



Adapting the Structured Operational Research Training Initiative (SORT IT) for high-income countries

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SORT IT (Structured Operational Research Training Initiative) is a successful capacity building programme started 10 years ago to develop operational research skills in low- and middle-income countries. Public Health England (PHE) aims to embed a culture of research in front-line staff, and SORT IT has been adapted to train frontline health protection professionals at PHE North West (PHE NW) to collate, analyse and interpret routinely collected data for evidence-informed decision-making. Six participants from the PHE NW Health Protection team were selected to attend a two-module course in Liverpool, UK, in May and in November 2018. Five participants finished the course with completed papers on characteristics and burden of influenza-like illness in elderly care homes (two papers), use of dried blood spots for blood-borne virus screening in prisons, uptake of meningococcal ACWY (groups A, C, W-135 and Y) vaccine in schoolchildren and fires in waste management sites. The SORT IT course led to 1) new evidence being produced to inform health protection practice, and 2) agreement within PHE NW to continue SORT IT with two courses per year, and 3) showed how a research capacity building initiative for low- and middle-income countries that combines 'learning with doing' can be adapted and used in a high-income country.

A key message of the 2013 World Health Report¹ was that all nations should produce as well as consume research and that research output in public health programmes should be strengthened and orientated to meet the needs of health services. Accompanying this message was a clarion call to strengthen research capacity and make appropriate and effective use of research findings. This need has become more apparent with the launch of the Sustainable Development Goals, one component of which is to provide universal health coverage.² It is widely accepted that such coverage cannot be achieved without evidence from research, particularly operational research, which aims to enhance the quality, effectiveness and coverage of programmes and/or health services in which the research is conducted.³

The objectives of this paper are to describe the origin and development of the Structured Operational Research Training Initiative (SORT IT) capacity-building programme for low- and middle-income countries (LMICs), explain why and how it was adapted for a high-income country and the experiences of the first SORT IT course for Public Health

England North West (PHE NW), along with the outcomes and impact.

SORT IT FOR LOW- AND MIDDLE-INCOME COUNTRIES: PRINCIPLES AND PRACTICE

The SORT IT programme was initiated 10 years ago with the aim of developing operational research skills in LMICs.⁴ This global partnership-based initiative is coordinated by the Special Programme for Research and Training in Tropical Diseases hosted at the World Health Organization (WHO) and is implemented by various partners, particularly the International Union Against Tuberculosis and Lung Disease (Paris) and Médecins Sans Frontières, Luxembourg City, Luxembourg.

Focused on frontline staff (for example, clinicians, nurses, and monitoring & evaluation officers) who work within public health services in LMICs, the training course teaches the practical skills required to conduct and publish research, and so foster evidence-based decision making.⁵ Three modules are conducted over 9–12 months. In Module 1 (6 days), participants are taught to refine their operational research questions and develop research protocols. Module 2 (6 days) focuses on quality-assured data capture, data management and analysis. In Module 3 (7 days), participants are invited to analyse their data and draft scientific papers for submission and publication in peer-review journals. The course includes lectures, small mentoring groups and plenary sessions at which participants present their draft work to the whole group and receive peer feedback. One-to-one mentoring during the modules and by e-mail between modules continues until the paper is published. Pre-defined time-limited milestones must be achieved for participants to remain in the programme. These include timely submission of the final research protocol, evidence of ongoing data collection, and finally, the submitted paper.⁴

SORT IT has been successful. As of December 2018, 54 courses were completed and 15 were ongoing, involving 746 participants from 90 countries. In the 54 completed courses, 518 of 589 (88%) participants completed all milestones, and 572 scientific papers were submitted to peer-review journals, including 446 (78%) that have already been published. In 94% of papers, the first author was from a LMIC. Two thirds of the completed research projects have helped change policy and practice,^{6,7} with a third of participants publishing further research papers.⁸

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ADAPTING AND IMPLEMENTING SORT IT FOR PUBLIC HEALTH ENGLAND

An external faculty member on a regional Asian SORT IT course, and affiliated to the Health Protection team in PHE NW, felt that SORT IT would be valuable in training frontline health protection professionals in the United Kingdom to collate, analyse and interpret routinely collected data to support evidence-informed decision-making. Health protection in the United Kingdom is defined as 'the protection of individuals, groups and populations through expert advice and effective collaboration to identify, prevent and mitigate the impact of infectious diseases, and environmental, chemical and radiological threats'.⁹ Frontline health protection teams respond to incidents and outbreaks in their local area and work strategically with local stakeholders.

Most research in PHE is currently carried out by specialist research units, such as the Health Protection Research Units, and regional or national specialist functions (disease-specific expert teams and epidemiologists) and university-affiliated academic researchers. PHE NW, however, would also like to see research undertaken by members of health protection teams who deliver day-to-day health protection activities. Personnel have access to routinely collected surveillance and operational data; however, based on our collective experience, it appears that most front-line health protection workers lack the relevant training, skills, experience and confidence to conduct public health research. The idea of adapting SORT IT for a high-income country therefore took root, and after 16 months of discussion, planning and obtaining funding, the course was started.

The first module (Module A) was held in Liverpool in May 2018 and the final module (Module B) in November 2018 at the same venue. Six participants (one man and five women; a consultant in health protection, three health protection practitioners, a public health speciality registrar and an emergency preparedness manager) who were all local frontline staff were selected. Participants were mentored by three experienced faculty from previous LMIC SORT IT courses and three new faculty members from PHE NW.

For practical and work-related reasons, the training component was reduced to two modules (protocol writing, A; manuscript writing, B), each lasting 5 days. The module on data capture, management and analysis was omitted, but key elements were integrated into Modules A and B and extra epidemiological and statistical support was provided to participants and faculty. Lecture content was reduced, but plenary sessions, small mentorship groups and pre-defined milestones were maintained as for LMIC SORT IT courses.

The six research protocols were focused on difficult health protection issues in North West England, where there was limited evidence to support current practice. Protocols covered influenza-like illness in elderly care homes (two protocols), comparative benefits of different methods for testing prisoners for blood-borne viruses, hepatitis A transmission and uptake of meningococcal ACWY vaccine in schools and whether new Waste Industry Safety and Health (WISH) guidance had led to changes in the numbers and characteristics of fires at waste management sites throughout England.

One participant was unable to attend Module B for personal reasons. The remaining five participants produced draft papers for submission to a peer-review journal on the last day of the final module. These are all currently under review in a UK public health journal.

The course was well evaluated by participants and PHE NW mentors, with an overall average participant assessment score of 92% for Module A and 98% for Module B. Two key challenges, both encountered in the final module, included some difficulties with data analysis and statistics despite sound epidemiological support and time pressure for completing the manuscripts, but these were largely solved by participants and faculty having practised English writing skills and being prepared to work late into the evenings.

OUTCOMES AND IMPACT OF SORT IT IN A HIGH-INCOME COUNTRY: PHE CONTEXT

PHE aims to increase the quality and quantity of research that it produces by embedding a culture of research in frontline staff; however, this ambition has so far been unfulfilled due to limitations in capacity, research skills, confidence, experience and supporting research and training infrastructure.

One of the main drivers to adapt SORT IT was to develop and maintain a workforce that questions existing practice and undertakes relevant operational research of local priority in areas where the evidence base is limited. SORT IT participants have been supported to develop relevant topics by formulating a hypothesis, developing an appropriate study design and analysis plan, publishing and disseminating their findings and potentially changing policy and practice. This will help build confidence, and develop a positive experience of research through meaningful engagement in research activity.

This first SORT IT course conducted for a high-income country in PHE NW goes some way to meeting PHE's aim. First, there were five completed papers on challenging and relevant health protection issues in England. As the papers are being peer reviewed for publication, evidence has already been produced to change prison blood-borne virus screening procedures, identify characteristics to improve meningococcal ACWY vaccine uptake in schools, restructure the PHE acute respiratory illness reporting forms to better understand how prophylactic antiviral use is associated with spread and severity of influenza-like illness, and show the possible lack of early impact of industry guidance in decreasing fires at waste management sites.

Second, from discussions with senior managers from PHE NW who observed the sessions, it was agreed that the SORT IT programme had yielded definite benefits, leading to the raising of the profile of research in the workplace; building confidence and skills of frontline staff in undertaking research; using routinely collected data to answer research questions relevant to day-to-day practice; and maintaining excellence and improving service quality. SORT IT would, therefore, continue to conduct two courses each year and be embedded into the PHE NW research framework. Two participants from this first course have been identified as junior faculty for future courses.

Third, although there are several well-established international research capacity training programmes that depend on North-South collaboration, the directional focus is mainly from high-income countries to LMIC.¹⁰⁻¹² However, the North can also learn from the South. The adaptation and adoption of SORT IT by PHE NW is an example, and one that could enable national public health institutions in high-income countries to benefit and learn from the wealth of routinely collected data. We believe that any public health team striving to achieve excellence must contribute to and use their locally relevant evidence base, and SORT IT has a proven track record of enabling frontline staff in doing this. SORT IT will create an opportunity for many PHE frontline staff to be

involved in research, and this should enhance research collaboration between service and academic staff, resulting in more effective public health action on the ground.

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SORT IT (*Structured Operational Research Training Initiative*) est un programme fructueux de renforcement des capacités qui a démarré il y a 10 ans afin de développer des compétences en recherche opérationnelle dans les pays à revenu faible et moyen. Public Health England (PHE) vise à incorporer une culture de recherche au sein du personnel de première ligne. SORT IT a été adapté afin de former les professionnels de protection de la santé de première ligne à PHE-North West (PHE-NW) pour compiler, analyser et interpréter les données recueillies en routine en vue de prises de décisions basées sur des preuves. Six participants de l'équipe de PHE-NW Health Protection ont été choisis pour participer à un cours de deux modules à Liverpool, Royaume-Uni, en mai 2018 et en novembre 2018 respectivement. Cinq participants ont terminé le cours avec des

articles achevés sur les caractéristiques et le fardeau des syndromes grippaux dans les maisons de retraite (deux articles), l'utilisation de gouttes de sang séché pour le dépistage des virus transmis par le sang dans les prisons, la couverture du vaccin anti-méningococcique ACWY (groupes A, C, W-135 and Y) chez les écoliers et les incendies dans les dépôts d'ordures. Les résultats et l'impact de cette approche incluent 1) la production de nouvelles preuves visant à informer les pratiques de protection de la santé ; 2) un accord au sein de PHE-NW pour poursuivre SORT IT avec deux cours par an ; et 3) la démonstration de la manière dont une initiative de renforcement des capacités de recherche destinée aux pays à revenu faible et moyen, qui combine « l'apprentissage par la pratique », peut être adaptée et utilisée dans un pays à haut revenu.

El programa SORT IT (por *Structured Operational Research Training Initiative*) es una iniciativa eficaz de fortalecimiento de la capacidad, orientada a crear competencias en investigación operativa en los países de ingresos bajos y medianos, que se inició hace 10 años. La finalidad del organismo inglés de salud pública (PHE, por *Public Health England*) consiste en incorporar la cultura de la investigación en la práctica del personal de primera línea; el programa SORT IT se adaptó con miras a capacitar a los profesionales que prestan directamente la protección de la salud en el PHE-NW (noroccidente) para recopilar, analizar e interpretar los datos recogidos de manera sistemática y fundamentar así la adopción de decisiones basadas en la evidencia. Se escogieron seis participantes del equipo de protección de salud del PHE-NW para que asistieran a un curso en dos módulos en Liverpool, RU, en mayo del 2018 y noviembre del 2018. Cinco de los

participantes terminaron el curso con la elaboración de artículos sobre las características y la carga de morbilidad por síndrome gripal en los hogares de ancianos (dos artículos), la utilización en las prisiones de muestras de manchas de sangre seca para el tamizaje de los virus de transmisión sanguínea, la aceptación de la vacuna ACWY (grupos A, C, W-135 and Y) contra el meningococo en los niños de edad escolar y los incendios en los centros de gestión de desechos. Los resultados y el impacto de esta iniciativa fueron los siguientes 1) se obtuvo nueva evidencia para fundamentar las prácticas de la protección de la salud; 2) se acordó continuar el programa SORT IT en el PHE-NW con dos cursos por año; y 3) se demostró cómo se puede adaptar una iniciativa de fortalecimiento de la capacidad en investigación dirigida a países de ingresos bajos y medianos, que asocia “aprender con hacer” para utilizarla en un país de ingresos altos.

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