Clinical Epidemiology (CE) and Evidence-Based Medicine (EBM) in the Asia Pacific region (Round Table Forum)

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A B S T R A C T
Clinical Epidemiology (CE) and Evidence-Based Medicine (EBM) have become increasingly important in an era of rising costs, patient safety concerns and evidence-based health care. CE and EBM research in the Asia Pacific region have grown significantly. However, there are three main challenges such as linking evidence to practice and policy; developing a strong collaborative network; and a need for resources and technical expertise to produce evidence. The Cochrane Collaboration is a possible solution to resolve above challenges identified, particularly the challenge of transforming evidence to practice. In addition, training can be carried out to enhance technical expertise in the region and there is also the promising potential that collaborations could extend beyond systematic reviews. To improve the adoption of evidence-based health policy, selection of the best evidence for the right audience and focusing on the relevant issues through appropriate methodology are essential. Information on effectiveness and cost effectiveness needs to be highlighted for policy makers. The way forward to strengthen research and capacity building is to establish the Asia Pacific Consortium for CE and EBM. The consortium would help to create mutually rewarding scientific research and collaborations that will augur well for advances in CE and EBM.

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Clinical Epidemiology (CE) and Evidence-Based Medicine (EBM) have become increasingly important in an era of rising costs, patient safety concerns and evidence-based health care. Clinical epidemiology and evidence based medicine research in the Asia Pacific region have grown significantly in the past 2 decades and many more researchers and medical scientists have shown greater interest in as well as receive support and resources on related studies. Clinical epidemiology has only recently been recognized as a discipline in its own right, primarily due to misunderstood notions that epidemiology is confined to public health. The examples of development and capacity building of CEEBM in four countries in the Asia Pacific Region are highlighted below.

Malaysia

CE and EBM capacity building started off as collaborations in clinical epidemiology between University Medical Centre Utrecht and the Ministry of Health Malaysia. The Department of Social & Preventive Medicine was invited to co-organize courses. Eventually the Department took over running of these courses from the Ministry of Health. On 19 Nov 2007, the Asia-Europe Clinical Epidemiology & Evidence-Based Medicine Project was launched. The project included conducting short courses in CE and EBM, transfer of technology, PhD fellowships in Oxford and University Medical Centre Utrecht, MBBS curriculum development in CE and EBM and formation of support units for CE and EBM. The support unit in the University of Malaya morphed into the Julius Centre University of Malaya (JCUM) on 9 January 2008. Two postgraduate programs in clinical epidemiology are now being developed as part of the joint efforts between JCUM and the Department of Social and Preventive Medicine. The Center has also declared its aim to be part of the Cochrane Network.

Indonesia

Clinical Epidemiology (CE) in Indonesia was first introduced in the late 1980s when Gadjah Mada University in Jogyakarta established CEBU (CE and Biostatistics Unit) and was appointed as one of the centers offering Master in CE program, sponsored by Inclen (International Clinical Epidemiology Network). Unfortunately, in the next 15 years afterwards, the CE activity had been declining before a small group of pediatricians...
started to actively disseminate the concept of evidence-based medicine (EBM) throughout the country in the year 2000. Not less than 60 workshops have been conducted in 15 medical schools during the last 12 years. The workshops, though designed primarily for the teaching staff of pediatric departments, were also attended by other specialists. In 2007, Asialink for CE and EBM project was started. The project, which involved 2 European universities (Utrecht, Oxford) and 2 Asian universities (University of Malaya, University of Indonesia), successfully implemented 4 activities during 3 years: postgraduate courses, Master and PhD program, development of EBM curriculum for undergraduates, and establishment of CE-EBM unit at the Medical School, University of Indonesia — Cipto Mangunkusumo Hospital, Jakarta in 2010. Soon after that, in order to achieve better implementation of CE-EBM throughout the country, a network called Indonesian CE and EBM (ICE-EBM) Network was established in 2011. Currently, the ICE-EBM Network has 33 member institutions in 15 cities around the country and carries out disseminating CE-EBM through a capacity building program. Incorporation of EBM in the formal curriculum is expected to be established in all medical schools in Indonesia in the next 2–3 years.

Thailand

The emergence of CERTC (Clinical Epidemiology Research and Training Centre) was initiated by the International Clinical Epidemiology Network (INCLEN) supported by the Rockefeller Foundation in 1980. In 1992 Thai CERTC was founded by clinical epidemiology units from three medical schools namely: Faculty of Medicine, Chulalongkorn University; Siriraj Hospital, Mahidol University and Faculty of Medicine, Khon Kaen University. The main objective was to establish the master degree international program in Clinical Epidemiology under the Faculty of Medicine, Chulalongkorn University. This is a two-year course. The first year course work comprises of one critical appraisal module, two research methodology modules, two biostatistics modules, one health social science module focusing on measurement and another module on quality research and one on medical economics. The second year focus is to execute, accomplish, and publish the research proposal that was approved during the first year of training. The program has been running for 21 years with more than 200 graduates. Some of them are currently the prime movers of EBM teaching in the doctor of medicine (MD) program. The Thai Medical Council has included EBM process as one of its medical competency assessment criteria for the national license examination in 2012. Furthermore, in 1997 Khon Kaen University initiated an international short training course (4-months) in clinical epidemiology and biostatistics by modifying the Thai CERTC curriculum. This course aims specifically for mid-level health personnel that usually cannot leave their responsibility for a longer period. This course turns out to be very popular and successful. PhD programs on clinical epidemiology are available in Chiang Mai University and Khon Kaen Universities in collaborations with American Universities. The Faculty of Medicine, Prince of Songkla University published its success in teaching EBM. Finally, in 2000 Thai Medical Schools Consortium formed a collaborative research coordination network known as Clinical Research Collaboration Network (CRCN) which recently has been changed to MedResNet (Medical Research Network).

Taiwan

In Taiwan, CE and EBM research and publications have been steadily increasing. The National Research Program of Biopharmaceuticals (NRPB) as well as the National Health Research Institutes (NHRI) under the Ministry of Health has created major new initiatives in pursuing more competitive and challenging health research programs in CE and EBM. Several major high-impact translational research projects have delivered key developments in CE and EBM researches and publications in high impact international journals. There are also efforts in clinical trials in order to bring critical research findings for the benefit of patients. This is evidenced by the establishment of nationwide National Clinical Trial Consortiums (NCTC) recently. There are several active programs in the NCTC such as the Lung Cancer Clinical Trial Consortium, Oncology Phase 1 Consortium, Helicobacter Consortium, Taiwanese Gynaecologic Oncology Group, Breast Cancer Clinical Trial Consortium, Consortium of Lipid and Atherosclerosis, Consortium of Hypertension associated Cardiovascular Diseases, Taiwan COPD Consortium, and Fabry Disease Consortium. Besides these translational clinical research projects, there are also increasing discussions and concerns on Ethical, Legal and Social Implications and bioethics in the NRPB that the research projects be conducted to best benefit patients and populations.

Potential and challenges in the Asia Pacific region

The future for clinical epidemiology and evidence-based medicine in the Asia Pacific region is very promising. Evidence-based medicine has only recently been applied on a relatively large scale and there are increasing numbers of systematic reviews conducted by researchers for the benefit of local healthcare professionals. Between 1924 up until June 2012, there were 242,203 published articles indexed in PUB-Med in the area of CE and EBM. Of these 40,622 or 16.8% were from the Asia Pacific region. Among 81 clinical epidemiology units in the international clinical epidemiology network, 27 are found in the Asia Pacific region. However, there are three main challenges in the Asia Pacific region:

- Linking evidence to practice and policy
- Developing a strong collaborative network across the countries of the Asia Pacific region and globally
- A need for human resource, infrastructure, funding and technical expertise to produce evidence.

Globaly, the extraordinary growth in number of published clinical research has also led to a corresponding growth in systematic reviews as healthcare professionals struggle to cope with huge amounts of clinical literature. The Cochrane review was set up to fill the gap between today’s scientific advances and their applications since knowledge without action is wasted resource. Reliable systematic reviews are the best units of knowledge for transfer. Worldwide, the Cochrane Collaboration has over 27,000 people in 100 countries contributing as authors, editors, or peer referees. The Cochrane Centres provide support across a geographical area, providing training and support to authors, and promoting systematic reviews and supporting other Cochrane entities located in their region.

The Cochrane Collaboration is a possible solution to resolve above challenges identified in the Asia Pacific region, particularly the challenge of transforming evidence to practice. In addition, training can be carried out to enhance technical expertise in the region and there is also the promising potential that collaborations could extend beyond systematic reviews. The Julius Centre University of Malaya is an active contributor to the Cochrane collaboration and is attempting to become part of the Cochrane network.

The formulation of evidence-based health policy is a major challenge in the Asia Pacific region as elsewhere in the world. There are some success stories in the establishment of evidence-based health policy in Australia such as the Pharmaceutical Benefits Scheme (which bases government subsidies for medicines based on cost-effective analyses) (Healy, 2006), women cancer screening (which was designed on the basis of international trials) (Lin et al., 2007), major public health campaigns (tobacco control, road injury prevention, and HIV prevention and control all had strong epidemiological and program evaluation components) (NHMRC, 1997), and registration of Chinese medicine (which was legislated after extensive policy research based on specified criteria relating to protection of public health and safety) (Carlton, 2003).

However, there are also some failures particularly in the late 1990s — for example 1) private health insurance rebates were predicted not to take the load off public hospitals but were introduced and have
not affected demand for public hospitals (Duckett and Jackson, 2000).

2) Federal dental program was axed despite extensive data on waiting times for dental services for disadvantaged populations and close relationship between poor oral health and chronic disease (Australian Dental Association, 2005) and 3) men's health where early evidence of gender gap in health risks and status led only to initial funding for andrology research (Department of Health and Aging) (Dept of Health and Aging, National Male Health Policy Supporting Document: healthy reproductive behaviors — which points to the importance of political considerations, beyond the rigor of research evidence). Translation of evidence into policy and practice thus requires both good evidence as well as effective policy advocacy.

Another success story in translating evidence to practice and policy can be found in the implementation of National Health Insurance in Taiwan. Since 1995, National Health Insurance has been established and enacted in Taiwan leading to universal health coverage for all citizens as well as temporary migratory workers. Effective medical informatics systems were installed and used by all healthcare providers in hospitals and clinics throughout the country. Clinical trials have also been used to reduce ineffective healthcare services, to minimize useless diagnostics and treatment procedures, and to make the NHI more effective in its financial utility. Several medical centers have been recognized and affirmed by the Ministry of Health to support high quality clinical trials. To enhance more health research, the National Science Council gave strong support to the NRPB, to centralize research which might be able to provide more outcome-orientated research that will help boost the biopharmaceutical development and manufacture in Taiwan.

To improve the adoption of evidence-based health policy, selection of the best evidence for the right audience and focusing on the relevant issues through appropriate methodology are essential. Information on effectiveness and cost effectiveness needs to be highlighted for policy makers. Given differences in social, economic, cultural, and political contexts, application of research evidence needs to be carefully adapted to context. The conditions under which effectiveness can be achieved must be considered. Hence, the combination of different tools and techniques such as classical statistical tools, new mathematical tools, qualitative and participatory techniques are important for the translation of evidence to practice and policy.

The way forward to strengthen research and capacity building is to establish the Asia Pacific Consortium for CE and EBM so that the proposed consortium will serve as a platform for all of us to learn and share. It is important to be working in partnerships and collaborate with other individuals, institutions and sectors so that we are able to address major medical challenges facing us today. The consortium would help to create mutually rewarding scientific research and collaborations that will augur well for advances in CE and EBM.

Conflict of interest statement

The authors declare that there are no conflicts of interests.

References


