Strengthening Indonesia's Field Epidemiology Training Programme to address International Health Regulations requirements

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Problem According to the International Health Regulations (IHR), countries need to strengthen core capacity for disease surveillance and response systems. Many countries are establishing or enhancing their field epidemiology training programmes (FETPs) to meet human resource needs but face challenges in sustainability and training quality. Indonesia is facing these challenges, which include limited resources for field training and limited coordination in a newly decentralized health system.

Approach A national FETP workplan was developed based on an evaluation of the existing programme and projected human resource needs. A Ministry of Health Secretariat linking universities, national and international partners was established to oversee revision and implementation of the FETP.

Local setting The FETP is integrated into the curriculum of Indonesian universities and field training is conducted in district and provincial health offices under the coordination of the universities and the FETP Secretariat.

Relevant changes The FETP was included in the Ministry of Health workforce development strategy through governmental decree. Curricula have been enhanced and field placements strengthened to provide trainees with better learning experiences. To improve sustainability of the FETP, links were established with the Indonesian Epidemiologists' Association, local governments and donors to cultivate future FETP champions and maintain funding. Courses, competitions and discussion forums were established for field supervisors and alumni. These changes have increased the geographic distribution of students, intersectoral and international participation and the quality of student performance.

Lessons learnt The main lesson learnt is that linkages with universities, ministries and international agencies such as the World Health Organization are critical for building a sustainable high-quality programme. The most critical factors were development of trusting relationships and clear definitions of the responsibilities of each stakeholder.

Une traduction en français de ce résumé figure à la fin de l'article. *Al final del artículo se facilita una traducción al español.* الترجمة العربية لهذه الخلاصة في نهاية النص الكامل لهذه المقالة.

Introduction

Many countries are strengthening their public health workforce capacity to meet the core requirements of the International Health Regulations (IHR) by establishing field epidemiology training programmes (FETPs).[1,2] These programmes aim to build capacity in public health epidemiology for disease surveillance, disease programme management and outbreak response by training personnel in applied epidemiology.[3] The emphasis of FETPs on intervention epidemiology and outbreak response increases the human resources available to detect and respond to public health events of international concern.[1] FETPs are unique in that they prioritize "learning by doing" in which trainees complete formalized coursework along with field projects in public health offices.

Establishing and sustaining FETPs is a challenge because they are a resource-intensive training model.[4,5] Indonesia's recent revitalization of its FETP provides innovative solutions for countries that wish to establish or review their own programmes. This article describes the processes used to build and strengthen Indonesia's FETP, and focuses on issues such as managerial and financial sustainability and quality assurance in the outputs.

History of Indonesia's FETP

The Indonesian FETP started in 1982 as a two-year full-time non-degree programme conducted by the Directorate General of Disease Control and Environmental Health of the Ministry of Health and assisted by consultant tutors from the United States Centers for Disease Control and Prevention. Experience showed that the non-degree programme could not compete for brighter candidates with two-year master's degree health programmes offered by universities.

The first innovation, implemented in 1990, consisted of a collaboration between the Directorate General of Disease Control and Environmental Health and two universities to award a master's degree. This set-up was initially coordinated by a Secretariat within the Directorate General, but as funding decreased the Secretariat was disbanded and the Ministry

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of Health's oversight of the programme weakened. Universities continued to offer FETPs, but training became increasingly university-based because of lower access to government structures and less funding for field projects.

Revitalizing Indonesia's FETP

In February 2007, the Directorate-General of Disease Control and Environmental Health established a team to determine public health workforce needs, develop a long-term vision and devise a strategy to implement the vision. The team comprised the Ministry of Health Planning Bureau, the Health Workforce Development Bureau, the World Health Organization (WHO), the universities and representatives from provincial health offices. Because of Indonesia's extensive territory (encompassing 17 000 islands), decentralized government structure and large population (228 million), designing a vision for a public health workforce was a challenging process. As emphasized in the IHRs, Indonesia's public health workforce needs to be prepared for events with potential international ramifications. The workforce must also face an increasing national burden of non-communicable diseases and a high burden of routine infectious diseases such as tuberculosis and malaria.

Although the number of graduates from the FETP was small, the team decided that the FETP should continue because of the specialist public health skills gained by graduates. The team also decided that another programme could help cover epidemiology workforce needs. One-month short courses were developed to train a cadre of assistant field epidemiologists who support FETP graduates in data management and programme implementation. This strategy was considered the most feasible way to meet the needs for Indonesian public health personnel during the next 10 to 15 years. Workforce needs were estimated as one technical public health officer per 100 000 population; a total of 500 field epidemiologists and 1000 assistant epidemiologists need to be trained in the next 15 years.

To revise the FETP, the first step was to evaluate the existing programme. In November 2007 an international team evaluated the programme with the publicly-available continuous quality improvement tool developed by the Training Programs in Epidemiology and Public Health Interventions Network (TEPHINET).[6] Programme inputs, processes and outputs were compared to the continuous quality improvement standards, and areas for improvement were identified. These areas clustered in three different themes: managerial and financial sustainability, university and academic quality assurance and field placements.

Based on the evaluation, a five-year workplan was developed. The Ministry of Health and WHO actively sought donor funding for this workplan and successfully raised 1.4 million United States dollars (US$) during a four-year period. Sixty per cent of the funds were devoted to curricular enhancements and student scholarships. The remainder was allocated to re-establishing a FETP Secretariat that would lobby for long-term sustainability of the programme.

The recruitment of a national champion to direct the FETP Secretariat increased the political visibility of the programme and made it possible to reach several milestones. (i) A national decree was issued by the Ministry of Health that identified the FETP as a national strategy for health workforce development. (ii) The aim of training epidemiologists was made explicit and minimum professional standards were set. These standards include a master's degree qualification and three years of experience in disease surveillance and outbreak response. (iii) Memoranda of understanding were signed between the Ministry of Health and the universities regarding roles, budgets and responsibilities within the FETP. These policy elements were critical to the development of a national policy that transcended short-term political factors.

The FETP Secretariat linked with the Indonesian Epidemiologists' Association to encourage government decision-makers to recognize the importance of epidemiologists in the health system and add epidemiologists to the list of training priorities for the national strategic workforce (currently comprising doctors, midwives and nurses). The agreement to add epidemiologists to the list has major implications for career pathway options and funding commitments from both the Ministry of Health and Ministry of Education. Their budget allocations for workforce development have been notoriously underspent in the past and may be a vital long-term solution for financial sustainability of the Indonesian FETP. Advocacy for the financial sustainability of FETP has already yielded benefits: the Health Workforce Development Bureau of the Ministry of Health has decided to commit US$ 6000 per FETP student starting in 2012. This will cover tuition for students and some allowances for books and travel.

The 2007 evaluation identified several issues that needed attention to enhance the quality of FETP outputs. The curricula needed to be updated and trainees needed access to learning aids such as textbooks and internet access. Young academic lecturers needed further training to ensure the sustainability of high-quality teaching. In addition, field placements that provide a positive learning environment and a challenging set of field projects needed to be found. Lastly, graduates needed supportive structures that benefit their career development.

Curricular revision can be a sensitive issue for universities since the academic aspects of training need to meet the faculties' standards and expectations for master's degree programmes. Some curricula were revised with regular consultation and inputs from other countries' FETPs. Teaching materials were better tailored to the Indonesian context, with emphasis on applied epidemiology during natural disasters. Training in soft managerial skills was included, along with the requirement to publish at least one article based on the results of a field project in a peer-reviewed publication.

The FETP Secretariat provided additional resources to overcome some infrastructural shortcomings such as lack of disease-specific expertise and lack of access to information technology, international databases and libraries. These resources included Indonesian translations of seminal epidemiology textbooks and mobile modems to provide internet access for students and field supervisors. Students were given opportunities to participate in international conferences, a quarterly FETP bulletin was developed and operational linkages were established with other FETPs in Australia, Japan, Malaysia and the Philippines.

Linking with other FETPs was an innovative strategic mechanism to share knowledge and expertise without the need for a full-time international

academic tutor in Indonesia. Examples of cooperation include participation of the Australian programme in assessing Indonesia's curriculum against international standards and participation of Japan's FETP in courses for Indonesian field supervisors.

The selection of district and provincial health offices for field placements is the joint responsibility of universities and the FETP Secretariat. For now, field supervisors are recruited individually based on the availability of capable epidemiologists. Field supervisors are supported by a specially developed handbook and yearly courses to update their knowledge of scientific material, learning and teaching methods, and to enhance their mentoring skills.

Other programme innovations include performance-based rewards through competitions that give field supervisors opportunities to attend conferences or win textbooks by designing teaching materials. There is also a special focus on young academic and field supervisor achievers to promote the training of national FETP champions. These staff members are supported with study tours to other FETPs as a way to maintain the programme's spirit and academic sustainability.

Although revitalization of Indonesia's FETP is still in its early stages, it has already led to achievements. The geographic distribution of students as well as the number of field placements and alumni around the country have increased. The global network of FETPs known as TEPHINET has invited Indonesia to participate as a member programme. Lastly, the investment in students, curricula and field projects has strengthened the quality of student outputs. Students are now considered an integral part of efforts to investigate outbreaks of national importance such as avian influenza H5N1, pandemic influenza A H1N1 and large outbreaks of diarrhoeal diseases. They also participate in the response to natural disasters such as earthquakes and floods. The recent success of revitalization is also reflected by the success of Indonesian students at international conferences. Five of the nine currently enrolled students were selected as presenters at the 2009 TEPHINET conference compared to none of the seven who applied in the three preceding years.

Box 1. **Summary of main lessons learnt**

- National linkages with universities, ministries and international agencies are needed to build a sustainable high-quality FETP.
- The training programme should be incorporated within larger health ministry structures for workforce planning and budgeting.
- Embedding the training programme within the university curriculum offers students formal qualification without having to recruit international tutors.

Lessons learnt

The main lesson learnt (Box 1) from the Indonesian FETP revitalization experience is that national linkages with universities, ministries and international agencies are critical for building a sustainable high-quality programme. Other lessons learnt include how to incorporate the FETP within the larger Ministry of Health structures for workforce planning and budgeting, and not only within units that use trainees and graduates in their daily work. This has enabled the FETP to obtain a commitment from the Ministry of Health to fund tuition and other student expenses starting in 2012. For countries where the number of qualified public health practitioners is insufficient to provide field supervision to students, embedding the programme within a university curriculum is a good option that can offer students formal qualifications without the need to recruit international tutors. However, support should be provided to maintain a good match between the training objectives and the Ministry of Health's priorities for surveillance and programme implementation. ■

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Résumé

Renforcement du programme de formation indonésien à l'épidémiologie de terrain pour répondre aux exigences du Règlement sanitaire international

Problématique Aux termes du Règlement sanitaire international (RSI), les pays doivent renforcer leurs capacités centrales de surveillance des maladies et leurs systèmes d'action. De nombreux pays mettent en place ou renforcent leurs programmes de formation à l'épidémiologie de terrain (FETP) pour répondre aux besoins en ressources humaines, mais sont confrontés à des difficultés en termes de durabilité et de qualité de la formation. L'Indonésie en particulier doit faire face à des difficultés qui incluent le manque de ressources pour la formation sur le terrain et de coordination pour le système de santé récemment décentralisé.
Démarche Un plan de travail national pour le FETP a été mis au point à partir de l'évaluation du programme existant et des projections des besoins sur le plan humain. Un Secrétariat dépendant du Ministère de la santé, faisant le lien entre les universités et les partenaires nationaux et internationaux, a été établi pour superviser la révision et la mise en œuvre du FETP.
Contexte local Le FETP est intégré au programme d'enseignement des universités indonésiennes et la formation sur le terrain est menée dans les bureaux de la santé provinciaux et districaux et coordonnée par les universités et le Secrétariat du FETP.
Modifications pertinentes Le FETP a été inclus par décret gouvernemental dans la stratégie de développement de la main d'œuvre du Ministère de la santé. Les programmes de formation ont été améliorés et les stages sur le terrain renforcés pour fournir aux bénéficiaires un meilleur apprentissage. Dans le but de favoriser la durabilité du FETP, des liens ont été établis avec l'Association des épidémiologistes indonésiens, les gouvernements locaux et les donateurs pour se constituer à long

terme des défenseurs et préserver les financements. Des cours, des concours et des forums de discussion ont été mis en place pour les superviseurs de terrain et les nouveaux étudiants. Ces changements ont permis de diversifier l'origine géographique des étudiants, de renforcer la participation intersectorielle et internationale et d'améliorer la qualité des résultats des étudiants. **Enseignements tirés** Le principal enseignement tiré de cette expérience est que les liens avec les universités, les ministères et les agences internationales comme l'Organisation mondiale de la Santé sont essentiels pour mettre sur pied un programme de haute qualité et durable. Les facteurs les plus déterminants sont le développement de relations de confiance et la définition claire des responsabilités de chaque partie prenante.

Resumen

Fortalecimiento del Programa de Formación en Epidemiología Práctica de Indonesia para cumplir los requisitos del Reglamento Sanitario Internacional

Problema De conformidad con el Reglamento Sanitario Internacional, los países necesitan fortalecer la capacidad básica de sus sistemas de vigilancia y respuesta a las enfermedades. Muchos de ellos están creando programas de epidemiología práctica (PEP), o reforzando los existentes, a fin de cubrir sus necesidades de recursos humanos, pero tropiezan con problemas relacionados con la sostenibilidad y la calidad de la formación. Indonesia está respondiendo a esos desafíos, entre los que cabe citar unos recursos limitados para la capacitación sobre el terreno y la escasa coordinación existente en un sistema de salud recientemente descentralizado.

Enfoque Se elaboró un plan de trabajo nacional en epidemiología práctica basado en una evaluación de los programas existentes y de las necesidades previstas de recursos humanos, y se creó una Secretaría del Ministerio de Salud que vinculaba a universidades y asociados nacionales e internacionales para supervisar la revisión y aplicación del PEP.

Contexto local El PEP está integrado en el plan de estudios de las universidades de Indonesia y la formación práctica se lleva a cabo en oficinas de salud distritales y provinciales, bajo la coordinación de las universidades y la Secretaría del PEP.

Cambios destacables Mediante un decreto del Gobierno, el PEP pasó a formar parte de la estrategia de desarrollo del personal del Ministerio de Salud. Se han mejorado los planes de estudios y se han reforzado las prácticas sobre el terreno para ofrecer a los alumnos mejores oportunidades de aprendizaje. A fin de reforzar la sostenibilidad del PEP, se establecieron vínculos con la Asociación de Epidemiólogos de Indonesia, los gobiernos locales y los donantes con miras a formar a futuros defensores del PEP y mantener la financiación. Se organizaron cursillos, concursos y foros de discusión para los supervisores de campo y los ex alumnos. Estos cambios han ampliado la distribución geográfica de los estudiantes, la participación intersectorial e internacional y la calidad del desempeño de los alumnos.

Enseñanzas extraídas La principal lección es que los vínculos con universidades, ministerios y organismos internacionales como la Organización Mundial de la Salud son fundamentales para crear un programa sostenible de alta calidad. Los factores más importantes fueron el desarrollo de relaciones de confianza y una definición clara de las responsabilidades de cada uno de los interesados.

ملخص

تعزيز البرنامج الإندونيسي للتدريب الميداني على الوبائيات لتلبية متطلبات اللوائح الدولية الصحية

المشكلة: وفقا للوائح الدولية الصحية، تحتاج البلدان إلى تعزيز قدراتها الأساسية في نظم ترصد الأمراض والتصدي لها. ويقوم العديد من البلدان حالياً بإنشاء برامج تدريب وبائية ميدانية أو تحسين مستواها من أجل تلبية الاحتياجات من الموارد البشرية، غير أنها تواجه تحديات في ضمان جودة التدريب واستمراره. وتواجه إندونيسيا مثل هذه التحديات، والتي تشمل أيضا محدودية الموارد الخاصة بالتدريب الميداني وقصور التنسيق في النظام الصحي اللامركزي الجديد.

الأسلوب: أُعدت خطة وطنية لبرامج التدريب الوبائية الميدانية، مرتكزة على تقييم البرامج القائمة والاحتياجات المتوقعة من الموارد البشرية. كما تكونت أمانة تابعة لوزارة الصحة للربط بين الجامعات والشركاء الوطنيين والدوليين للإشراف على مراجعة وتنفيذ برامج التدريب الوبائية الميدانية.

المواقع المحلية: أدرجت برامج التدريب الوبائية الميدانية في مناهج الجامعات الإندونيسية، وأجري تدريب ميداني في المكاتب الصحية في المناطق والمقاطعات بتنسيق من الجامعات وأمانة برامج التدريب الوبائية الميدانية.

التغيرات الملموسة: أدخلت، بموجب قرار حكومي، برامج التدريب الوبائية الميدانية في استراتيجية وزارة الصحة لتنمية القوى العاملة. وعُززت المناهج الدراسية والمواقع الميدانية لتوفير ممارسات تعليمية أفضل أمام المتدربين. ولضمان استمرار هذه البرامج، توطدت الاتصالات بين جمعية مختصي الوبائيات الإندونيسية، والحكومات المحلية، والمانحين من أجل إعداد أبطال لهذه البرامج في المستقبل وللمحافظة على تمويلها. كما نُظمت دورات دراسية ومنافسات ومنتديات نقاش للمشرفين الميدانيين والخريجين. وقد أدت هذه التغيرات إلى زيادة التوزيع الجغرافي للطلبة، وارتفاع المشاركة بين القطاعات والمشاركة الدولية وتحسين نوعية أداء الطلبة.

الدروس المستفادة: يتمثل الدرس الأساسي المستفاد في أن الاتصال مع الجامعات والوزارات والوكالات الدولية مثل منظمة الصحة العالمية يعتبر أمراً هاماً في إعداد برنامج عالي الجودة ومضمون الاستمرار، أما أهم العوامل المؤثرة فكانت تطوير علاقات الثقة المتبادلة والوضوح التام في تحديد مسؤولية كل جهة معنية.

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