A health-micro-credit scheme to reduce the financial barriers to basic health services: a feasibility study in Tibetan herdsmen communities, Sichuan, China.

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Abstract

Background: Financial barriers to health services pose significant barriers to gaining access to health services. The herdsmen in the Ganzi Tibetan Autonomous Prefecture, China, face significant hurdles in obtaining health care, especially at certain times of the year when income levels are low, and they become dependent on relatives, friends, credit schemes and loans. In search of the best response to this need, we conducted a feasibility study on the introduction of a micro-health-credit scheme to reduce the financial barriers for herdsmen to access basic health services.

Methods: Participatory methods including ranking, key informant interviews, group discussion and semi-structured interviews were used to collect data. Both qualitative and quantitative data on the health situation, provision and utilization of health services, income and expenditure of households, preference for keeping livestock, existing mechanisms for herdsmen to borrow money, possible ways to overcome the financial barriers and willingness to accept credit were collected. A binary logistic regression was used to fit a choice model to measure the impact of lack of available funds on the choice to see a doctor when illness occurred. A series of workshops were held to map out the features of a feasible credit scheme which was responsive to this specific context. A feasible micro-health-credit scheme was developed by scrutinizing existing credit schemes and the schemes conceived by local people.

Results: Common health problems such as Acute Respiratory Infections (ARI) and diarrhea are priority health concerns in the Tibetan herdsmen communities. Lack of available funds due to a seasonal income variations and preference for keeping livestock significantly affected health services utilization by herdsmen. Existing available financing tools failed to meet the needs of local people to access small amounts of cash to pay for basic health services. The herdsmen strongly desired a low cost credit scheme to pay for health services. Six main features were put forward for a feasible credit scheme: it would need to be health oriented, consistent with laws and regulations governing such schemes, have a clear system and transparency of ownership, be financially sustainable, at least risk from failure of herdsmen to pay back the money loaned, and of least physical cost for herdsmen to get credit. Through a series of workshops, a micro-health-credit scheme based on “pay basic health services on credit” was selected and developed according to these features.

Conclusions and suggestions: A health-micro-credit scheme is urgently needed by herdsmen in order to address the failure of existing financing systems. The scheme is substantially different from any existing micro-credit schemes in terms of being exclusively health oriented and being absent of both collateral and group lending activities. These arrangements dramatically decrease the cost for both borrowers and lenders. A pilot programme is suggested to test the health-micro-credit scheme, engage policy makers and accumulate experience of feasibility in similar areas.

Key words: health-micro-credit scheme, financial barriers, basic health services, Tibet, herdsmen, pastoralists, China, health care costs, access

Introduction

Health is widely understood to be both a central goal and an important outcome of development. Extending functional health services may save lives, contribute to reducing poverty, spur economic development and promote global security [14]. For 1.3 billion poor people who live in low- and
middle-income countries, financial barriers are among the most urgent problems for improving access to health services [1-4]. Private spending on health tends to be out of pocket in these countries so that there is very little insurance (ie, risk pooling) built into private spending [14], which in turn exacerbates the situation. A variety of approaches to addressing such barriers have been conceived to improve the situation; these include traditional public financing instruments and community financing. Few successes have been found in relation to the former, and resource mobilization has been a principal constraint for the latter [1,9,10,11,12].

The Tibetan herdsman population in Ganzi Tibetan Autonomous Prefecture, China, face the same problems as many other low-income populations. The government has been trying to improve the situation. From 1951 to 1962, the herdsmen enjoyed free health services. From 1963 to 1969, the herdsmen received health services at discounted prices and those unable to pay got free services. However, from the 1970s, no free or discount services have been available except for the extremely poor [5]. Efforts mounted by the government were unsustainable due to economic constraints. Innovative alternatives have been desired by policy makers and local people so as to reduce the financial barriers for herdsmen to access health services.

Recently, micro-credit, which has been developed with a view to improving financial stability and productivity of low-income households [7], was introduced as a new health financing method [7,1]. Preliminary research in 1999 found that the Tibetan herdsmen communities under study had poor access to basic health services due to difficulties in relation to both financial and physical access. The situation was exacerbated by the particular problem of seasonal income and a preference for retaining rather than selling livestock that in turn limits their ability to pay for health services in cash. The goal of this research is to examine the possibility of introducing a micro-credit system to the Tibetan herdsmen communities.

The article focuses on two questions that explore this: a) an analysis of whether the herdsmen communities could benefit from a new credit system, and b) an assessment of what kind of credit system is suitable, both institutionally and economically, for the communities. To answer the first question, the following issues are covered: what kind of health problems are of high priority in the communities; why do the herdsmen lack cash in some seasons, how does the lack of available funds affect access to health services, what methods have the herdsmen used to address the lack of cash and what methods have been conceived by local people to improve the situation and finally, what is their willingness to accept credit to pay for health services. The paper then discussed the features of an appropriate credit scheme with particular attention to the local situation, other schemes already operating in the area, and the feasibility of establishing a health-related micro-credit scheme, hereafter referred to as a health-micro-credit scheme, in this setting.

**Methods**

Ganzi Tibetan Autonomous Prefecture is located in the western part of Sichuan Province. In 2001, the prefecture had a population of some 823,300 of whom 76% were Tibetan [6]. Field investigations were conducted in three random selected townships (Xia-zha, Yi-niu and Xin-rong) in the pasture area of Shiqu county, Ganzi Tibetan Autonomous Prefecture.

A series of participatory methods [8] were used to collect both qualitative and quantitative data about the need for, and feasibility of, establishing a health-micro-credit scheme. Three Group interviews with village heads, health workers and township cadres were used to identify priority health problems in the communities. In the group interviews, all participants were asked to put forward the ten most severe diseases in their community according to their own perceptions. These diseases were written on a big paper on the wall, then all participants were asked to rank their importance. The ten most important diseases were then identified. Information on how the credit union works was collected by a key informant interview with two chiefs of a township credit union. Semi-structured interviews were used to collect data on income and expenditure, the rationale for a preference for keeping livestock, diseases and health utilization, existing lenders, possible ways to overcome the financial barriers and willingness to accept credit. Three township workshops attended by township and village key stakeholders as well as health workers, and one county workshop attended by county key stakeholders were held to conceive possible ways to overcome the financial barriers.

A binary logistic model was used to analyse the influence of financial resources on access to basic care. The dependent variable selected was “visiting a doctor as first choice or not when ill”. Independent variables were distance to clinics, gender, age and possession of cash when illness happened.

To design a feasible credit scheme, two group discussions attended by investigators and one provincial workshop attended by key health officials, and staff from the office of provincial poverty
alleviation and administrative experts, were held to figure out the features of a feasible credit scheme. The local situation was fully considered for mapping out the features. The process of designing a feasible scheme was based on examining existing credit schemes and schemes conceived by local people according to the features.

All questionnaires were in both Tibetan and Mandarin. An investigation guideline (also in both Tibetan and Mandarin) was developed to train local enumerators and to help investigators as well as trained enumerators on the spot. Instruction of local personnel was the key for the investigation. Training courses were conducted at county and township levels. The content of the training included the objectives of the investigation, participatory approaches, and the importance of mobilizing local people to participate and cooperate in the study. Key informants and stakeholders from township and villages attended the township training sessions. Most of the data at the township level were collected during the training sessions. These training courses and the investigation guideline ensured that methods were standardised.

Trained township enumerators, with the assistance of trained village enumerators, visited randomly selected households for the purpose of data collection. The householder answered the questionnaire with the assistance of other family members. During data collection, field trips by investigators, county health workers, and local township leaders, were organized each day to supervise the interviews. All questionnaires were examined and uncertainties clarified.

Results

1. Health data

a) Main diseases

From July 2000 to June 2001, 89 families experienced deaths in the 3 townships; 44 randomly identified deaths were investigated. Among these 44 deaths, 19 (43% of the 44 deaths) died of ARI or diarrhea. Eleven of the 44 were under 5 years old and 9 were under 1 year old. Two women died of maternal conditions. Delay in seeing a doctor was identified by personnel at the county hospital, as a key cause of death in children with pneumonia. These data reveal that access to basic health services was quite poor and basic health problems were the major life-threatening factors for the communities.

Table 1 lists the ailments in order of perceived importance as identified through the township group interviews. Common cold, pneumonia and diarrhea were listed among the top ten most important diseases. These data indicate that basic health problems, which could be easily addressed by basic health care, were priority health concerns in the communities. Hydatidosis was listed as being as important as tuberculosis.

Table 1 Main diseases identified by township group interviews in Sichuan province, China

<table>
<thead>
<tr>
<th>Rank</th>
<th>Xia-zha</th>
<th>Xin-rong</th>
<th>Yi-niu</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Gastric diseases</td>
<td>Bile duct and gallbladder diseases</td>
<td>Rheumatism</td>
</tr>
<tr>
<td>2</td>
<td>Liver diseases</td>
<td>Gastric diseases</td>
<td>STD/common cold</td>
</tr>
<tr>
<td>3</td>
<td>Rheumatism</td>
<td>Gynecologic diseases</td>
<td>Hydatidosis</td>
</tr>
<tr>
<td>4</td>
<td>Tuberculosis/Hydatidosis</td>
<td>Tuberculosis</td>
<td>Gallbladder diseases</td>
</tr>
<tr>
<td>5</td>
<td>Gynecologic bile duct and gallbladder diseases</td>
<td>Hydatidosis</td>
<td>Tuberculosis</td>
</tr>
<tr>
<td>6</td>
<td>Common cold</td>
<td>Hepatitis</td>
<td>Diarrhea</td>
</tr>
<tr>
<td>7</td>
<td>Pneumonia</td>
<td>Common cold</td>
<td>Enteritis</td>
</tr>
<tr>
<td>8</td>
<td>Food poisoning</td>
<td>Pneumonia</td>
<td>Gastric diseases</td>
</tr>
<tr>
<td>9</td>
<td>Gonorrhea</td>
<td>Bronchitis</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Diarrhea</td>
<td>Hepatitis</td>
<td></td>
</tr>
</tbody>
</table>

b) Provision and utilization of health services
For the 301 households randomly selected from 1851 households in the three townships, the average number of doctor visits per household per year was 3.92 (SD=4.69). The figure in winter was 2.47 (SD=3.10) and the figure in summer was 1.45 (SD=1.82). Figure 1 shows that there was a seasonal pattern in health services seeking behavior. The diagram indicates that people required greater access to health services in winter and spring. There was a township clinic in each of the three townships.

The number of doctors or nurses was 5, 1 and 1 for Xia-zha, Xin-rong and Yi-niu township clinics respectively. The clinics only had the ability to provide basic health services. The clinics charged cash only for the services. For diagnosis and treatment of the common cold or pneumonia, the price ranged from 6 to 60 Yuan (1$=8.27 Yuan) with 3 days worth of medication. For diarrhea, it ranged from 8 to 40 Yuan with 3 days worth of medication.

2. Income and expenditure and a preference for keeping livestock

a) Income, expenditure pattern and livestock assets

Table 2a shows the seasonal pattern of income and expenditure for the 301 households. From May to August, herdsmen derived their major income, which was mainly contributed by digging and selling traditional Chinese medical herbs. From September to November, they derived additional income from selling livestock.

Due to the reduction in commercial activities in winter, the herdsmen needed to buy large quantities of food and commodities for winter usage. Hence, there was a sharp increase in expenditure during November and December. In winter, their income and expenditure decreased dramatically. By the end of December (just at the beginning of winter), there was an average of only 148 Yuan of cash per household after the major income generating seasons. Considering there were only about 70 Yuan of average cash income and about 267 Yuan of average expenditure for a household from January to April, it is apparent that the herdsmen lacked funds in winter and spring, which were the seasons of highest healthcare demand (see Figure 1). No statistically significant difference was found between the total average income and total average expenditure per household. (T=0.203, P>0.05, DF=300).

<table>
<thead>
<tr>
<th>Month</th>
<th>Average income (RMB Yuan)</th>
<th>SD</th>
<th>Average expenditure (RMB Yuan)</th>
<th>SD</th>
<th>Income minus (RMB Yuan)</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>July and Aug 2000.</td>
<td>882.01</td>
<td>1111.75</td>
<td>675.55</td>
<td>940.99</td>
<td>206.46</td>
<td>457.55</td>
</tr>
<tr>
<td>Nov. and Dec 2000.</td>
<td>250.91</td>
<td>602.92</td>
<td>611.45</td>
<td>498.74</td>
<td>-360.54</td>
<td>457.55</td>
</tr>
<tr>
<td>Jan. and Feb 2001.</td>
<td>27.36</td>
<td>108.45</td>
<td>142.82</td>
<td>180.62</td>
<td>-115.46</td>
<td>457.55</td>
</tr>
<tr>
<td>Mar. and Apr 2001.</td>
<td>42.84</td>
<td>108.54</td>
<td>124.68</td>
<td>129.04</td>
<td>-81.84</td>
<td>457.55</td>
</tr>
<tr>
<td>May and June 2001.</td>
<td>721.13</td>
<td>1073.55</td>
<td>379.01</td>
<td>533.64</td>
<td>342.12</td>
<td>457.55</td>
</tr>
<tr>
<td>Total</td>
<td>2283.66</td>
<td>1867.32</td>
<td>2332.95</td>
<td>1867.32</td>
<td>1745.11</td>
<td>1745.11</td>
</tr>
</tbody>
</table>
Table 2b shows that on average, each household owned about 37 livestock which could be valued at some USD 1170 (11753 Yuan), primarily yaks and sheep. This indicates that the herdsmen could afford basic health services in terms of livestock owned. The problem for them was that when they needed a small amount of money, they always could not sell the livestock to get money immediately. The reasons might be that the livestock mature and are traded in autumn, and that it is difficult to find a proper buyer in a short time. Selling when required to do so because of an external pressure, such as health care need, may not fit in best with planned investment related to these livestock.

Table 2b Livestock owned by herdsmen (1US$=8.27 Yuan)

<table>
<thead>
<tr>
<th>Item</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size of household</td>
<td>4.53 persons</td>
<td>2.11</td>
</tr>
<tr>
<td>Number of yaks per household</td>
<td>20.57</td>
<td>15.76</td>
</tr>
<tr>
<td>Estimated value of yaks per household</td>
<td>8636 RMB Yuan</td>
<td>8340</td>
</tr>
<tr>
<td>Number of sheep and goats per household</td>
<td>16.3</td>
<td>24.8</td>
</tr>
<tr>
<td>Estimated value of sheep per household</td>
<td>1016.8 RMB Yuan</td>
<td>3414</td>
</tr>
<tr>
<td>Number of horses per household</td>
<td>0.86</td>
<td>1.53</td>
</tr>
</tbody>
</table>

b) A preference for keeping livestock

Our investigation found that among 301 households, 189 households (62.8%) believed “the more livestock, the richer”. This preference means that even the rich, which is in terms of the number of livestock, might also suffer the lack of cash in winter and spring to pay for health services. The situation is partly led by semi-public ownership of pastureland that encourages herdsmen to keep as much livestock as possible [5]. Their nomadic life style and poor infrastructure also contribute to such preferences. Local grasslands are mainly divided into winter and summer pastures. In May, the herdsmen move to summer pastures and in September/October they move back to winter pastures. When they move, the herdsmen climb mountains and cross over rivers. In addition, they live in tents that provide limited protection from snow, rain and storms. This kind of life style could easily result in a loss or damage of hard currency. There is only one credit union to provide financial services in the three townships. It is a long way for herdsmen to get to the union. During the winter, it takes 1-2 days to get there and it takes 2-3 days in summer. These factors make it very difficult for herdsmen to find a place to keep their cash. The above items contribute to herdsmen preferring livestock ownership to cash, which partly led to the lack of cash available at certain times of the year to pay for basic health services.

3. Impact of lack of cash on health services utilization for herdsmen

a) Descriptive analysis

In the 301 households interviewed, there were 222 detailed reports of illness in the year from July 2000 to August 2001, of which 70 (31.5%) householders claimed to have no cash at hand when the illness occurred. (See table 3a) Within the 44 households with death occurring, it was found that 22 households did not have any cash when the individual became ill. Among the 22 households, 12 families borrowed money or sold goods at the last moment to pay for health services and 10 people did not go to a doctor.

b) Binary logistic analysis

To measure to what extent the choice of seeing a doctor was affected by the lack of available cash, a binary logistic regression model [13] was used to fit a choice model with a dependent variable “visiting doctor as first choice or not when ill”. Independent variables included distance to clinics, gender, age and possession of cash when ill. The model showed that the probability of “seeing a doctor as the first choice” for a sick person whose family had no cash was only 34.7% of those ill with family members having cash (see table 3b). The clinics just had the ability to provide very basic health services to herdsmen. Therefore, the results clearly show that the lack of cash by herdsmen did affect the access to basic health services when illness occurred.

Table 3a Descriptive data of a model to determine whether a visit to a doctor was made when a person first became ill
Table 3b Results of the logistic regression model seeking to explain influences upon visiting a doctor as the first choice of response when ill

<table>
<thead>
<tr>
<th>Dependent variable</th>
<th>Independent variable</th>
<th>B</th>
<th>Std. Error</th>
<th>Wald</th>
<th>Df</th>
<th>Sig.</th>
<th>Exp(B)</th>
<th>95% Confidence Interval for Exp(B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visiting doctor as first choice or not</td>
<td>Intercept</td>
<td>2.095</td>
<td>.519</td>
<td>16.299</td>
<td>1</td>
<td>.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Age</td>
<td>-1.598E-02</td>
<td>.009</td>
<td>3.150</td>
<td>1</td>
<td>.076</td>
<td>.984</td>
<td>.967</td>
</tr>
<tr>
<td></td>
<td>Distance to clinic when people got ill</td>
<td>-1.700E-02</td>
<td>.007</td>
<td>5.273</td>
<td>1</td>
<td>.022</td>
<td>.983</td>
<td>.969</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>-2.383E-04</td>
<td>.390</td>
<td>.000</td>
<td>1</td>
<td>1.000</td>
<td>.465</td>
<td>.2.148</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>0</td>
<td>0</td>
<td></td>
<td>0</td>
<td>1.000</td>
<td>.750</td>
<td>.500</td>
</tr>
<tr>
<td></td>
<td>No cash when got sick</td>
<td>-1.059</td>
<td>.393</td>
<td>7.252</td>
<td>1</td>
<td>.007</td>
<td>.347</td>
<td>.161</td>
</tr>
<tr>
<td></td>
<td>Having cash</td>
<td>0</td>
<td>0</td>
<td></td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4. Existing mechanisms for herdsmen to address the lack of available funds

Table 4 indicates that among 301 households, 170 (56.5%) families borrowed money from friends, relatives or credit unions in order to pay for health services in the past 5 years. This was a clear indication of a strong need for credit to pay for health services in the communities. However, the impact of lack of available funds on seeing a doctor (see Table 3b) showed that these mechanisms still could not meet the needs of herdsmen for credit to pay for basic health services.

Table 4 Resources for herdsmen to address financial risk

<table>
<thead>
<tr>
<th>Number of households</th>
<th>Lender</th>
<th>Monthly interest rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>55</td>
<td>Friends or relatives</td>
<td>0</td>
</tr>
<tr>
<td>41</td>
<td>Friends or relatives</td>
<td>0.3% to 10%</td>
</tr>
<tr>
<td>74</td>
<td>Credit union</td>
<td>1.8%</td>
</tr>
</tbody>
</table>

The credit union gave credit to herdsmen on two conditions: collateral was available or a guarantor had been identified. Normally, the guarantor was not available for herdsmen. The unions accepted jewellery as collateral but not livestock. Besides, distance from a credit union added to the difficulty in obtaining credit. Obviously, it was very reasonable that it was really a high cost activity for herdsmen to go to the union to borrow small amounts of money for small diseases like ARI and diarrhea. Even when the herdsmen finally obtained the money after several days of delay, the optimal time for seeing a doctor had passed, especially for children with ARI or diarrhea.

5. New ways of overcoming the barriers and herdsmen’s willingness to accept credit as a solution

Table 5 shows the suggestions of herdsmen when asked what methods could be used to overcome the lack of cash when illness occurred. The herdsmen thought that “paying health services on credit” was the most desired way of addressing the problem, with “paying in kind” listed second. Because the aim of the project is to find a suitable micro-credit scheme for basic health services, only those ideas related to credit are considered.

Table 5 Ways conceived by Herdsmen in Sichuan province to reduce financial obstacles by herdsmen

<table>
<thead>
<tr>
<th>Rank</th>
<th>Ways</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pay health</td>
<td>Pay in kind</td>
<td>Decreasing the loan without</td>
<td>Loan (did not)</td>
<td></td>
</tr>
</tbody>
</table>

6
In township and county workshops, six credit scheme proposals were developed with consideration of the ideas of the herdsmen. All six schemes were based on township clinics to provide herdsmen health services. Four of the schemes used vouchers to pay doctors so that the credit could be used for health only. Another scheme required herdsmen to apply for recommendations from the township government to see a doctor. All the five schemes asked township government to play a key role in financial management including credit approval and collection.

The last one was developed around “paying basic health services on credit”. The proposal suggests that the county health bureau would undertake all the management functions, including providing health services to herdsmen and collecting money from them. In this scheme, the health services users could go to clinics without immediate payment during those seasons when cash funds are not available. The clinics won’t ask the herdsmen for recommendation or vouchers. They would just need to record all expenses in their accounts with signatures or fingerprints of herdsmen. The money would be returned in harvest seasons, for examples, summer and/or autumn.

When being asked if the herdsmen would like to accept credits to help pay for health services, 97% of the 301 householders expressed their willingness to accept credit in order to pay for health services. There was one person who said that he would not accept credit due to an inability to return the money. Obviously, the herdsmen expressed a strong need for credit to pay for health services.

### Design of a micro-health-credit system that is feasible both economically and institutionally

1) **Features of a feasible credit scheme.**

   The following features of a feasible credit scheme were identified by the investigators following group discussions and a provincial workshop:

   - It should be health-focused without covering other economic aspects
   - It needs to be in keeping with all legal guidelines and regulations
   - There should be a clear ownership structure
   - The scheme should be financially sustainable i.e the scheme should be able to absorb additional people and pay additional benefits through interest on funds accrued. Considering that the clinics could get incremental income from increased number of visits, the credit should have a lower interest rate, or at most equal to the market interest rate. It should not only assure the financial viability of the scheme, but also consider the affordability to herdsmen. Besides, the operational cost of the scheme should also be minimized.
   - High repayment levels and low levels of default
   - Geographically accessible – credit should be obtainable near to or through clinics

2) **Developing a feasible scheme of micro-health-credit**

   Keeping in mind the above-mentioned features of a feasible micro-credit scheme, the existing micro-credit schemes for poverty alleviation are under scrutiny to confirm if they are suitable or not. The main characteristics of the micro-credit schemes are group lending and the absence of collateral requirements. The absence of a requirement for collateral guarantees has dramatically increased the access of poor people to it. Instead of collateral, group lending, has been adopted to help promote financial stability and viability. However, the group-based activities are of high cost. The shortage of funds to absorb the cost has been identified as a key constraint [7]. Obviously, if the cost of group based activities could not be absorbed, the scheme could not be financially sustainable in the poor herdsmen communities. Besides, these existing micro-credit schemes could not prevent the credit being used for other activities. Furthermore, the fact that most townships in the area do not have any financial institution makes it less feasible for the schemes based on financial institutions. The financial institutions live on the benefit from their services. Therefore, we could infer that current distribution of

<table>
<thead>
<tr>
<th>Mentioned by the population</th>
<th>price of health services</th>
<th>interest</th>
<th>specify interest</th>
</tr>
</thead>
<tbody>
<tr>
<td>43.2%</td>
<td>33.6%</td>
<td>20.6%</td>
<td>17.3%</td>
</tr>
</tbody>
</table>
financial institutions is based on economic considerations. If a new financial system is developed to reach all towns for the health purpose, the cost of the system could be unpredictable. Hence, it could be concluded that the existing micro-credit schemes are not suitable.

The six new health credit schemes conceived by the herdsman, township and county workshops were examined against the above features. All six schemes are health oriented because they assure the credit being for health purpose only by not using cash for other uses of credit. According to the provincial workshop, public circulation of vouchers violates a Chinese law [15]. The four schemes using vouchers to pay health services therefore had to be dropped because they did not adhere to the law. The fifth avoids the voucher problem by requiring the herdsman to apply for recommendations from the township government to see a doctor. However, having the township government responsible for financial management and the township clinics for health services provision by the five schemes, would lead to a vague ownership of the credit system and a possible conflict of interest that may destroy the stability of the schemes. Compared with the “pay basic health services on credit” scheme, the five schemes also increase the physical cost and time cost for herdsmen to access the credit because the herdsman need to go to one more place and go through one more procedure to obtain the credit.

The last option considered was based on a “pay basic health services on credit” system. The proposal is for the county health bureau to undertake all the management tasks including the care provision and financial aspects. These clinics will be responsible for providing health services to the herdsman and collecting money from them. This arrangement clarifies the ownership of the scheme and avoids the risk of a multi-sector system. According to this scheme, the health services users will go to clinics without immediate payment during the seasons in which available funds are lacking. The clinics also won’t ask the herdsman for recommendations or vouchers. They would, however, need to record all expenses in their accounts with signatures or fingerprints of the herdsman. Therefore, the cost for herdsmen to access the credit for basic health services is minimized. Without transferring cash per se, it is clear the credit is being used for health only. The scheme breaches no laws and regulations in China.

Another question is whether the “pay basic health services on credit” scheme could be feasible economically. This will depend on the incremental income and cost. The incremental income will result from more visits by herdsmen due to an apparent decrease in cost for getting financial support and from charging interest on the credit. The incremental cost will be opportunity cost of incremental revolving fund, bad debt and the operational costs of the scheme. It is quite sure that there could be an increased number of outpatients for clinics. If the scheme adopts a market level interest rate or a little less than that, the opportunity cost won’t be a big problem. Also, the absence of collateral and group lending activities dramatically decreases the operational cost of the scheme.

Bad debt was identified as a major concern by the provincial workshop even though there was only one householder who worried about his inability to return money. Four methods were suggested as a means of solving the bad-debt problem: (1) Herdsmen would only get “pay health services on credit” in clinics of the townships in which they reside; (2) Publicly suspend the right of paying health services on credit if it is not returned on time. The failure to repay the loan by a herdsman might mean he would travel another tens of hours to go to another clinic and pay in cash; (3) Ask township governments to help collect money; and (4) Credit should be no more than 200 RMB Yuan per year for a household. Credit should be small, or micro, because the clinics only have the ability to treat uncomplicated diseases those require relatively small amounts only and these sorts of amounts should be easier to pay back. Health-micro-credit should be given in the season of lack of cash and collected in seasons of more cash income.

From the above discussions, the main features of the “pay basic health service on credit” scheme are: 1) no requirement of collateral or group lending; 2) the credit scheme will be run inside the clinics; 3) the interest rate will be lower or at most, equal to the market level, to assure financial viability; 4) the health bureau will be in the position to manage the system because the property of the clinics are involved; 5) the credit is small or micro to make sure that herdsmen can pay back the money; and 6) no cash will be credited to herdsmen. The provincial workshop identified “pay basic health service on credit” (see Figure 2) as the most feasible scheme of health-micro-credit system. However, The provincial workshop pointed out that the scheme should be tested to confirm if it was sustainable economically.

Figure 2. Framework of the “pay basic health services on credit” scheme
Conclusions

Common conditions such as ARI and diarrhea continue to be major causes of death and priority health concerns in the Tibetan herdsmen communities (Table 1). The results reveal seasonal fluctuations in income and expenditure as well as a preference for keeping livestock in herdsman communities. These have contributed to the lack of cash of herdsmen in winter and spring (Table 2a). However, winter and spring were seasons of greater health care demand (See Figure 1). Studies elsewhere have shown strong seasonal fluctuations in health services seeking and usage due to seasonal fluctuations in income [16]. It is a widespread phenomenon for many rural areas around the world that live on the seasonal harvest of agriculture products. The herdsmen under our study had an ability to pay basic health services in terms of livestock they owned (See table 2b). However, the lack of cash still dramatically decreased the probability of visiting doctors by sick herdsmen (See table 3b) and probably contributed to the deaths of some people, especially children, from treatable conditions such as ARI and diarrhea. Lack of cash significantly affected the behavior in terms of visiting a doctor when illness occurred showing that existing formal or informal financing tools failed to meet the need of herdsmen for the small amounts of cash needed to pay for basic health services.

These data provide strong evidence that the communities need a better credit system to help them pay for basic health services. The herdsmen were extremely willing to accept credit to improve their access to health services. A feasible credit scheme in the herdsmen communities would need to be health-oriented, consistent with laws and regulations, have clarity over ownership and operation of the scheme, be financially sustainable, have limited risk of herdsmen defaulting on the credit obtained, and be geographically accessible to herdsmen. Existing credit schemes were examined based on the features and none of them was found suitable for the communities. From six new schemes conceived by local people, “Pay basic health services on credit” was developed and identified as the most feasible form of health-micro-credit to improve the situation. To be a health-oriented scheme and absent of both collateral and group lending, the micro-health-credit is substantially different from any other existing micro-credit schemes. Four methods were put forward to decrease the risk of bad debt; despite this a great concern was expressed about bad debt as this could affect the financial viability of the system. A pilot programme is called to test the financial viability of the scheme, engage policy makers, as well as accumulate experience for applying this system in similar conditions in other areas around the world.

Micro-credit is viewed as a new tool to reduce poverty. However, it needs major revision if the concept is to be applied and refined in the health sector. A workshop organized by WHO and cosponsored by World Bank in 1994 found that even for poverty alleviation, micro-credit schemes were sometimes not financially viable because of the high cost of group activities [7]. Moreover, strong arguments were underway to figure out if micro-credit really did benefit the poor and the women in the community [17,18,19,20]. Our research modifies the concept by dismissing group activities and making other developments to make it suit the health sector and local situation.

In China, the Cooperative Medical System (CMS) is a major mechanism for improving rural health services. Some argue that the CMS should be revived because of its prior significant contribution to the health of rural people [21]. Moreover, the system was found to lack of a clear regulatory and fiscal framework [22,23], of high cost and low quality, lack of trust in the management of funds and the disincentives for the young and healthy to contribute [23]. It is a fact that rural people reject the CMS, even though they have a much better life and much more income than before, by refusing to pay premiums. Furthermore, it required imposing compulsory premiums to rural people through local
administrations, which had been strongly criticized to charge heavy fees or tax and prohibited doing so by central authorities repeatedly. From 1990 to 2000, there were 4 central government administrative laws or regulations requiring alleviate the burden of villagers. Meanwhile, 5 central government ministries/departments issued ministries/department regulations to alleviate the burden of villagers and some 17 provincial regulations were issued to protect villagers from overcharging by local administrations [24]. Therefore, new health financing concepts are needed for the new social and economic reality in rural China. Our health-micro-credit scheme is a new concept that deserves serious consideration by policy makers.

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