ventricle; LVESD, LV end systolic diameter; N/A, not applicable; PAH, pulmonary artery hypertension; RHD, rheumatic heart disease.

SAD-u i Južnoazijati u Ujedinjenom Kraljevstvu.[30,44] Srednje i niže- razvijene zemlje žive u drugoj zbilji: u nekima smrtnost od KVB raste, a makar je u nekima došlo do pada smrtnosti, sveukupna je brojka u porastu prvenstveno zbog starenja populacije.[12] Stoga valja u tim zemljama primijeniti dosad naučeno, na način primjeren osobitostima svake zemlje.

Pri donošenju odluka o mjestu djelovanja važan je podatak da su za smanjenje stope smrtnosti od IBS-a u visokorazvijenim zemljama zaslužni kontrola čimbenika rizika (45-75%) i liječenje (25-55%).[6,9] Jasno je da se pri odlučivanju mora usredotočiti na strategije koje zahvaćaju cijelu populaciju te ciljati

LMICs live a different reality: CVD mortality rate is increasing in some countries and, although in others it has decreased, the absolute numbers are increasing, mainly due to population aging.[12] Therefore, lessons learned worldwide should be adapted to each country's reality.

To choose where to act, policy makers have evidence revealing that the reduction in IHD mortality rates in HICs are 45–75% a result of risk factor control and 25–55% due to treatment interventions.[6,9] It is clear that policies should focus on population-wide strategies, as well as aim at raising public awareness, empowering people to be partners in their own

TABLE 2. Priority action areas for non-communicable diseases (adapted from Ntsekhe and Damasceno[11]).

Five priority action areas identified at the United Nations High-Level Meeting on Non-Communicable Diseases—September 2011

1. **Strong committed leadership and political support for a programme action**
2. **Tackle the priority areas of tobacco control, salt intake, unhealthy diet, alcohol abuse and physical inactivity**
3. **Increase access and availability of affordable cost-effective treatment**
4. **Promote local and international partnerships that focus on implementation and research of prevention and control strategies**
5. **Monitor the determinants and burden of non-communicable diseases, and evaluate progress at global, regional and national levels**

na podizanje svijesti javnosti, educiranje ljudi kako bi mogli sudjelovati u vlastitom liječenju, poboljšanje ekonomije i brige o okolišu i orjentiranje sredstava zdravstvenih sustava (**tablica 2**).[11,45,46]

Nezdravim oblicima ponašanja koji dovode do porasta KVB može se suprotstaviti marketinškim strategijama koje potiču tjelesnu aktivnost i zdravu prehranu.[6,9,45] Regulacija visokoenergetske hrane kao što su slatka pića te subvencioniranje voća, povrća i integralne hrane promovira zdraviju prehranu.[6,9,45] Dokazano je da zabrana pušenja i povišen porez na duhanske proizvode smanjuje KVB.[6,47] U Nizozemskoj je zabrana pušenja na radnom mjestu smanjila stopu vanbolničke iznenadne srčane smrti za oko 12% (**slika 4**),[48] a u Brazilu se procjenjuje da je smanjenje duhanskih proizvoda spriječilo oko 420.000 smrtnih slučajeva u razdoblju između 1989. i 2010. godine.[49] Važna su također i unaprjeđenja u dijagnostici i liječenju.[9,45] Primjerice, u Češkoj Republici je poboljšanje liječenja u razdoblju od 1994. i 2009. godine znatno pridonijelo smanjenju kardiovaskularne smrtnosti.[50] Da bi se postigao veći učinak, liječenje utemeljeno na dokazima mora biti: pristupačno svima, financijski isplativo i postizati preporučene terapijske ciljeve.

Da bi se liječenje učinilo pristupačnim svima, prvi je korak postići jednakost u pristupu liječenju. Stoga se sve više usredotočuje na strukturu državnih zdravstvenih sustava, pogotovu glede potrebe za besplatnom zdravstvenom zaštitom, jer plaćanje za zdravstvene usluge može uvećati društvene nejednakosti.[51]

Neke su inicijative bile uspješne u svim dijelovima svijeta, primjerice snaženje uloge primarne zdravstvene zaštite i osiguranje besplatnih lijekova za kronične bolesti.[51] Postoje neke naznake da plaćanje kvalitete – umjesto plaćanja usluga – poboljšava zdravstvo, no iako je ta strategija obećavajuća, dokazi još nisu sasvim jasni. Zdravstveni se sustavi u visokorazvijenim zemljama moraju nositi s rastućim cijenama care; enhancing economic and environmental policies and orientating health systems capacities (**Table 2**).[11,45,46]

To confront the unhealthy behaviours that lead to the growing incidence of CVD, marketing practices can be used to stimulate physical activity and healthy eating.[6,9,45] Regulating contents of high-energy foods, such as sugary drinks, and subsidising fruits, vegetables and wholefoods can promote healthier diets.[6,9,45] Smoking bans and increased taxation of tobacco and alcohol have been proven to reduce CVD.[6,47] In the Netherlands, the working-place smoking ban significantly decreased the rates of out-of-hospital sudden cardiac deaths by about 12% (**Figure 4**),[48] while in Brazil about 420 000 deaths are estimated to have been prevented due to tobacco reduction over the years 1989–2010.[49] Improvements in diagnosis and treatment are also important.[9,45]

In the Czech Republic, for example, improved case-fatality from 1994 to 2009 had a substantial contribution to the reduction in the national CVD mortality rate.[50] To achieve a greater impact, evidence-based treatments must be: available for all in need, cost-effective and achieve the recommended therapeutic targets.

To be available for all in need, the first obstacle to be transposed is equal access to healthcare. Therefore, the importance of a structured national health systems has gained increasing attention, especially regarding the need for universal coverage, as payment for healthcare can enhance social disparities.[51]

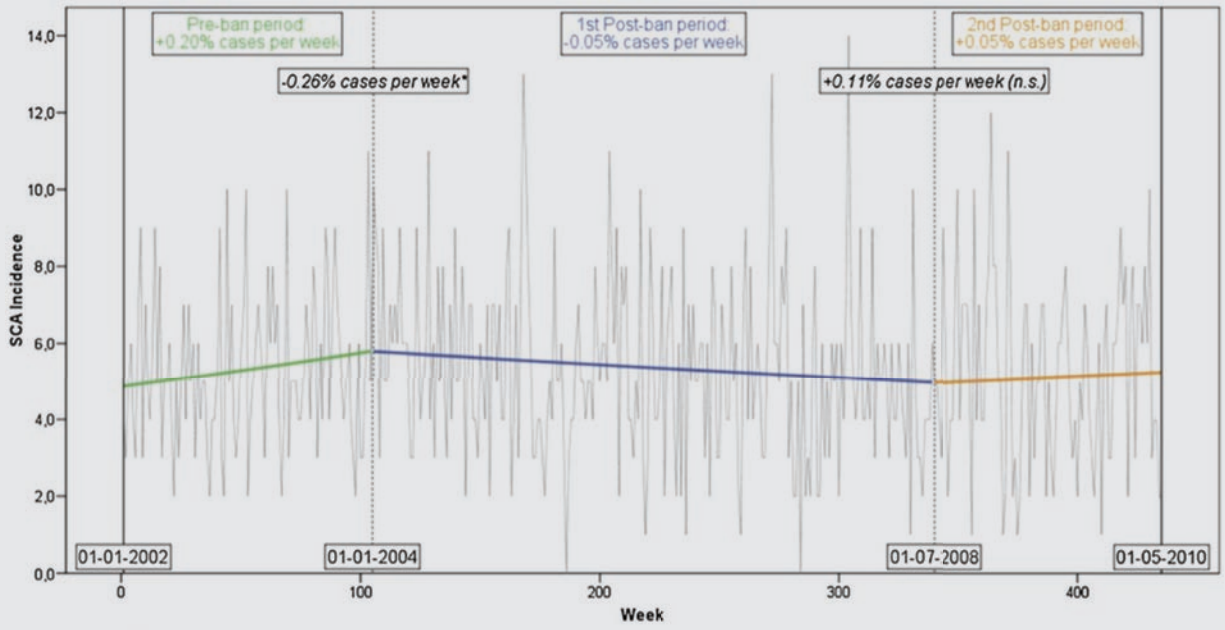
Some initiatives have been successful in all world regions, as strengthening primary care and providing free-of-charge medication for chronic diseases.[51] Evidence to suggest that paying for performance—instead of paying for services—improves healthcare is mixed and not yet conclusive, but it's also a promising strategy. Health systems in HICs face the rising costs of technology intensive care for their aging populations and cost-effectiveness studies are essential to optimise allocation of resources.[52,53] LMICs have a more difficult task, as they have to confront the double burden of diseases and the interaction between them, exemplified by the growing numbers of HIV-related CVDs.[7,38] In these countries, health systems must be prepared for the rise of NCDs, but still cope with the burden of communicable and nutritional diseases, to which the social determinants are even more important, such as the housing conditions for rheumatic heart disease and Chagas heart disease.[11,54] In Africa, regional differences can be seen in the countries' readiness to combat cardiovascular risk factors: 61% had funding available for NCD, however only 26% had a specific policy for diabetes.[55]

To achieve the recommended targets, health workers must be motivated and patients must be adherent, which is a challenge even to structured health systems, such as in the UK, where the majority of patients with IHD or those at high risk of developing CVD do not achieve lifestyle, risk factor and therapeutic targets suggested by the national prevention guidelines.[56,57]

Strategies such as the use of telephone calls to monitor adherence are good alternatives to be used.[58]

Another contribution of technology to Global Health is the spreading of information, which may contribute to the imple-

FIGURE 4.



Nascimento B R et al. Heart 2014;100:1743-1749

Absolute number of observed cases (grey lines) and trends in the incidence (bold lines) of out-of-hospital sudden circulatory arrest between 1 January 2002 (week 1) and 1 May 2010 (week 435). Vertical dotted lines represent the introduction of the two smoking bans, in week 105 (workplace ban) and week 340 (hospitality sector ban), respectively. The text boxes display the slopes (regular font) and changes in slopes (italic) of the unadjusted Poisson regression model. *Significant change in slope (p<0.05) (adapted from de Korte-de Boer et al[48]).

tehnologije intenzivne njege za sve stariju populaciju, pa su istraživanja financijske isplativosti ključna pri optimizaciji raspodjele sredstava.[52,53] Manje razvijene zemlje suočene su s težim zadatkom, pošto se moraju nositi sa dvostrukim teretom i samih bolesti i njihovih međuodnosa, što prikazuje rastući broj KVB uzrokovanih HIV-om.[7,38] U tim zemljama zdravstveni sustav mora biti spreman za porast nezaraznih bolesti, no istodobno se mora boriti s još prisutnim teretom zaraznih bolesti i bolesti uzrokovanih prehranom za koje su socijalne odrednice još važnije, primjerice kvaliteta mjesta življenja za reumatsku bolest srca i Chagasovu bolest srca.[11,54] U Africi se regionalne razlike mogu primijetiti u spremnosti pojedinih država za borbu protiv kardiovaskularnih čimbenika rizika: 61% odvaja sredstva za nezarazne bolesti, no samo 26% ima strategiju za dijabetes.[55]

Da bi se postigli preporučeni ciljevi, zdravstveni radnici moraju biti motivirani, a pacijenti moraju slijediti upute, što je izazov i za strukturirane zdravstvene sustave kao u Ujedinjenom Kraljevstvu, gdje većina pacijenata s IBS-om ili visokim rizikom od KVB-a ne postignu ciljeve u promjeni životnog stila, čimbenika rizika i liječenja koje propisuju nacionalne smjernice za prevenciju.[56,57]

Strategije kao što je korištenje telefonskih poziva za praćenje ustrajnosti pacijenata dobra su alternativa koju se može iskoristiti.[58]

mentation of evidence-based interventions worldwide. However, while information travels even to remote areas, the uneven distribution of workforce is still a problem.[59]

Sub-Saharan Africa, for example, carries 24% of global disease burden, but has only 3% of health workforce.[40] The poorer and rural areas of the globe have less health workers per 1000 inhabitants, mainly a consequence of poor infrastructure and training.[59] To counteract this trend, technology can also be used for training by online courses and monitoring at a distance, giving the opportunities for shared medical decision. The use of telemedicine for the interpretation of ECGs as a support for primary health in remote areas is a successful example that can be replicated in diverse areas.[60]

In a broader aspect, cooperation is essential if the global community wants to respond to conditions that affect their health. Regarding environmental sustainability, coordinated actions are important to achieve goals such as the reduction of pollution and, consequently climate changes.[23,26] Global Health initiatives should focus on long-term strategies that promote peace, mitigate the impacts of poverty and are in synergy with the needs of the global and local communities.[61] Global commitments to achieve reduction in NCD mortality, such as proposed by the United Nations that aims at a 25% reduction in premature NCD mortality by 2025 (the 25×25 goal)

Još jedan doprinos tehnologije globalnom zdravlju je širenje informacija, što može pridonijeti uvođenju intervencija temeljenih na dokazima širom svijeta. No iako informacije stižu i u izdvojena područja, neravnomjerna raspodjela radne snage još je uvijek problem.[59]

Primjerice, subsaharska Afrika nosi 24% svjetskog tereta bolesti, no ima samo 3% svjetskih zdravstvenih djelatnika.[40] Siromašnija i ruralna područja u svijetu imaju manje zdravstvenih djelatnika na 1000 stanovnika, prvenstveno uslijed loše infrastrukture i edukacije.[59] Protiv toga se može boriti *online* edukacijskim tečajevima i praćenjem na daljinu, što omogućuje donošenje zajedničih liječničkih odluka. Uporaba telemedicine za interpretaciju EKG-a kao potpora primarnoj zdravstvenoj zaštiti u izdvojenim područjima uspješan je primjer koji se može primijeniti u različitim područjima medicine.[60]

Šire govoreći, ako svjetska zajednica želi mijenjati uvjete koji utječu na zdravlje, ključna je suradnja. Što se tiče održivosti i okoliša, koordinacija je važna za postizanje ciljeva kao što su smanjenje zagađenja te klimatskih promjena.[23,26] Inicijative globalnoga zdravlja trebale bi se usredotočiti na dugoročne strategije koje promoviraju mir, umanjuju utjecaj siromaštva te su u skladu s potrebama globalnih i lokalnih zajednica.[61] Da bi se ostvarile obveze preuzete na globalnoj razini za smanjenje smrtnosti od KVB, kao što je prijedlog Ujedinjenih Naroda, koji cilja na dvadesetpetpostotno smanjenje preuranjene smrtnosti od KVB do 2025. godine (cilj 25×25), nužna je potpora lokalnih vlasti i međunarodnih udruga.[62]

Razvoj tehnologije i znanstvena istraživanja još uvijek trebaju posvetiti više pažnje zanemarenim bolestima. Bolesti koje prvenstveno pogađaju manje razvijene zemlje moraju biti u središtu pažnje istraživačkih instituta cijeloga svijeta te prilika za suradnju među državama. Također nedostaju dobri podatci o demografiji, epidemiologiji i teretu bolesti u tim državama, što otežava okrivanje slabosti te planiranje i provođenje rješenja u tim zemljama. Praćenje i razmjena podataka ključni su da bismo učinili svijet zdravijim.[62]

ZAKLJUČAK

Poboljšanje globalnoga zdravlja zahtijeva razvijanje i primjenu rješenja utemljenih na podatcima iz niza različitih disciplina koje pomažu pri donošenju odluka, uključujući medicinu, demografiju, epidemiologiju, javno zdravstvo i ekonomiju.[4] Članci povezani s globalnim zdravljem tijekom zadnje dvije godine znatno se češće objavljuju u časopisu *Heart*, što pridonosi razumijevanju i povećanju svijesti o ovoj temi. No još uvijek postoje teme kojima se tek treba početi baviti u znanstvenim časopisima, kao što je zdravstvena edukacija i uspješnost programa probira.

Glavni je cilj globalnoga zdravlja staviti naglasak na zdravstvenu jednakost, pri čemu treba obratiti pažnju na lekcije iz cijeloga svijeta te ih prilagoditi osobitostima danog područja. Taj se cilj može ostvariti primjenom promocije i prevencije intervencijama na razini čitave populacije te uspješnim liječenjem na razini pojedinca. Vlade, udruge i civilno društvo u zemljama s različitim stupnjem razvijenosti moraju biti spremne dijeliti odgovornosti i financijski teret sa zajedničkim ciljem postizanja zdravlja i blagostanja ljudi diljem svijeta.

need efforts from local governments and international institutions.[62]

Research and technology development still needs to give more attention to neglected conditions. Diseases that mainly affect LMICs must be in the focus of research institutes worldwide and also be an opportunity for collaboration between countries. Good quality data about demography, epidemiology and the burden of diseases in this group of countries are also lacking, making identification of weaknesses, planning and implementation of solutions harder in these countries. Surveillance and information sharing is key to make the globe healthier.[62]

CONCLUSION

The approach to improve Global Health requires the development and implementation of solutions based on information derived from a variety of disciplines including medicine, demography, epidemiology, public health and economy to help policy decision making.[4] Heart manuscripts have advanced significantly in these topics in the past 2 years, contributing to their understanding and dissemination. However, some particular gaps such as health education and effectiveness of screening programmes still need to be addressed in scientific literature.

Trying to benefit from lessons learned across the world and adapting them to local appropriateness, the main objective of Global Health is to emphasise health equity. This task will be achieved by embracing promotion and prevention using population-wide interventions and also through effective delivery of clinical care at the individual level. Governments, foundations and the civil society from countries with different incomes must be willing to share responsibilities and funding in a common perspective, to reach health and well-being of people around the world.

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