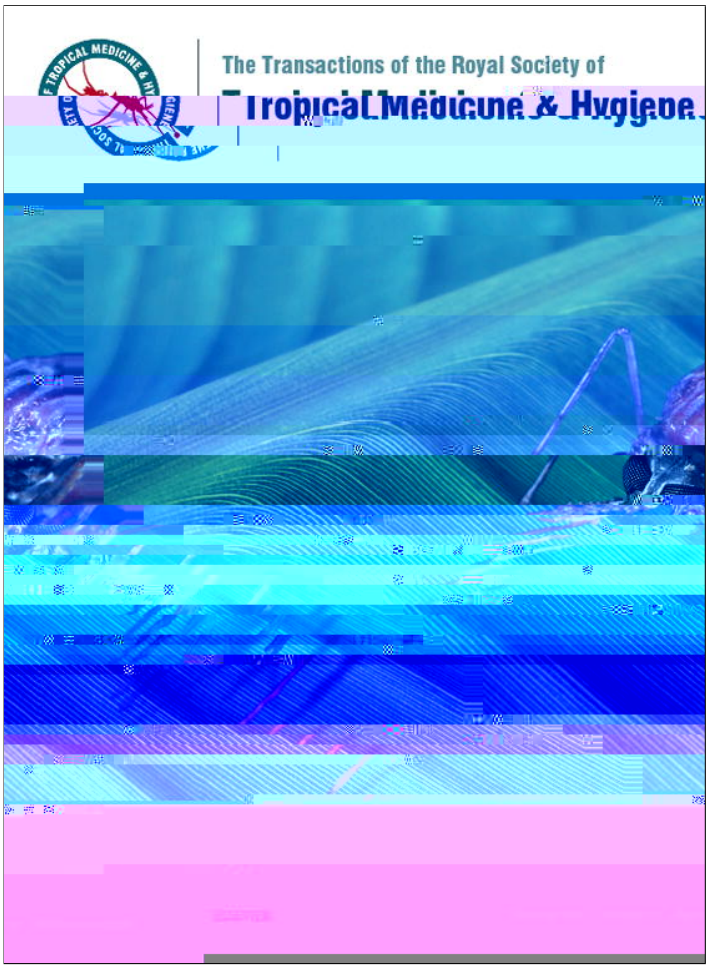

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Traditional kinship system enhanced classic community-directed treatment with ivermectin (CDTI) for onchocerciasis control in Uganda

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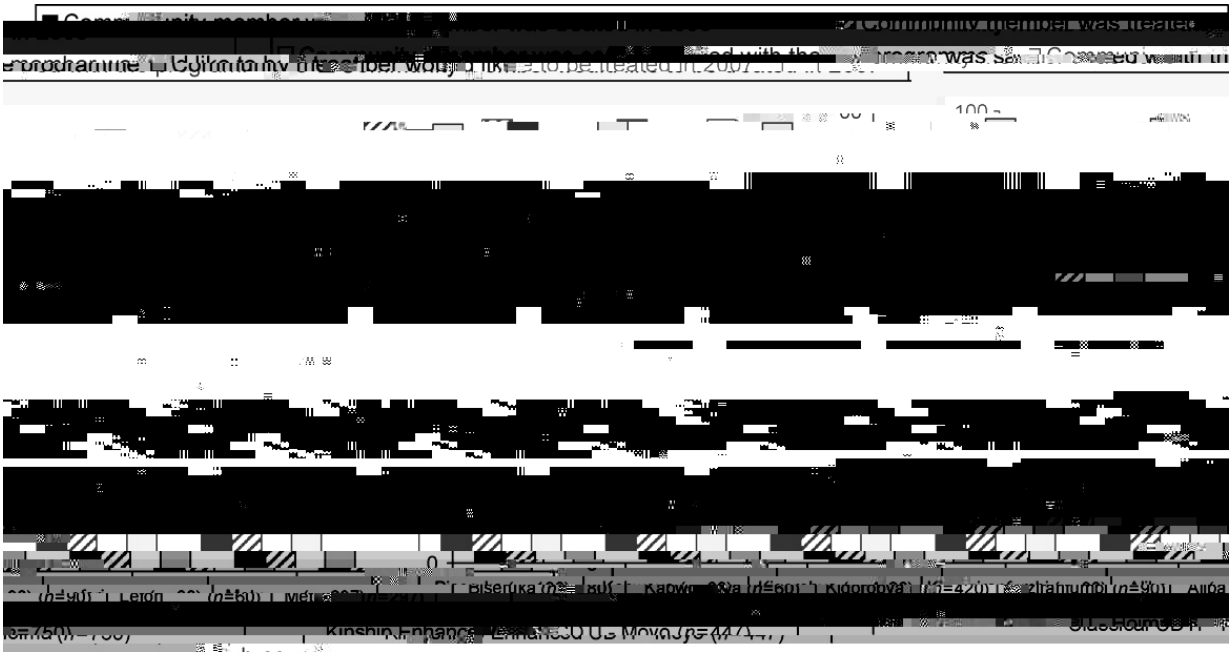

1. Household responses on treatment coverage with community-directed treatment with ivermectin (CDTI), satisfaction with the programme and willingness to be treated in 2007 by sub-counties receiving classic CDTI in Hoima District and kinship enhanced CDTI in Moyo District. Data from three respondents in Moyo was incomplete.

2006. In kinship enhanced CDTI treatment coverage, it was maintained at 93.7% of 447 respondents for both years. Overall satisfaction with CDTI activities was 78% of 750 respondents in classic and 92.5% of 447 in kinship enhanced CDTI ($P < 0.001$). The respondents in both arms of the study overwhelmingly wanted treatment during the following year (classic, 98% and kinship enhanced CDTI, 99.3%).

3.2. Community ownership policies

On community ownership policies, performance in classic CDTI was inferior to that observed in kinship enhanced CDTI (Figure 2). Results showed that in classic CDTI, 50.8% of the community leaders decided on the location of the treatment centres without involvement of community members compared with 6.8% in kinship enhanced CDTI ($P < 0.001$). In classic CDTI, 14.7% of the respondents agreed that community members decided on the location of treatment centre compared to 62.8% in kinship enhanced CDTI ($P < 0.001$), 18.2% of respondents helped to mobilise for CDTI activities compared to 63.4% in kinship enhanced CDTI ($P < 0.001$), 17.2% selected their community distributors compared to 76.5% in the kinship enhanced CDTI ($P < 0.001$), and only 19.4% respondents were health educated about the disease and CDTI activities during health education sessions within their communities compared

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Responses of community distributors from Hoima District, Classic CDTI and Moyo District, Kinship enhanced CDTI

Question	Classic CDTI			Kinship enhanced CDTI			Significance at 0.05
	Hoima District, n = 64			Moyo District, n = 127			
	YES (%)	NO (%)	TOTAL	YES (%)	NO (%)	TOTAL	
1. Were you selected by members of your community?	18 (28.1)	46 (71.9)	64	110 (86.6)	17 (13.3)	127	<0.001
2. Did you achieve treatment coverage of 90% and above?	15 (23.4)	49 (76.6)	64	96 (75.6)	31 (24.4)	127	<0.001
3. Did you distribute ivermectin in 2006?	50 (79.4)	13 (20.6)	63	105 (82.7)	22 (17.3)	127	0.579
4. Do you live in the kinship/neighborhood zone where you distributed ivermectin?	29 (58)	21 (42)	50	127 (100)	0 (0)	127	<0.001
5. Were you trained on how to distribute ivermectin?	58 (90.6)	6 (9.4)	64	124 (97.6)	3 (2.4)	127	<0.004
6. Did you distribute ivermectin to 30 households and less?	15 (30)	35 (70)	50	64 (61)	41 (39)	105	<0.003
7. The people I treated were largely my relatives	7 (14)	43 (86)	50	67 (63.8)	38 (36.2)	105	<0.001
8. Were you involved in other health and development activities besides CDTI?	47 (73.4)	17 (26.6)	64	110 (86.6)	17 (13.3)	127	<0.004

3.3. Community distributors' responses

The differences between classic and kinship enhanced CDTI were significant when the responses of community distributors were compared (Table 1).

The responses from community distributors showed that 82.7% of community distributors in the kinship enhanced CDTI completed mass treatment within a week compared to 20% in classic CDTI ($P < 0.001$). Demand for lunch by community distributors working among relatives was 8.2% and 43.2% among non-relatives ($P < 0.001$). Also, community distributors who worked among non-relatives were more likely to demand monetary incentives than those who treated relatives ($P < 0.001$). Attrition of community distributors was not a significant problem in either classic or kinship enhanced CDTI.

3.4. Further analysis

There were 11 (17.2%) female community distributors out of 64 in classic and 59 (47.2%) female community distributors out of 127 in the kinship enhanced CDTI ($P < 0.001$). In the randomly sampled communities, the total population in classic CDTI communities was 12 380 with a ratio of 2.6 community distributors per community (1 community distributor to 193 persons or about 28 families). In kinship enhanced CDTI, a total population of 6361 people, the ratio was 9 community distributors per community (1 community distributor per 50 persons or about 7 families).

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4.1. Kinship enhanced CDTI

Kinship enhanced CDTI performed better than classic CDTI in treatment coverage, community members selecting their distributors and treatment methods. Also community distributors' performance, their workload reduction, involvement in other health activities and involvement of women as community distributors were better in kinship enhanced than in classic CDTI. Utilisation of the kinship system in CDTI resulted in reduced decision making by community leaders, which promoted respect for decisions made by community members, a principle at the heart of CDTI.[3]

kinship system, it is an obligation to serve ones relatives without expecting payment. In traditional communities, it is blasphemous to demand payment from your spouse, parents and brothers for treatment. That is why utilisation of the kinship system may be a practical way of serving traditional communities, as community distributors may not demand incentives from their relatives.[4] Additionally, their workload and distances to walk in relatively smaller kinship zones during health education, training and distribution of ivermectin are largely reduced thus warranting no incentives.

Although community distributors' attrition was expected to be high in classic CDTI communities as reported in many APOC supported CDTI projects, there was no evidence that this occurred.[10–12] It is possible that in classic CDTI, a community distributor may have been active in his or her own kinship zone, but withdrew services from other kinships within the community. Such a phenomenon could explain lower treatment coverage or delays to complete the treatment exercise in classic CDTI. We recommend that future studies focus on this phenomenon.

4.4. Women's involvement in CDTI

The study showed that kinship enhanced CDTI had more female community distributors than classic CDTI, showing that the utilisation of the kinship system may be more suitable for women's involvement.[13] As a kinship tends to occupy a specific geographic area within a community, it makes it easy for women to operate where they are known and appreciated. In this structure, the female community distributors were likely to be less burdened as they served smaller populations, walked shorter distances and completed the treatment in a shorter time compared with classic CDTI. Traditionally, the social legal systems in tribal communities have elements that restrict women from individually providing services beyond their families. For example, a female community distributor working among male community distributors who are not her relatives, or working alone in the event of a severe adverse event could easily spark off a rumour that may jeopardise her position and family in the community. Having many female community distributors within kinship zones allowed them to work in groups and stifle any rumours intended to give them or their families a bad reputation.[14–16] In classic CDTI, a ae

and involve themselves in their own health care. However, making CDTI more efficient and effective is a vital and dynamic process that requires constant monitoring and evaluation if the gains by disadvantaged communities are to be maintained.

MNK was involved in study tool design, supervision of the study, selection of the study areas, sampling, data analysis and interpretation, and manuscript writing; PH was involved in study tool design, sampling, provision of logistic support, overseeing face to face interviews as well as data entry, and manuscript review; SA and ACM were involved in study tool design, sampling, training interviewers, ensured that face to face interviews were carried out effectively, helped in data entry, and manuscript review; NO, SK and FB were involved in identifying interviewers for training, participated in their training, ensured face to face interviews were carried out effectively, and manuscript review; BM was involved in ensuring face to face interviews were carried out effectively in Hoima District, and manuscript review; DM was involved in study tool design, selection of study areas, sampling, supervision of the study, and manuscript review.

Peace Habomugisha and Deborah McFarland are guarantors of the paper.

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None declared

The study falls under the category of routine programme monitoring activities for the Carter Center and Uganda health services personnel and hence did not require IRB approval. However, as two of the authors are based at Emory University's Rollins School of Public Health, the Emory IRB gave ethical approval for the study.

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