Comprehensive community hygiene promotion in peri-urban Cape Town: gastrointestinal and respiratory disease reduction in families

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Background: The previous report of our community-based participatory research demonstrated the effectiveness of a comprehensive household hygiene program in the reduction of a spectrum of gastrointestinal and respiratory illnesses in children <5 years. As the burden of infectious diseases in poverty communities affects all household members, evidence-based programs that demonstrate positive impacts of participatory hygiene promotion on the family unit have a greater likelihood for sustaining long-term reductions in morbidity and mortality.

Methods: Effects of intensive hygiene education alone and in combination with the use of hygiene products (soap, surface cleaner/disinfectant, and antiseptic) were assessed. Four communities and 922 households participated: two of government (RDP) housing (indoor tap/flush toilet) and two of informal (INF) housing (communal tap/latrines). Trained community facilitators monitored illness symptoms weekly and reinforced disease-prevention behaviors established through participatory learning and action focusing on handwashing/bathing with soap, and cleaning toilet and food surfaces. RDP and INF communities were co-located in two geographic areas, with one area receiving education and the other receiving education alone (control). Illness data were gathered from Jun-Nov 2006 and product introduction (intervention). Illness data were gathered from Jun-Nov 2006

Results: Households who received education and hygiene products in addition to reinforced hygiene education had lower illness incidence rates. Higher reduction differences in respiratory illnesses (INF 63.7%, RDP 58.2%) as well as gastrointestinal illness reduction (INF 84.0%, RDP 75.9%) were observed for hygiene education plus product use (intervention) versus hygiene education alone (control) Hazard analysis was also completed to assess disease risk potential. RDP controls were more likely to experience gastrointestinal (HR = 1.22, CI: 1.03–1.45) and respiratory (HR = 1.21, CI: 1.02–1.43) illnesses at follow-up than intervention counterparts. INF controls were more likely to experience gastrointestinal (HR = 1.26, CI: 1.05–1.51) and respiratory (HR = 1.28, CI: 1.06–1.55) illnesses at follow-up than intervention counterparts.

Conclusion: Hygiene promotion encompassing both comprehensive participatory hygiene education and the use of personal and home hygiene products (soap, surface cleaner/disinfectant, and antiseptic) was shown to be an effective approach to reducing the burden of gastrointestinal and respiratory illnesses among all household family members in at-risk communities.

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An alternative standard for radiological pneumonia in children

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Background: Although the WHO standard for paediatric radiological pneumonia has been useful in vaccine trials, it lacks sensitivity for some significant pneumonic lesions and interobserver agreement may be limited. We assessed interobserver variation in interpretation of WHO standardised radiographs and evaluated an alternative standard.

Methods: Four clinicians were trained using the first 122/222 WHO classified radiographs. The remaining radiographs were used to assess agreement between clinicians and WHO. The alternative standard used WHO definitions for quality, other infiltrate and pleural effusion, while the alveolar infiltrate category (end-point consolidation, EPC) was separated into two categories: EPC-A (alveolar infiltrate spanning ‘‘2 intercostal spaces), and EPC-B (alveolar infiltrate spanning ‘‘1 & <2 intercostal spaces). The alternative standard was applied to the first 100 WHO films. Clinicians then undertook a consensus review of the alternative standard using the first 100 films. The alternative standard was then applied to the final 100 WHO films. Prevalence and kappa values were calculated.

Results: Kappa for agreement between readers and WHO was 0.55-0.88 (EPC) and 0.16-0.52 (other infiltrate). Interobserver kappa for EPC was 0.56-0.86 and 0.03-0.53 for other infiltrates. Prevalence of EPC in the first 100 WHO classified films was 23% (right) and 6% (left). Prevalence of EPC-A was 21-32% (right) and 3-8% (left) and prevalence of EPC-B was 2-18% (right) and 1-5% (left). Prevalence of combined EPC-A and B was 24-50% (right) and 4-12% (left). Alternative standard inter-observer kappa was 0.33-0.73 (EPC-A), -0.02-0.38 (EPC-B), and 0.27-0.77 for combined EPC-A and B.

Conclusion: Compared to WHO, the alternative standard showed greater sensitivity for alveolar infiltrates and similar levels of agreement. Improved agreement with training suggests the alternative standard may be used in a training package. This alternative standard should be evaluated for further use.

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