A randomized controlled trial to test financial incentives for COVID-19 vaccination in Ghana

To the Editor — Achieving high levels of vaccine uptake across Africa will be critical to achieving global COVID-19 vaccination. Cash incentives have been proposed as a way to improve the efficiency and equity of the roll-out in Africa[1]. While there is a large body of experimental evidence suggesting that financial incentives can promote healthcare use[2], studies on the promotion of COVID-19 vaccination uptake from high-income countries have had mixed results. Large randomized controlled trials (RCTs) of financial incentives in Sweden and the USA have produced conflicting results about their effect on the uptake of COVID-19 vaccines[3,4].

There have been some encouraging results regarding incentives and vaccination uptake from studies in lower- and middle-income countries (LMICs)[5]. Nevertheless, a recent review suggests the impact of cash incentives in LMICs have been under-studied[6]. The COVID-19 pandemic has ratcheted up the need to understand whether financial incentives are an effective policy tool for promoting vaccinations, particularly in an African context. Accordingly, we are undertaking an RCT in rural districts in Ghana that addresses whether cash incentives of different magnitudes affect the willingness to get vaccinated against COVID-19; at the same time we will assess the policy implications of scaling up a programme of financial incentives for vaccinations (Fig. 1).

The Ghana Financial Incentives study is an RCT designed primarily to determine whether cash incentives, which participants are informed about via a video message, increase uptake of COVID-19 vaccines. In addition, we also explore: the relative effect of cash incentives versus providing health information; how different levels of cash incentives may influence vaccine uptake; and the potential for spillover effects of incentives, whereby providing financial incentives in the treatment arm may affect vaccine uptake among others who have not been treated.

Beyond the effect of financial incentives on vaccine uptake, there is also the broader question of the costs and benefits of such

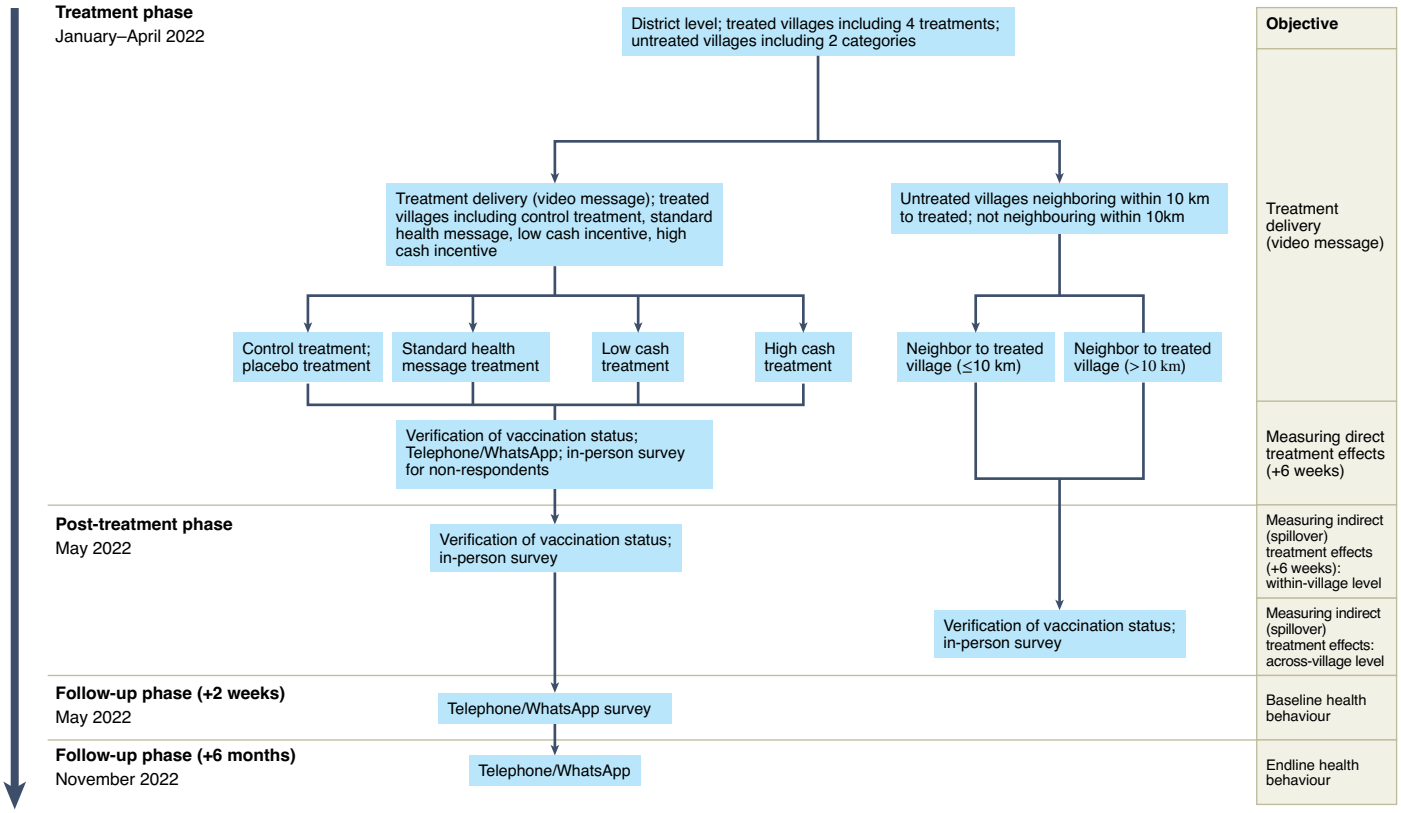

Fig. 1 | Flow chart of the Ghana Financial Incentives experiment. The figure summarizes the random cluster design for one of the six districts. Villages are randomly assigned to one of four 45-second video treatments in the experiment: a placebo video (concerning solar charging devices); a health message; an offer of $3 if vaccinated; and an offer of $10 if vaccinated. The 45-second video treatment is administered to participants on a tablet. 20 enumerators contact randomly selected households and administer random assignment of videos that contain information about one of the four interventions. At the end of this first treatment phase, 6 weeks after the initial intervention, all 6,500 participants are contacted via telephone to determine their vaccination status. This is the primary outcome of the first phase of the study.

a policy intervention. A US$11 vaccine incentive, which has recently been proposed[1] for Africa would cost in the order of $9 billion if implemented across the continent. A key issue that can be informed by our study is to identify the levels of financial incentives that would be most cost-effective.

We designed the Ghana Financial Incentives project with a view to assessing the broader indirect consequences of a vaccine incentive policy initiative. There is a general concern that financial incentives can undermine intrinsic motivations[7] and hence could have net social costs. This concern has been specifically articulated with respect to incentives and vaccines[8]. Building on a recent evaluation framework[9], we anticipate refining our estimate of the social benefits of financial incentives for vaccination by estimating the causal spillover effect of the interventions.

The design addresses two dimensions that should be considered in scaling up a vaccine program: spillovers and treated participants. Following a recent African RCT[10] we explicitly incorporate design features that will allow us to estimate the geographic spillover effect of the cash incentive treatments, which can come from diffusion of information about cash payments. A second concern is that cash incentives will have unintended, and potentially negative, consequences for future health-related behavior. An extended follow-up with treated participants is being planned in order to address this question.

Ghana is classified as a low-income country with a GDP per capita of just under $2,000, though it has experienced high rates of economic growth in recent years. The participant population for the trial is from six rural districts, which tend to be less developed than urban areas. The field work for the study is being undertaken by a team from the University of Ghana.

A post-treatment phase of the RCT will occur approximately two months after the initial intervention, when enumerators will contact all treated participants who indicate they have been vaccinated, in order to verify their vaccine certificates. During this phase a sample of approximately 3,500 households from neighboring non-treated villages will be surveyed to determine their rate of vaccine uptake during the six-month period following the initial video treatments. These verified vaccinations from non-treated participants will facilitate the estimation of spillover effects of the treatments.

A final follow-up phase of the experiment will allow us to estimate whether financial incentives have intended or unintended consequences for the longer-term health behavior of participants who were affected (both in treatment and in spillover) by the financial incentive treatments. We will implement a baseline survey and then a six-month follow-up to collect information on: health attitudes and behavior; vaccine attitudes and behavior; and vaccination status, including information on second doses and booster shots.

The initial challenge for ensuring COVID-19 vaccination coverage in Africa was the limited availability of vaccine supplies. In the future, the number of people willing to be vaccinated may be the main constraint on global efforts to control the COVID-19 pandemic. Randomized experiments of incentives and health messaging can have an important role in designing effective policies that will maximize global COVID-19 vaccination coverage. ❐

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Author contributions

All authors were involved in the conceptualization of this correspondence. R.D., E.A. and P.C. were involved in overall study design. P.C. and R.D. prepared the first draft. All authors were involved in reviewing and editing.

Competing interests

The authors declare no competing interests.