Collaborative Training for Community Health Workers Significantly Reduced Inappropriate Antibiotic Prescriptions in Rural Zambia

Strengthening capacity for antibiotic stewardship in rural Zambia: a quality improvement initiative and interrupted time series analysis.

Where: A Rural Health Centre (RHC), Southern Province, Zambia. Catchment population of ~24,700 serving over 15 communities.

When: Interventions implemented April - June 2021; data collected April - July 2021

Who:
- RHC staff (2 nurses, 1 Clinical Officer General, 1 Environmental Health Technician and 38 community-based volunteers)
- Clinic attendees were mostly female (63.4%), 28.2% were aged 5 and under, and 51.4% were adults.

Background & Context:
- Antibiotic overprescription in rural sub-Saharan Africa is a common problem, with implications for antimicrobial resistance and resource management.
- On Call Africa is a NGO which has been working to develop access to rural healthcare in the Southern Province of Zambia for the last 10 years, in conjunction with the Ministry of Health and local District Health Offices.

Methods:
1. Community Health Needs Assessment, including stakeholder interviews which identified key community concerns
2. Education and mentoring sessions for prescribing staff, community-based volunteers, and patients
3. Data collection and audit of antibiotic prescription rates and prescribing practices pre-, during, and post-implementation.

Results:
1. Data: aggregated from 2748 patient records, with encounter-level clinic data from 240 patient records.
2. Clinic presentations: upper respiratory tract infection (35.0%), joint pains (15.0%), and diarrhea or abdominal pains (14.6%), with no significant differences in presentation by gender.
3. Pre-intervention, nearly all patients attending the clinic received antibiotics (daily median 96.4%, IQR 93.8-100%).
4. Interventions were associated with a 22.8% decrease (95% CI 10.8-33.2%; p<0.001) in the proportion of patients prescribed antibiotics. (Figure 1)
5. The proportion of antibiotic prescriptions which were clearly indicated increased from 6.0% before to 28.4% during and after the interventions (RR 1.31 95% CI 1.17-1.47; p<0.001).
6. The antibiotic prescription rate appeared to be returning to baseline at the end of the research period.

Recommendations:
- The District Health Office should offer support for Continuing Medical Education on antibiotic stewardship, and ongoing development of water, sanitation, and hygiene facilities.
- Patient education should focus on prevention of communicable diseases and self-management of mild illness.