table of contents

WORLD REPORTS

Swaziland nurses the wellbeing of its health workers.
Baleta, A.

US health care still failing ethnic minorities.
Devi, S.

Hugo Chavez’s health-care programme misses its goals.
Jones, R.

South Africa failing people displaced by xenophobia riots.
Kapp, C.

Court halts closure of Canada’s safe-injection site.
Webster, P.

ARTICLES

Effect of community-based newborn-care intervention package implemented through two service-delivery strategies in Sylhet district, Bangladesh: a cluster-randomised controlled trial.

Prevalence of primary hyperaldosteronism in resistant hypertension: a retrospective observational study.

Use of a patch containing heat-labile toxin from Escherichia coli against travellers’ diarrhoea: a phase II, randomised, double-blind, placebo-controlled field trial.


Cardiac death and reinfarction after 1 year in the Thrombus Aspiration during Percutaneous coronary inter-vention in Acute myocardial infarction Study (TAPAS): a 1-year follow-up study.

Nurse-coordinated multidisciplinary, family-based cardiovascular disease prevention programme (EUROACTION) for patients with coronary heart disease and asymptomatic individuals at high risk of cardiovascular disease: a paired, cluster-randomised controlled trial.

Effect of carbocisteine on acute exacerbation of chronic obstructive pulmonary disease (PEACE Study): a randomised placebo-controlled study.
Zheng, J-P., Jian Kang, Shao-Guang Huang, Ping Chen, Wan-Zen Yao, Lan Yang, Chun-Tao Liu, Qiang Li, Zhen-Shan Wang, Yi-Jiang Huang, Zhi-Yang Luo, Fei-Peng Chen, Jian-Zhang Yuan, Ben-Tong Yuan, Hui-Ping Qian, Rong-Chang Zhi, and Nan-Shan Zhong.

SEMINAR

Tobacco addiction.
Hatsukami, D.K., Lindsay F Stead, and Prakash C Gupta.

Trachoma.
Wright, H.R., Angus Tuener, and Hugh R Taylor.
WORLD REPORTS


Swaziland has taken the lead in caring for overburdened health workers with the opening of the first Wellness Centre in Manzini for them and their families. Adele Baleta reports on this innovative response to the deepening crisis in human resources for health in sub-Saharan Africa. Nurse Masitsela Mhlanga had every reason to throw in the towel. It was 2004 and the tiny, landlocked Kingdom of Swaziland was overwhelmed by HIV/AIDS, a high incidence of needle-stick injuries in hospitals, and a dire shortage of health-care workers. “Not a weekend went by without us burying one of our colleagues who had died of AIDS”, says Mhlanga. “I decided there and then that it would be better for me to become a motor mechanic. In that way, I would be sustaining my life. There would be no double exposure to HIV. I knew I could prevent heterosexual transmission, but to have to face the daily threat of being infected at work as well was just too much.” At the time Mhlanga was President of the Swaziland Nurses Association (SNA). His colleagues in Manzini, an urban centre near the capital Mbabane, were also feeling the pressure. In that year, an entire class of 40 nurses left within a month of graduating for posts overseas. “Of the 33 people in my own class of 1994, only six are still here, the rest are mainly working in the United Kingdom”, he says.


Despite the publication 6 years ago of a groundbreaking US Institute of Medicine report on how to reduce ethnic disparities in health care, experts say little has been done to systematically address the issue and startling health inequalities persist in the USA. Sharmila Devi reports. James North, a 50-year-old African-American, had borderline cardiac function but had been admitted to hospital only once when he went to see Neil Calman in the Bronx, New York City. Mr North meticulously recited the medications he was taking and explained how he controlled his congestive heart failure by monitoring his weight and adjusting his diuretics. “I could not provide Mr North with all that New York’s great health-care institutions had to offer. He knew that. He often tried to teach me that and was just as often amazed that I was unable to accept it”, wrote Calman in the Bronx Health REACH Coalition newsletter in autumn last year. Mr North’s case provides a vivid illustration of the inequalities in health care received by minorities in the USA. His cardiologist never thought of referring him to a heart-transplant centre and it took three separate interventions from Calman to get him a consultation. The echocardiography lab sent him home after Mr North was 10 minutes late because he had to keep stopping to rest on his walk there on a windy day. The pharmacy refused to refill his insulin syringes without a written prescription, even though he had been going to the same place for 2 years.


Venezuela’s President Hugo Chavez’s ambitious social programme to bring primary health care to poor communities in the country has been lauded by professionals and the public alike. 5 years on, however, the project is failing to meet expectations. Rachel Jones reports from Caracas. High in the hills above Caracas, in a poor neighbourhood called Los Mangos of La Vega, a pristine, hexagon-shaped brick building stands empty. It is easily recognisable as a module of Barrio Adentro I (Inside the Neighbourhood)—the government’s 5-year-old social programme designed to bring primary health care to Venezuela’s poorest people. Residents of the area complain that they have waited more than 2 years for the module to open, but no doctor will come until a precarious mud cliff hovering above the centre has been fortified. Even once this happens, however, a shortage of medical personnel might mean that the centre will remain deserted. Barrio Adentro I began in 2003, one of an array of “missions” that form a fundamental part of President Hugo Chavez’s drive towards socialism. But the programme—which swaps oil shipments for Cuban doctors—has fallen far short of its original goals. Less than half of the proposed 8500 primary care facilities to be constructed in poor areas across the country by the end of 2004, have been built. 2708 modules were built by May, 2007, using an investment of nearly US$126·5 million—largely from the state petroleum company. Another 3284 modules are reportedly under construction.


The xenophobia riots in South Africa displaced tens of thousands of people, many of whom are in temporary camps, and are being cared for by non-governmental organisations as the initial emergency treatment phase shifts to more complex trauma counselling. Clare Kapp reports. Xenophobic attacks in South Africa have forced tens of thousands of people from their homes and shattered the reputation of the “rainbow nation” which preached racial harmony after years of apartheid. Françoise Kanyamuneza used to enjoy her work at a busy hospital in Cape Town, helping to plug the gap left by the exodus of South African health workers from the public sector. That was before a wave of xenophobic violence and intimidation forced the Burundian nurse and tens of thousands of other foreigners to flee their homes and seek sanctuary in police stations, churches, mosques, and community centres. Kanyamuneza ended up in a “safety site” at a bleak army base housing more than 1000 immigrants and refugees from Zimbabwe, Somalia, Congo, and other African countries. “How can I go back to work when I feel like they hate
foreigners?” she demanded as she stood outside a communal army tent which lacked even basic plastic sheets on the muddy floor. “I am too scared to send my children to crèche or school. I don’t trust them”, she said of her South African hosts. Kanyamuneza’s reaction echoed throughout South Africa as the terror of rampaging mobs gave way to bitterness and uncertainty about the future. The initial emergency of casualties from gunshot and stab wounds, broken limbs, and burns was replaced by more complex trauma counselling, and makeshift shelters evolved into more organised camps, which looked set to stay open for weeks if not months.


Vancouver’s safe-injection site has been granted a reprieve from closure after a Supreme Court judge ruled that drug users were legally entitled to health care in the form of these facilities. The Canadian Government has vowed to appeal the judgment. Paul Webster reports. British Columbia’s highest court has halted the Canadian Government’s plans to close Insite—North America’s only government-sanctioned safe-injection site for drug users. In a ruling on May 27, 2008, that the government immediately vowed to appeal, Justice Ian Pitfield, of the Supreme Court of British Columbia, concluded that right-to-life provisions within the Canadian constitution legally entitle drug users to health care in the form of safe-injection facilities. In his ruling, Pitfield said he firmly rejected “Canada’s submission that an addict must feed his addiction in an unsafe environment when a safe environment that may lead to rehabilitation is the alternative”. Judge Pitfield cited support for Insite—which was established in 2003 and has supervised more than a million injections by 8000 registered users—from the Vancouver Police Department, along with medical evidence. The use of heroin—along with associated rates of hepatitis and HIV infections and overdoses—were at epidemic levels in Vancouver when Insite was established, according to a series of studies referenced in Pitfield’s decision. “This is the busiest injection facility in the world”, says Thomas Kerr, co-principal investigator of a team studying Insite.

**ARTICLES**


Neonatal mortality accounts for a high proportion of deaths in children under the age of 5 years in Bangladesh. Therefore the project for advancing the health of newborns and mothers (Projahnmo) implemented a community-based intervention package through government and non-government organisation infrastructures to reduce neonatal mortality. In Sylhet district, 24 clusters (with a population of about 20’000 each) were randomly assigned in equal numbers to one of two intervention arms or to the comparison arm. Because of the study design, masking was not feasible. All married women of reproductive age (15-49 years) were eligible to participate. In the home-care arm, female community health workers (one per 4000 population) identified pregnant women, made two antenatal home visits to promote birth and newborn-care preparedness, made postnatal home visits to assess newborns on the first, third, and seventh days of birth, and referred or treated sick neonates. In the community-care arm, birth and newborn-care preparedness and careseeking from qualified providers were promoted solely through group sessions held by female and male community mobilisers. The primary outcome was reduction in neonatal mortality. Analysis was by intention to treat. The study is registered with ClinicalTrials.gov, number 00198705. The number of clusters per arm was eight.


Results of several studies published since 1999 suggest that primary hyperaldosteronism (also known as Conn’s syndrome) affects more than 10% of people with hypertension; however, such a high prevalence has also been disputed. Experts generally agree that resistant hypertension has the highest prevalence of primary hyperaldosteronism, on the basis of small studies. We aimed to assess the prevalence of primary hyperaldosteronism in a large group of patients with resistant hypertension. Patients with resistant hypertension: *Lancet* - Vol.371 (9628 & 9629), June 7 & 14, 2008 4
hypertension (blood pressure >140/90 mmHg despite a three drug regimen, including a diuretic) who attended our outpatient clinic were assessed for primary hyperaldosteronism. Serum aldosterone and plasma renin activity were determined and their ratio was calculated. Patients with a positive test (ratio >65-16 and aldosterone concentrations >416 pmol/L) underwent salt suppression tests with intravenous saline and fludrocortisone. Diagnosis of primary hyperaldosteronism was further confirmed by the response to treatment with spironolactone. Over 20 years, we studied 1616 patients with resistant hypertension. 338 patients (20.9%) had a ratio of more than 65-16 and aldosterone concentrations of more than 416 pmol/L. On the basis of salt suppression tests, 182 (11.3%) patients had primary hyperaldosteronism, and response to spironolactone treatment further confirmed this diagnosis. Hypokalaemia was seen only in 83 patients with primary hyperaldosteronism (45.6%). Although the prevalence of primary hyperaldosteronism in patients with resistant hypertension was high, it was substantially lower than previously reported. On the basis of this finding, we could assume that the prevalence of primary hyperaldosteronism in the general unselected hypertensive population is much lower than currently reported. Thus, the notion of an epidemic of primary hyperaldosteronism is not supported.


Enterotoxigenic Escherichia coli (ETEC) is a major cause of travellers' diarrhoea. We investigated the rate of diarrhoea attacks, safety, and feasibility of a vaccine containing heat-labile enterotoxin (LT) from ETEC delivered to the skin by patch in travellers to Mexico and Guatemala. In this phase II study, healthy adults (aged 18-64 years) who planned to travel to Mexico or Guatemala and had access to a US regional vaccination centre were eligible. A centralised randomisation code was used for allocation, which was masked to participants and site staff. Primary endpoints were to investigate the field rate of ETEC diarrhoea, and to assess the safety of heat-labile toxins from E coli (LT) delivered via patch. Secondary endpoints included vaccine efficacy against travellers' diarrhoea and ETEC. Participants were vaccinated before travel, with two patches given 2-3 weeks apart. Patches contained either 37.5 ìg of LT or placebo. Participants tracked stool output on diary cards in country and provided samples for pathogen identification if diarrhoea occurred. Diarrhoea was graded by the number of loose stools in 24 h: mild (three), moderate (four or five), and severe (at least six). Analysis was per protocol. Recruitment closed after 201 participants were assigned patches. 178 individuals received two vaccinations and travelled and 170 were analysed. 24 (22%) of 111 placebo recipients had diarrhoea, of whom 11 (10%) had ETEC diarrhoea. The vaccine was safe and immunogenic. The 59 LT-patch recipients were protected against moderate-to-severe diarrhoea (protective efficacy [PE] 75%, p=0.0070) and severe diarrhoea (PE 84%, p=0.0332). LT-patch recipients who became ill had shorter episodes of diarrhoea (0.5 days vs 2.1 days, p=0.0066) with fewer loose stools (3.7 vs 10.5, p<0.0001) than placebo. Travellers' diarrhoea is a common ailment, with ETEC diarrhoea illness occurring in 10% of cases. The vaccine patch is safe and feasible, with benefits to the rate and severity of travellers' diarrhoea.


Clinical use of criteria for metabolic syndrome to simultaneously predict risk of cardiovascular disease and diabetes remains uncertain. We investigated to what extent metabolic syndrome and its individual components were related to risk for these two diseases in elderly populations. We related metabolic syndrome (defined on the basis of criteria from the Third Report of the National Cholesterol Education Program) and its five individual components to the risk of events of incident cardiovascular disease and type 2 diabetes in 4812 non-diabetic individuals aged 70-82 years from the Prospective Study of Pravastatin in the Elderly at Risk (PROSPER). We corroborated these data in a second prospective study (the British Regional Heart Study [BRHS]) of 2737 non-diabetic men aged 60-79 years. In PROSPER, 772 cases of incident cardiovascular disease and 287 of diabetes occurred over 3.2 years. Metabolic syndrome was not associated with increased risk of cardiovascular disease in those without baseline disease (hazard ratio 1.07 [95% CI 0.86-1.32]) but was associated with increased risk of diabetes (4.41 [3.33-5.84]) as was each of its components, particularly fasting glucose (18.4 [13.9-24.5]). Results were similar in participants with existing cardiovascular disease. In BRHS, 440 cases of incident cardiovascular disease and 105 of diabetes occurred over 7 years. Metabolic syndrome was modestly associated with incident
cardiovascular disease (relative risk 1.27 [1.04–1.56]) despite strong association with diabetes (7.47 [4.90–11.46]). In both studies, body-mass index or waist circumference, triglyceride, and glucose cutoff points were not associated with risk of cardiovascular disease, but all five components were associated with risk of new-onset diabetes. Metabolic syndrome and its components are associated with type 2 diabetes but have weak or no association with vascular risk in elderly populations, suggesting that attempts to define criteria that simultaneously predict risk for both cardiovascular disease and diabetes are unhelpful. Clinical focus should remain on establishing optimum risk algorithms for each disease.


Percutaneous coronary intervention (PCI) for ST-elevation myocardial infarction can be complicated by spontaneous or angioplasty-induced embolisation of atherothrombotic material. Distal blockage induces microvascular obstruction and can result in less than optimum reperfusion of viable myocardium. The Thrombus Aspiration during Percutaneous coronary intervention in Acute myocardial infarction Study (TAPAS) found that thrombus aspiration resulted in improved microvascular reperfusion compared with conventional PCI, but whether this benefit improves clinical outcome is unknown. We aimed to investigate whether the early efficacy of thrombus aspiration seen in TAPAS translated into clinical benefit after 1 year. Patients with ST-elevation myocardial infarction enrolled at the University Medical Centre Groningen were randomly assigned in a 1:1 ratio to either thrombus aspiration or conventional treatment, before undergoing initial coronary angiography. Exclusion criteria were rescue PCI after thrombolysis and known presence of coronary artery disease in hospitals and 1189 and 1128 at high risk were assigned to INT and UC, respectively. In patients with coronary heart disease who smoked in the month before the event, 136 (58%) in the INT and 154 (47%) in the UC groups did not smoke 1 year afterwards (difference in change 10.4%, 95% CI 0.3-21.2, p=0.06). Reduced consumption of saturated fat (196 [56%] vs 168 [40%]; 17.3%, -6.4 to 28.2, p=0.009), and increased consumption of fruit and vegetables (680 [72%] vs 349 [35%]; 37.3%, 18.1 to 56.5, p=0.004), and oily fish (156 [17%] vs 81 [8%]; 8.9%, 0.3 to 17.5, p=0.04) at 1 year were greatest in the INT group. High-risk individuals and partners showed changes only for fruit and vegetables (p=0.005). Blood-pressure target of less than 140/90 mmHg was attained by both coronary (615 [65%] vs 547 [55%]; 10.4%, 0.6 to 20.2, p=0.04) and high-risk patients (586 [58%] vs 407 [41%]; 16.9%, 2.0 to 31.8, p=0.03) in the INT groups. Achievement of total cholesterol of less than 5 mmol/L did not differ between groups, but in high-risk patients the difference in change from baseline to 1 year was 12.7% (2.4 to 23.0, p=0.02) in favour of INT. In the hospital group, prescriptions for statins were higher in the INT group (810 [86%] vs 794 [80%]; 6.0%, -0.5 to 11.5, p=0.04). In general practices in the intervention groups, angiotensin-converting enzyme inhibitors (297 [29%]


Our aim was to investigate whether a nurse-coordinated multidisciplinary, family-based preventive cardiology programme could improve standards of preventive care in routine clinical practice. In a matched, cluster-randomised, controlled trial in eight European countries, six pairs of hospitals and six pairs of general practices were assigned to an intervention programme (INT) or usual care (UC) for patients with coronary heart disease or those at high risk of developing cardiovascular disease. The primary endpoints—measured at 1 year—were family-based lifestyle change; management of blood pressure, lipids, and blood glucose to target concentrations; and prescription of cardioprotective drugs. Analysis was by intention to treat. The trial is registered as ISRCTN 71715857. 1589 and 1499 patients with coronary heart disease in hospitals and 1189 and 1128 at high risk were assigned to INT and UC, respectively. In patients with coronary heart disease who smoked in the month before the event, 136 (58%) in the INT and 154 (47%) in the UC groups did not smoke 1 year afterwards (difference in change 10.4%, 95% CI 0.3-21.2, p=0.06). Reduced consumption of saturated fat (196 [56%] vs 168 [40%]; 17.3%, -6.4 to 28.2, p=0.009), and increased consumption of fruit and vegetables (680 [72%] vs 349 [35%]; 37.3%, 18.1 to 56.5, p=0.004), and oily fish (156 [17%] vs 81 [8%]; 8.9%, 0.3 to 17.5, p=0.04) at 1 year were greatest in the INT group. High-risk individuals and partners showed changes only for fruit and vegetables (p=0.005). Blood-pressure target of less than 140/90 mmHg was attained by both coronary (615 [65%] vs 547 [55%]; 10.4%, 0.6 to 20.2, p=0.04) and high-risk patients (586 [58%] vs 407 [41%]; 16.9%, 2.0 to 31.8, p=0.03) in the INT groups. Achievement of total cholesterol of less than 5 mmol/L did not differ between groups, but in high-risk patients the difference in change from baseline to 1 year was 12.7% (2.4 to 23.0, p=0.02) in favour of INT. In the hospital group, prescriptions for statins were higher in the INT group (810 [86%] vs 794 [80%]; 6.0%, -0.5 to 11.5, p=0.04). In general practices in the intervention groups, angiotensin-converting enzyme inhibitors (297 [29%]

INT vs 196 [20%] UC: 8.5%, 1.8 to 15.2, p=0.02) and statins (381 [37%] INT vs 232 [22%] UC: 14.6%, 2.5 to 26.7, p=0.03) were more frequently prescribed. To achieve the potential for cardiovascular prevention, we need local preventive cardiology programmes adapted to individual countries, which are accessible by all hospitals and general practices caring for coronary and high-risk patients.


Chronic obstructive pulmonary disease (COPD) is characterised by airflow limitation, and has many components including mucus hypersecretion, oxidative stress, and airway inflammation. We aimed to assess whether carbocisteine, a mucolytic agent with anti-inflammatory and antioxidation activities, could reduce the yearly exacerbation rate in patients with COPD. We did a randomised, double-blind, placebo-controlled study of 709 patients from 22 centres in China. Participants were eligible if they were diagnosed as having COPD with a postbronchodilator forced expiratory volume in 1 s (FEV1) to forced vital capacity (FVC) ratio (FEV1/FVC) of less than 0.7 and an FEV1 between 25% and 79% of the predicted value, were aged between 40 and 80 years, had a history of at least two COPD exacerbations within the previous 2 years, and had remained clinically stable for over 4 weeks before the study. Patients were randomly assigned to receive 1500 mg carbocisteine or placebo per day for a year. The primary endpoint was exacerbation rate over 1 year. and analysis was by intention to treat. This trial is registered with the Japan Clinical Trials Registry (http://umin.ac.jp/ctr/index/htm) number UMIN-CRT C000000233. 354 patients were assigned to the carbocisteine group and 355 to the placebo group. Numbers of exacerbations per patient per year declined significantly in the carbocisteine group compared with the placebo group (1.01 [SE 0.06] vs 1.35 [SE 0.06]), risk ratio 0.75 (95% CI 0.62–0.92, p=0.004). Non-significant interactions were found between the preventive effects and COPD severity, smoking, as well as concomitant use of inhaled corticosteroids. Carbocisteine was well tolerated. Mucolytics, such as carbocisteine, should be recognised as a worthwhile treatment for prevention of exacerbations in Chinese patients with COPD.

SEMINAR


Tobacco use is associated with 5 million deaths per year worldwide and is regarded as one of the leading causes of premature death. Comprehensive programmes for tobacco control can substantially reduce the frequency of tobacco use. An important component of a comprehensive programme is the provision of treatment for tobacco addiction. Treatment involves targeting several aspects of addiction including the underlying neurobiology and behavioural processes. Furthermore, building an infrastructure in health systems that encourages and helps with cessation, as well as expansion of the accessibility of treatments, is necessary. Although pharmacological and behavioural treatments are effective in improving cessation success, the rate of relapse to smoking remains high, emphasising the strong addictive nature of nicotine. The future of treatment resides in improvement in patient matching to treatment, combination or novel drugs, and viewing nicotine addiction as a chronic disorder that might need long-term treatment.


Trachoma is a keratoconjunctivitis caused by ocular infection with Chlamydia trachomatis. Repeated or persistent episodes lead to increasingly severe inflammation that can progress to scarring of the upper tarsal conjunctiva. Trichiasis develops when scarring distorts the upper eyelid sufficiently to cause one or more lashes to abrade the cornea, scarring it in turn and causing blindness. Active trachoma affects an estimated 84 million people; another 7-6 million have end-stage disease, of which about 1-3 million are blind. Trachoma should stand on the brink of extinction thanks to a 1998 initiative launched by WHO—the Global Elimination of Trachoma by 2020. This programme advocates control of trachoma at the community level with four inter-related population-health initiatives that form the SAFE strategy: surgery for trichiasis, antibiotics for active trachoma, facial cleanliness, and environmental improvement. Evidence supports the effectiveness of this approach, and if current world efforts continue, blinding trachoma will indeed be eliminated by 2020.