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What We Can Expect from Consumer-Driven Health Care

Taehwan Park

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Taehwan Park, PhD Candidate, Social & Administrative Pharmacy, College of Pharmacy, University of Minnesota

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During the past several years, consumer-driven health (CDH) plans have started to grow rapidly. As of 2008, CDH plan enrollment was estimated to be as high as 12 million—an increase from 100,000 in 2002 (Greene, Hibbard, Murray, Teutsch, & Berger, 2008). The percentage of CDH plan enrollment out of total health plan enrollment also increased from 4% in 2006 to 8% in 2008; moreover, several states, including Florida and Idaho, had already begun to adopt CDH strategies in their Medicaid program (Greene, 2007).

A CDH plan is a health insurance plan which combines high-deductible insurance coverage with a personal health savings account such as a health savings account (HSA) or a health reimbursement arrangement (HRA). At first, CDH plan enrollees pay all their health care expenditures with funds from their health savings account. If health savings account funds are exhausted, they begin to pay with out-of-pocket funds before reaching the deductible limit. Once the deductible limit is met, coinsurance-based health insurance coverage begins. Although both HSAs and HRAs are tax-exempt accounts, employers cannot have both in a single health plan. Typically, HSAs are funded by both employee and employer and are portable, which means employees can transfer the amount when they change jobs; however, HRAs are solely employer funded and not portable, thus they are forfeited by employer if employee leaves the employer. Furthermore, any unused balance remaining at year's end can be rolled over to the next year in an HSA; therefore, the rationale for a CDH plan is to promote consumerism by providing consumers with discretionary management responsibility for their health care expenditures guided by a belief in consumer sovereignty (Sherman & Click, 2007). In other words, more cost-conscious employees under CDH plans would try to reduce unnecessary costs from unneeded medications and seek better care by using available information about quality, efficacy, and cost of treatments, which can ultimately lead to cost savings and improvement in quality of care.

Historically, national attention to CDH care increased after enactment of the Medicare Prescription Drug Improvement and Modernization Act of 2003, which officially established tax-advantaged health savings accounts. This political success was spurred by libertarian conservatives who had interest in health care reimbursement accounts linked to high-deductible coverage in the late 1990s when this new approach was very rare (Bloche, 2006). These conservatives formed an alliance with conservative activists, insurers, and financial institutions that supported this plan; together they persuaded the Bush administration to introduce this "consumer-directed" scheme in its agenda. Finally, the government decided to enact the law as a measure to reduce the continuously increasing cost of health care coverage. Since then, the health care paradigm seems to have shifted from managed care to consumer-driven health care. Prior to the advent of managed care plans, most employees joined health insurance plans where their portion of actual costs was determined by the plan selected and reimbursed approximately 80% of covered expenses (Nolin, & Killackey, 2004). Under this plan, deductible and coinsurance were applied to medical spending before an annual out-of-pocket limit was reached. Once this limit was met, plans would cover 100% of costs. After shifting to managed care, employers provided their employees with insurance plans through managed care organizations such as health maintenance organizations (HMOs) and preferred provider organizations (PPOs). Instead of deductible and coinsurance, copayment was applied under managed care plans; however, employers began to face difficulties as a result of significant increases in health care costs. Accordingly, employers have adopted a new plan where financial risks are shared with their employees, known as a CDH plan.

Despite the increasing enrollment in CDH plans and trends of consumers' deeper involvement of consumers in their health care, little empirical evidence exists of their impact on health care utilization. Therefore, this study examined early studies to determine whether CDH plan enrollment influenced a variety of outcomes, including changes in consumers' health resource use, health care providers' practice decisions, and total health care costs. Based on these findings, some suggestions were made to make the best use of CDH plans. Recognizing the potential of CDH care may guide health policy to better health outcomes in the future.

First, empirical evidence suggests that CDH plans can lead to change in consumers' health resource utilization, although whether the change is made in an appropriate manner in the long term remains to be seen. High-deductible and health savings accounts in CDH plans are likely to make their enrollees more cost-conscious and try to use health and cost information to make cost-saving, health-related decisions.

This conclusion is supported by research that compared the use of health-related information and health services by enrollees in a CDH plan with those in a PPO plan (Dixon, Greene, & Hibbard, 2008). It found that CDH plan enrollees were more likely to start using cost and health information and forgoing medical care than enrollees in other plans during 2003 to 2005. Specifically, they initiated use of information most actively shortly after enrolling in the CDH plan.

In regard to the impact of CDH plans on hospitalizations and ER visits, findings have shown mixed results. Some found CDH plan enrollment was associated with reduction in ER visits and hospitalizations (Nair et al., 2009; Wharam et al., 2007). In a study by Wharam et al., emergency department visits among members who switched from a conventional plan to a CDH plan decreased by approximately 10%. The rate of hospitalization was also declined by 27% among them. Similar results were shown in a study conducted by Nair et al., where a reduction in the likelihood of any ER visit or hospitalization in the CDH plan group was more than two times greater than in the PPO plan group; however, this result is inconsistent with a study that suggested that CDH design did not discourage enrollees from consuming hospitalization (Parente, Feldman, & Christianson, 2004). This study found that CDH plan enrollees experienced significant annual increases in hospitalization rates during the study period (from 2000 to 2002), whereas increases in hospitalization rates for the other plans (HMO, PPO) were smaller. Accordingly, average hospital expenditures for CDH plan members increased dramatically, from about $1,370 in 2000 to $3,470 in 2003. HMO and PPO plan members also faced a large increase in hospital expenditures (from $1,840 in 2000 to $1,960 in 2002, and from $1,780 in 2000 to $ 2,370 in 2002, HMO and PPO respectively), but the extent of the increase in both plans was not as substantial as that in CDH plans. This difference in effects on hospitalizations and ER visits in CDH plans may be because the health plan design is not so related to using this type of service. In other words, people may not care about their health plan when they need urgent and immediate treatment. In this case, they can visit emergency room and benefit from hospitalization regardless of their health plan. Alternatively, this difference may result from the different context in which these medical resources were used. The specific situations where subjects visited emergency department and used hospitalization were unknown in previous studies. For example, a decrease in ER visits in the previous study, conducted by Nair et al., may be due to a reduction in emergency conditions among CDH plan enrollees. Those who are in less serious condition may be less likely to visit the emergency room, resulting in a greater possibility of reducing the number of ER visits. Thus, as Nair et al. pointed out, it seems early yet to conclude that a change in ER visits and hospitalization is due to CDH plan design. To see whether CDH plans really affect hospitalization and ER visits in more detail, further research is needed on which division is experiencing decreased (or increased) number of visits, why they are decreasing (or increasing), how urgent the situation is when CDH plan enrollees use these resources, and how severe their symptoms are when they decide to be hospitalized.

In addition, prescription drug use and medication adherence among CDH plan enrollees compared with those in other plans has been reported. Greene, Hibbard, Murray, Teutsch, and Berger (2008a) found that those who enrolled in a CDH plan tended to discontinue anti-hypertensives and lipid-lowering drugs two to three times more than members in a PPO three-tier plan. Specifically, 17.4% of CDH plan members taking anti-hypertensives in 2003 stopped using them in 2004, while only 5.6% of the PPO plan members discontinued use in 2004. In the case of lipid-lowering drugs, the percent discontinuing use was 16.6% among CDH plan enrollees, compared with 6.2% among PPO plan enrollees; however, CDH plan members did not adhere to their medication better than those in a PPO plan. Another study also showed that prescription utilization decreased by 31% among patients with chronic conditions after switching to a CDH plan (Nair et al., 2009). In this study, switching to a CDH plan also led to lower medication adherence in patients with chronic conditions. Possibly, this impact of CDH plans on prescription drug use and medication adherence is explained by the cost-sharing structure under these plans; that is, members in a CDH plan are supposed to pay from their health savings account, which makes them more sensitive to purchasing prescription drugs. In this sense, the insurance plan design is more likely to affect enrollees' manageable consumption behavior, such as prescription purchasing behavior, than their consumption patterns when they face unexpected situations requiring them to spend beyond their limit. If people need to spend a relatively large amount that is hard for them to control, they may care less about their spending, particularly in a situation where spending is used for emergency treatment; however, one concern is that this underutilization of prescription drugs among CDH plan enrollees might turn out to be inappropriate decisions based on imperfect knowledge and incomplete information, leading to severe morbidity and mortality in the future. Consumers who face higher cost sharing can reduce both essential and nonessential health services in an indiscriminate fashion, as seen from the RAND Health Insurance Experiment (1971-1986) (Davis, 2004). This is one of the critics' arguments against the promising consequences of CDH plans. Skeptics are concerned about whether discretionary decision-making

may discourage CDH plan enrollees from getting necessary medical care, because high-deductibles linked to CDH plans can induce them to purchase fewer medications. That is, CDH plan members may arbitrarily discontinue prescription drugs, which can result in more severe conditions later. Alternatively, they may switch to less-effective medications only because these medications are less costly, but they become less compliant or even experience adverse effects after switching medications; however, there has been no evidence showing that underutilization of prescription drugs among CDH plan enrollees actually led to adverse outcomes such as an increase in hospitalization, ICU admissions, or higher mortality. In addition, it is not clear whether CDH plan members will actually reduce both essential and non-essential prescription purchases in an indiscriminate way as consumers who faced high cost-sharing did in the RAND experiment, because results from the RAND study may not be applicable today. Not only were the results obtained from the 1970s to the middle of 1980s when medical circumstances available to consumers were quite different from the present, but recent consumers are also required to be more actively engaged in their health-related decisions than they used to be. Until now, CDH plans seemed somewhat new, yet with no firm conclusion about their long-term effect of prescription drug underutilization on future health outcomes. This suggests the importance of future research on the potential underutilization of essential health services and its long-term effects, because decisions should be based on long-term health and financial considerations rather than short-term cost savings.

Little evidence exists on the effects of CDH plans on health care providers' practice decisions on the use of health care resources. One of the reasons for insufficient reporting seems to be that CDH plans were initially offered merely as one of the health care plan options such as HMOs and PPOs to employees. Thus, only companies that provide these plans to employees and the vendors who offer health care plan products to companies have been involved in implementing CDH plans. Health care providers do not seem to have been incorporated into CDH plans directly and in-depth. This finding is supported by the fact that many primary care physicians report low knowledge and limited practice readiness regarding CDH plans (Mallya, Pollack, & Polsky, 2008). In this study, 43% reported they had heard about CDH plans "a little" or "not at all" and approximately one-third reported they had low knowledge of how money is contributed and spent from a medical savings account. Nevertheless, one study showed that patient deductible level and socioeconomic status affect physician recommendations for preventive care (Pollack, Mallya, & Polsky, 2008). In this study, physicians' recommendations for colorectal cancer screening varied depending on the patient's coverage of preventive services and funds in medical savings accounts.

The previous research about the impacts of CDH plans on health care spending has produced mixed results. One study suggested that it could create cost savings with relatively little negative effects on health (Bertko, 2004). Another study reviewed effects of CDH plans on costs and utilization and suggested that switching from a conventional plan to a CDH plan would result in 4% to 15% reduction in health care spending (Buntin et al., 2006). More recently, Parente et al. analyzed insurance claims and found that pharmaceutical expenditures were lower in CDH plans than in point-of-service (POS) plans (Parente, Feldman, & Chen, 2008). This result was attributed to less generic use and more mail-order drug use among CDH plan enrollees despite no major differences in brand-name drug use between them and POS plan enrollees. In their previous research, those who had switched to a CDH plan had lower total health care expenditures than PPO enrollees (although their expenditures were higher than HMO enrollees) (Parente et al., 2004). Specifically, prescription drug expenditures and physician visits were the lowest among CDH plan enrollees, although hospital-based expenditures including hospitalizations were higher than other plans. In contrast to these findings, Feldman, Parente, and Christianson (2007) discovered that CDH plans had too little out-of-pocket cost-sharing to control health care spending (Feldman, Parente, & Christianson, 2007; Parente et al., 2004). The study found that CDH plan enrollment was related to significantly higher hospital spending, although it found no direct evidence that reduced prescription drug use in CDH enrollees caused this higher hospital spending later. The critics also argue that CDH plan enrollees may have little impact on overall health care spending; that is, cost savings from CDH plan enrollees' underutilization of health resources are too small to lower overall spending because most health care expenses occur with catastrophic or chronic conditions that exceed out-of-pocket limits over which members have little control (Robinson, 2002). Again, CDH plan enrollees can lower what they can control, which accounts for a small part of total health care expenditures. This is countered by advocates of the CDH plan who argue that the purpose of CDH care is to engage consumers in their health management, thus preventing potential disease and reducing costs relevant to it. According to them, informed and educated consumers will lower the risks of getting chronic disease in particular, by involving themselves in early disease management. In conclusion, more evidence seems to be needed to show the effects of CDH plan on total health care spending, although CDH plan enrollees tend to reduce spending in purchasing prescription drugs.

Finally, some empirical data have shown the effects of CDH plan on the use of preventive and screening services. One study was conducted to compare the use of preventive and screening services among CDH plan enrollees with that among PPO plan enrollees (Rowe et al., 2008). It found no substantial differences in the use of such services as diabetes preventive services and cancer screening between these two groups. Another study also showed that switching a CDH plan was not associated with changes in breast, cervical, or colorectal screening compared with HMO enrollees, although CDH plan enrollees were more likely to replace expensive colonoscopy requiring high out-of-pocket spending with less expensive and fully covered screening tests (Wharam et al., 2008). These results suggest that CDH plan members are not likely to underutilize preventive or screening services to any greater degree than those in other plans as long as they do not have higher out-of-pocket responsibility for these services.

Considering all the issues, CDH plans are more likely to provide a supportive environment for enrollees to engage in health-related behaviors and manage their health. Overall, prescription drug use and its expenditures were lowered in CDH plan enrollees. Regarding utilization of hospital resources, the results were mixed. Some studies showed hospital-based spending was higher among CDH plan enrollees, whereas opposite results were found in other studies; however, research is lacking on whether underutilization of prescription drugs among CDH plan enrollees was clinically appropriate and whether higher hospitalization among them was caused by lagged treatments and reduced health services resulting from their discretionary decisions. To determine the long-term effects of CDH plans on overall health care spending, more empirical evidence is required.

Based on empirical findings regarding the effects of CDH plans on diverse outcomes, several important implications can be stated. With CDH care comes a new era of consumerism, requiring an increasing role of consumers and engagement in managing their health care. Rising enrollment of CDH plans in private domain and starting to adopt CDH strategies in Medicaid (one of the public sectors) demonstrates this fact. Aside from CDH plans, consumers have already been affected by direct-to-consumer (DTC) advertising, and they have become proactive in making decisions concerning their health. Consumers seem to be increasingly engaged in making health-related decisions as more health information becomes available and they become more conscious of health care costs as a result of rising health care spending. This is supported by a study that showed CDH plan enrollees more likely to become engaged in behavioral change than HMO and POS plan members (Huskamp, & Rosenthal, 2009). However, it seems uncertain whether CDH plans can help lower health care expenditures. Cost savings from CDH care are likely to be too small to decrease overall health care expenditures, as noted earlier. However, even though CDH plans may have little impact on lowering health care spending, they have the potential for positive outcomes if they are used effectively and as intended. For example, if health care information is available to the public, it is expected to become more transparent. In particular, transparent information on health care costs and quality of care can motivate consumers to make more cost-effective decisions; thus, health care resources can be used more efficiently. Transparent information can also stimulate health care providers to improve the quality of services they deliver. They will provide health service based on quality rather than on profits if the information on quality of care is open to patients. In addition, if consumers are more engaged in managing their health, this awareness can promote health and reduce risk. It will save significant health care expenditures by preventing potential diseases on the condition that health is managed in an appropriate way to promote wellness. In this sense, consumers' health management guided by professionals would prevent the potential dangers of self-diagnosis and inappropriate self-care based on imperfect knowledge and incomplete information. In particular, the recent increase in people with chronic conditions indicates the importance of self-management in health care.

Aside from effects of CDH plans on overall health care spending, consumer engagement is meaningful itself in that it has great potential to produce beneficial outcomes, as shown previously. However, consumers alone cannot bring about these positive outcomes without such conditions as availability of information and guidance by professionals; therefore, joint efforts on the part of all relevant stakeholders are required.

To make the best use of CDH care and achieve beneficial outcomes, some suggestions were made at both the social and individual levels.

At the social level, an administrative policy that guarantees full coverage for preventive services without deductibles and copayments is required. There is concern that self-paying patients will skimp on high-benefit and low-cost preventive services (Bloche, 2007; Davis, 2004). At present, most insurers provide preventive services at no charge or before reaching the deductible in their CDH plans because they know they may be exposed to risk of large expenditures if patients

neglect prevention (Baicker, Dow, & Wolfson, 2007); nevertheless, prevention should be administratively ensured since the market cannot guarantee it. In addition, official information should be established and spread to consumers in a systematic, organized manner. Although the quantity of information has grown rapidly since the early 1990s when very little information was available because of resistance from drug manufacturers and medical specialty societies, consumers still seem confused about choosing and using the correct information because they are inundated with information (Arnold & Scanlon, 2009). An authorized institution (e.g., the Agency for Healthcare Research and Quality) can assess treatment options systematically, display clinical practice guidelines, and inform patients about treatment options and their expected outcomes in a coordinated way.

At the individual level, more effort and involvement by employers, health care providers, and consumers are required comprehensively.

First, employers should select a vendor sensibly; that is, the vendor should be strongly linked to the professional care providers in order to offer helpful health management programs to enrollees. The importance of selecting a vendor for successful CDH care is supported by the fact that it was considered one of the successful strategies used by early adopters of CDH (Sharon & Donahue, 2006). The purpose of CDH care is to engage consumers more in managing their own health and making better health care decisions using resources available to them; therefore, the quality of programs provided to consumers can be one of the key factors leading to successful CDH care. In this sense, if disease management programs based on the professional primary care providers can be integrated into CDH plans provided by the vendor, it can improve quality of care significantly; that is, managed care can be consolidated into CDH care. On-site managed clinics or pharmacies can also be included in the plan to deliver more professional-related care, as already shown in some CDH plans (Sharon & Donahue, 2006). This facilitates a strong relationship between the enrollees and professional care providers, which can result in more appropriate self-care by consumers with their help. In particular, chronic diseases (one of the major causes of morbidity and mortality) can be managed and controlled more effectively by a closer relationship between enrollees and the professional primary care providers.

In well-selected programs, health care providers should play a more proactive role in assisting and educating consumers in managing their own health care and making better health care decisions. To participate in the program actively and help enrollees make better decisions, health care providers need to be more prepared. As mentioned, many primary care physicians may lack sufficient knowledge of and practice readiness for CDH plans (Mallya, Pollack, & Polsky, 2008). They need a better understanding of CDH plans, including cost sharing and personal savings accounts. In this sense, educational interventions by insurers or employers can be useful. After being equipped with requisite knowledge about CDH plans, health care providers can play crucial roles in aiding and educating consumers. In nursing practice, the importance of providers' roles in a CDH care setting has already been reported (Nolin & Killackey, 2004; Sherman & Click, 2007). As Nolin et al. pointed out, health care providers' responsibilities for educating consumers expand as consumers face more difficult and confusing choices in health care services and resources. Not only can they educate potential patients to promote health and prevent diseases, but they can also guide individuals with chronic diseases to optimal treatments through the programs.

In addition, if consumers' decisions were made with the support of health care providers who consider the economic, clinical, and humanistic aspects of CDH plans, it might provide the opportunity to save potential costs and bring positive health benefits to consumers. Actual evidence has been presented showing education of CDH plan enrollees increased lower-cost generic substitutions among those enrollees, although it had no influence on patients' medication persistence (Sedjo & Cox, 2009). This evidence suggests that interventions in CDH plans can encourage enrollees to utilize more cost-effective alternatives. Accordingly, health care providers need to play a more active role in diverse educational programs incorporated into CDH plans.

Finally, consumers should be motivated to be engaged in their health care decisions and in managing their health. Although CDH care assumes consumers' direct involvement in their health care decisions, unfamiliarity with and difficulty understanding CDH plans is one of the challenges faced by consumers who are implementing such plans ("Consumer-directed health plans," 2006; Greene, Peters, Mertz, & Hibbard, 2008b). A recent experimental study by Greene et al. showed that many consumers still had difficulty understanding CDH plan information and making informed health care choices. Results from this study also indicated when consumers were exposed to a presentation of plan information, their comprehension of the plan design was improved. Alternatively, some enrollees may not want to engage themselves in health care decisions. Therefore, plan providers should make a greater effort to inform employers and employees of such incentives for enrolling in CDH plans

as tax-favored accounts, rolling over unspent funds for use in future years, and fewer limits on provider choice compared with conventional health care plans. When the public agency provides trustworthy information to consumers and the program design allows consumers to interact with professional care providers, consumers will search for information, seek professionals' advice, and play a more involved role in their health care decisions. We live in the era of consumerism; consumers need to recognize their active roles and participate in health care delivery. In the future, their roles in managing their own health care will be widely expanded.

In conclusion, CDH care plans have been widely adopted since the early 2000s replacing conventional managed plans such as HMOs and PPOs. One of the reasons for such expansion of CDH plans is that employers faced with uncontrollable premium increases were willing to try this new plan to hold down costs. The potential benefit of a CDH plan is to raise consumer awareness of the real costs of care and to increase consumer involvement in their health care decisions, ultimately making consumers more cost-effective in their health care spending. Furthermore, consumers enrolled in CDH plans can be more flexible in selecting health care providers and services, which is expected to increase the quality of care they receive, whereas consumers who select them based mostly on the design of insurance plan in which they enroll among conventional managed care plans such as HMOs and PPOs may limit available choices of providers and types of services they can receive.

Empirical evidence of the effectiveness of CDH plans is now being gathered. Based on previous findings, CDH plan enrollment is associated with a decrease in prescription drug use and accompanying expenditures, although it is not clear whether decrease in prescription drug use results in increased hospitalization and more severe morbidity in the future. Regarding the effects of CDH plans on hospital resource utilization, results seemed rather mixed. These findings suggest that CDH plan enrollees tend to reduce manageable spending such as prescription expenditures rather than uncontrollable larger spending in emergency situations. If consumers are not required to make higher out-of-pocket payment for preventive and screening services, they are not likely to underutilize these services. Whether CDH care can result in cost containment and improve quality of care in the long term is still a question and remains to be seen. Furthermore, some have raised the question of disparity issues in care because CDH plans seem to attract healthy and wealthy people (Bloche, 2007; Barry et al., 2008). Differences in access and ability in using health-related information can increase disparity problems. Despite these uncertainties and concerns about a CDH plan, it has the potential for positive outcomes if it can be used as desired. For example, CDH plans can facilitate transparent information on health care costs and quality of care, contributing to consumers' more cost-effective spending and improvement in quality of services delivered by health care providers. In addition, if consumers' health is well-managed by the programs incorporated into a CDH plan, it will save costs by avoiding potential diseases and reducing risk factors in their health.

To derive beneficial outputs from CDH care, further effort and collaboration by all stakeholders including consumers, health care providers, and policy makers are required. They should commit themselves to play their own roles and each part should be organically connected. That is, vendors should first link professionals such as primary care providers, pharmacists, and nurses to their programs and incorporate on-site managed clinics or pharmacies into CDH plans. Then, if employers select one of the vendors that provides these programs and services, CDH enrollees can interact with these professionals. Through interaction with professionals, enrollees can make better health care decisions and manage their own health more effectively. In other words, if CDH plans integrate health management programs linked to professionals or integrate on-site managed medical clinics or pharmacies into their plan design, more appropriate health management and better health care decisions guided by professional health care providers would be possible. This suggests that new CDH care should evolve into managed care linked to professionals incorporated into existing CDH care. That is, new CDH care has both CDH care and conventional managed care characteristics in that it allows active involvement by consumers in health-related decisions in the plan where professional primary care providers help them to decide. In addition, system-level interventions can prompt CDH care to function more effectively. For example, to prevent enrollees in high-deductible plans from skimping on preventive service, the service should be fully covered by CDH plans without copayments or deductibles. Furthermore, reliable health-related information by the authorized institution should be available to consumers, helping consumers make the most appropriate health decisions.

CDH care has already been with us, and the trend requires a stronger role for consumers. More research is required on the most effective ways to engage consumers in their health care and on how consumers make their own decisions in real situations. Without understanding how they become engaged and make decisions in-depth, we cannot center consumers in the health care system. In the era of consumerism, engaged and activated consumers are assumed to find more optimal

and cost-effective treatments for themselves, to be better able to discontinue inappropriate or poor-quality care, and to manage their health better, resulting in better quality of care and cost savings. These assumptions are implicated in CDH care. If CDH care is considered merely one of the insurance plans with high-deductibles for sharing financial risks with enrollees without considering these implications, its value will be depreciated and it may be replaced by another type of insurance plan. In this sense, we should recognize the real meaning of CDH care and view CDH care as a measure to prompt consumers to care for their own health and actively engage in health management, thus helping them make the right health-related decisions, rather than viewing it as merely another type of health care plan option.

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