



Published in final edited form as:

Health Econ. 2010 October ; 19(10): 1255–1258. doi:10.1002/hec.1543.

Comments on Contingency Management and Conditional Cash Transfers

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Abstract

This essay discusses research on incentive-based interventions to promote healthy behavior change, contingency management (CM) and conditional cash transfers (CCT). The overarching point of the essay is that CM and CCT are often treated as distinct areas of inquiry when at their core they represent a common approach. Some potential bi-directional benefits of recognizing this commonality are discussed. Distinct intellectual traditions probably account for the separate paths of CM and CCT to date, with the former being rooted in behavioral psychology and the latter in microeconomics. It is concluded that the emerging field of behavioral economics, which is informed by and integrates principles of each of those disciplines, may provide the proper conceptual framework for integrating CM and CCT.

Keywords

contingency management; conditional cash transfers; incentive-based interventions

In an Editorial that appeared in *Health Economics*, Sindelar (2008) thoughtfully encouraged economists to become more involved with promoting healthy behavior change and to examine emerging scientific knowledge from psychology on the effective use of material incentives for that purpose. The specific area of research that Sindelar discussed mostly was contingency management (CM) for the treatment of substance use disorders (e.g., Higgins, Silverman, & Heil, 2008; Sindelar, Elbel, & Petry, 2007).¹ She also mentioned conditional cash transfers (CCT) as an area where incentive-based interventions were being used to change other types of behavior with the overarching goal of reducing poverty. CCT is an enormously impressive area of incentive-based research and application in terms of its overarching purpose, rapid growth, empirical orientation, and extensive reach (Lagarde, Haines, Palmer, 2007; Rosenberg, 2008). The purpose of this essay is to comment on connections between CM and CCT.

While the term CCT aptly captures the operation of transferring cash to families conditional on them meeting specified criteria, it fails to connect the intervention with CM or more importantly the body of scientific knowledge in behavioral psychology about which Sindelar commented at some length. CM is a well-established area of behavioral research focused on systematically using behavioral science principles of reinforcement and punishment to promote healthy behavior change (Higgins, 1999; Petry, 2000). While application of CM to the treatment of substance use orders has garnered the most scientific attention in the past couple of decades owing to its success with problems like cocaine dependence and cigarette

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¹Contingency Management interventions are also sometimes referred to as Motivational-Incentive interventions in the area of community substance abuse treatment.

smoking during pregnancy, this is a treatment approach that has a history going back more than 40 years and encompassing a wide range of different types of behavior problems and populations. For example, this is the same basic treatment approach that underpinned the token economies developed in the 1960s and 70s for treatment of those with serious chronic mental illness (Allyon & Azrin, 1968).

There is no question scientifically that CM and CCT share the core practice of systematically using contingent reinforcement to promote healthy behavior change. Indeed, some programming details of the CCT interventions suggest that they have been informed by the CM interventions developed for treatment of substance use disorders. For example, the Oportunidades program in Mexico appears to use the well-known escalating schedule of reinforcement from the CM literature that was mentioned in Sindelar's Editorial and originally introduced as part of voucher-based CM treatment for cocaine dependence (Higgins et al., 1991). In the Oportunidades program the size of the grant that families receive increases as children progress through successive grades (Rosenberg, 2008) while in the treatment for cocaine dependence the value of the voucher that patients receive for abstaining from recent drug use increases in tandem with the duration of continuous cocaine abstinence achieved (Higgins et al., 1991). As another example, a CCT program implemented in Malawi explicitly and successfully used exchanges of *monetary-based vouchers* as incentives to reinforce retrieval of HIV test results among rural individuals who underwent screening (Thornton, 2005; also described in Lagarde et al., 2007), but again without any explicit connection back to the CM literature.

This is an unfortunate development that hopefully is sufficiently short lived that it can be reversed. There are clear potential bi-directional benefits to be realized by explicitly acknowledging the commonalities between CM and CCT and trying to promote an integrated rather than separate literature on incentives and health. Regarding benefits to CCT, it would connect this emerging area to the extensive behavioral psychology knowledge base mentioned above. To give some perspective to this point, a search of the term "contingency management" using the U.S. National Library of Medicine Pub Med search engine turns up 994 citations while a search of the term "conditional cash transfers" turns up 16 citations (search conducted on 5/22/09). This is not just academic nitpicking. There is a body of experimental CM research from which those involved with the CCT effort, and future such efforts, could almost surely benefit. As a simple example, there are additional technical features and an empirical rationale associated with the escalating schedule mentioned above that could be useful to those involved with developing CCT programming. The technical feature is a reset contingency wherein the escalating value of the incentive goes back to its original low value should the person fail to meet the therapeutic target. What that feature has been experimentally demonstrated to do when used in treating substance use disorders is decrease the likelihood of relapse associated with patients taking brief "holidays" from the hard work of sustaining abstinence from use of a drug to which they are addicted (Roll & Higgins, 2000). As another example, there are meta-analyses of the CM research conducted with substance use disorders that have identified significant moderators of the effects of these incentive-based interventions that would almost certainly be relevant to the CCT interventions (Lussier et al., 2006; Prendergast, Podus, Finney, Greenwell, & Roll, 2006). For example, determinants of reinforcement known to be important from basic laboratory research, including the contingent relation between responding and reinforcement delivery, adequate magnitude of reinforcement, and minimal temporal delays between completion of the task and delivery of reinforcement, are significant moderators of the effect sizes obtained with CM interventions (Lussier et al., 2006). As a final example, the scientific literature on the efficacy of CM in decreasing substance use and more recently physical inactivity and obesity might have a role to play in the CCT effort to reduce poverty. In the U.S., for example, employers are moving

towards using financial incentives to promote healthy behavior among employees as a means of decreasing health care costs but also increasing employee productivity (e.g., Volpp et al., 2009). Indeed, the U.S. Congress is considering legislation that will give employers new authority to differentially reward healthy behavior around diet, exercise, body weight, and substance abuse (Pear, 2009)

Potential benefits in the other direction are many. The CCT effort to combat poverty is an enormous undertaking, including 5 million or more families in Mexico's program alone, and is without question the largest organized effort ever undertaken explicitly using reinforcement contingencies to modify socially significant behavior. Researchers and policy makers involved with CM often lament, and are often criticized by others, regarding the difficulties encountered in disseminating incentive-based interventions into everyday community practices or public policy (see Higgins et al., 2008). The CCT effort is a striking example of successful dissemination of incentive-based interventions that should serve as a potential counter to such criticisms in the future. The impressive scope and growth of the CCT movement has the potential to inspire and instruct experts in CM in terms of what can be accomplished using incentive-based interventions as well as pitfalls to be avoided when applying them on a large scale. Indeed, the CCT effort is already producing new empirical knowledge regarding the positive impact of incentive-based interventions on child and adult health (e.g., Barber & Gertler, 2008; Barber & Gertler, 2009) as well as knowledge about potential side effects (Fernald, Gertler, & Hou, 2008). The economic concepts behind the CCT effort wherein mothers are provided incentives to *invest in the human capital* (health, education) of their children as a means of effecting longer-term social change (reducing poverty) is likely to be quite unfamiliar to CM researchers and has the potential to enrich their thinking about how to promote long-term and sustained individual and societal behavior change. For the CM field to not make use of this rich emerging body of practical experience, knowledge, and economic concepts would be unfortunate, but the current separation and apparent absence of mutual awareness among researchers and policy makers involved in the CM and CCT areas make that a genuine possibility.

The goal of this essay is to try to promote recognition and understanding regarding the fundamental commonalities between these two areas of research on incentive-based interventions to promote healthy behavior change and investments in human capital. A likely explanation for the separate paths that these approaches have taken is their distinct intellectual traditions, with CM being rooted in behavioral psychology and CCT in microeconomics. Those different intellectual traditions mean that professionals involved with CM and CCT attend different professional meetings, publish in different academic journals, and obtain support from different funding agencies, all of which, of course, interfere with cross fertilization. Overcoming such obstacles to integration will not be easy, but worth recognizing is that this is not a new set of circumstances for behavioral psychology or economics. Indeed, recognition of the complementary contributions that behavioral psychology and microeconomics make to understanding human affairs contributed in important ways to the development of the emerging field of behavioral economics (e.g., Bickel & Vuchinich, 2000; Hosseini, 2003; Thaler & Sunstein, 2008). Being steeped in both traditions, behavioral economics may provide the most appropriate intellectual framework for integrating CM and CCT under a general rubric of incentive-based interventions to promote changes in health-related and other socially significant behavior.

Acknowledgments

Preparation of this manuscript was supported in part by research grants DA09378 and DA14028 from the National Institute on Drug Abuse. The author has no financial conflicts of interest or personal relationships that might bias evaluation of this manuscript.

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