

Summary Report No. 13

September 1999

Health Services Utilization and Research Commission
Assessing the Impact of the 1993
Acute Care Funding Cuts to Rural
Saskatchewan Hospitals

In 1993, 52 rural hospitals in Saskatchewan stopped receiving funding for acute care services. Since then, concerns have been raised about rural residents' access to care and the impact of these changes on their health. To determine how the funding cuts affected rural residents and their communities, the Health Services Utilization and Research Commission (HSURC) conducted a multi-faceted, province-wide study. We looked at hospital use patterns and health status, rural residents' perceptions of the impact of these cuts to acute care funding and of health reform in general, and how communities responded to the changes.

We found the funding cuts did not adversely affect rural residents' health status or their access to health services. Despite widespread fears that health status would decline, residents in these communities reported that the loss of acute care funding did not adversely affect their own health. We did, however, find rural residents are not satisfied with current health services and are concerned about the availability of physician and emergency response services in their communities. Although some communities continue to struggle with changes to health care delivery, others appear to have adapted as a result of strong community leadership, the development of widely accepted alternative services, and local support for creating innovative solutions. Making major changes successfully in health care delivery requires both creating and sustaining community understanding. Providing ongoing, relevant information, continually involving community members, and using transparent communication processes may not be sufficient means to this end; they are, however, necessary.

Introduction

Public scrutiny of the delivery of health care has never been more intense. Throughout many industrialized nations, citizens are expressing their concerns about their health care systems. In 1998, an international survey of about 1,000 residents from each of Australia, Canada,

Saskatchewan's health care system has undergone major changes since 1991. Key features of these reforms have included the integration of services in rural areas under district health boards and restructuring of acute hospital services. In 1993, 52 small rural hospitals stopped receiving funding for acute care (i.e., overnight hospital) services. Most were

New Zealand, the United Kingdom, and the United States revealed that citizens' dissatisfaction with health care is universal. Forty-six per cent of Canadians surveyed thought that recent changes to the health care system could harm the quality of the care available to them—the highest of all the countries surveyed. Today, one in four Canadians think their health care system should be completely rebuilt; in Britain, one in seven people feel this way; and in the United States, Australia, and New Zealand, one in three.

sub-sequently converted to health centres. Since these changes, community residents, the media, and politicians—among others—have raised concerns over access to and the quality of health care in rural areas, and the impact of these hospital conversions on the economic viability of these communities.

Our review of the literature yielded little research on the effects of such changes to small rural hospitals. Of

Page 2 Assessing the Impact of the 1993 Acute Care Funding Cuts to Rural Saskatchewan Hospitals

the few studies available, most were done in the United States on larger rural hospitals two to four times the size of the affected Saskatchewan rural hospitals. As a result, the conclusions were of limited applicability to the Saskatchewan environment. The Health Services Utilization and Research Commission concluded that a systematic review of the impact of the 1993 acute care funding cuts was essential. We wanted to conduct a study that would not only look at changes in hospital use and health status but would also examine the perceptions of residents directly affected by the cuts. As well, we wanted to find out how communities responded to the funding cuts and subsequent actions they took to deal with changes to health care delivery. This report summarizes our findings. We hope the data and analyses will both stimulate public discussion and inform health care planning and deliberations at the community, regional, and provincial levels.

We divided the overall study into three sub-studies:

- Health status/access to hospital care. We analysed hospital use and mortality (i.e., death) data in Saskatchewan from 1990 to 1996 to determine whether access to hospital care or the health of rural residents was affected.

To determine if the 1993 acute care funding cuts affected access to inpatient hospital care, we looked at hospital use rates before and after the cuts (i.e., from 1990 to 1996). To find out if these cuts affected the health of residents, we looked at death rates as a proxy (i.e., substitute, alternative) measure for health. We compared hospital use rates and death rates among the following four groups of communities: (1) communities that were affected by the 1993 acute care funding cuts; (2) rural communities that never had a hospital; (3) rural

Methods

In 1997, HSURC formed a working group of representatives from a number of rural communities. It comprised physicians, a nurse administrator, citizens who have served on rural health boards, and a sociologist and agricultural economist both knowledgeable in rural issues. The working group provided direction to HSURC staff throughout the research project. To fully examine the impact of the funding cuts to rural Saskatchewan hospitals, we sought answers to the following research questions:

- Were there any changes in inpatient hospital use by people in the affected communities?
- Were there any changes in the health status of residents in the affected communities?
- What were community members' perceptions of the impact of the changes on access to health services, quality of health services, and personal health status?
- What were community members' perceptions of health reform in general?
- How did communities respond collectively to the 1993 acute care funding cuts?

communities that still have a small hospital; and (4) the rest of Saskatchewan. We age, sex standardized all rates to the 1993 Saskatchewan population.

- Telephone survey. We interviewed 5,270 rural Saskatchewan residents in 25 of the 52 communities whose hospitals stopped receiving funding to find out how they thought the 1993 acute care funding cuts had affected their access to health services, their health status, and their community's viability, and to determine their general perceptions about health reform. Each health district that experienced the cuts was represented. In health districts where more than one hospital was affected, we randomly selected one community.
 - Focus group discussions. We conducted 19 focus groups in 10 communities to examine the range of communities' experiences with and responses to the 1993 acute care funding cuts. We spoke to local residents about how their community responded to the changes in health service delivery and the factors they thought helped or hindered their community's approach. We also asked them to identify their key concerns about the changes to health care delivery resulting from these funding cuts. Please refer to the appendix for a detailed methodology for each of the sub-studies.
-

Key Findings

A. Health status/access to hospital care

- Health status, as measured by death rates, improved throughout the province during the study period. (Figure 1, Table 1)
Communities that experienced the 1993 acute care funding cuts had the largest overall improvement in mortality rates; communities that still have small hospitals, the smallest.
- Communities that never had a hospital had the lowest mortality rates throughout the study period.
- Although hospital use has declined throughout the province, Saskatchewan's rates of hospital use continue to be much higher than national figures. (Figure 2)
Communities with hospitals whose funding was cut had the sharpest decline in rates; communities that still have small rural hospitals continue to have the highest rates of hospital use.
- After their local hospitals stopped receiving acute care funding, residents' use of base, regional, and large community hospitals increased by eight,

eight and six per cent, respectively. Today, 27 per cent of these residents' hospitalizations continue to occur in other small rural hospitals. For those communities that still have a small rural hospital, 57 per cent of their residents' visits are to their local hospital. (Table 1)

- Residents of communities whose hospital lost its acute care funding must now drive an average of 51 kilometres to the closest hospital. People living in communities that never had a hospital travel on average 40 km to the nearest hospital. (Table 1) B. Telephone surveying.

i. Access to health services

- About half of respondents reported seeking health services locally prior to the 1993 funding cuts (doctor, 59%; drug prescription, 57%; emergency, 62%; and overnight hospital stay, 47%). Hospital data confirmed that for residents of the 52 affected communities, 50 per cent of hospital visits were to the local community hospital prior to the 1993 acute care funding cuts.

Figure 1. Age, sex-standardized mortality rates by community group, (3-year moving average)

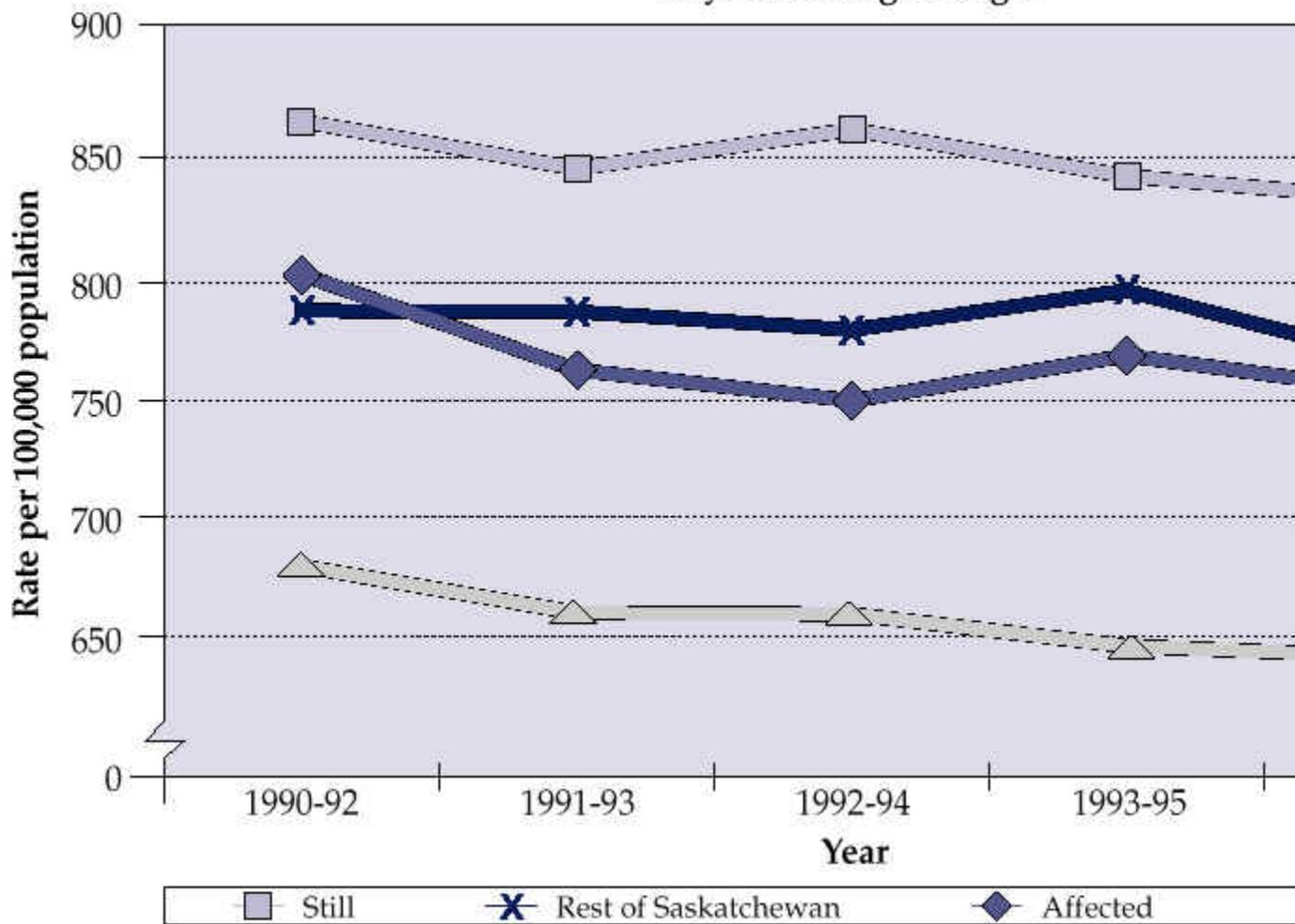


Table 1. Hospital utilization and health status before and after 1993 acute care funding cuts

	<i>Communities affected by '93 funding cuts</i>		<i>Communities still with small hospitals</i>		<i>Communities that never had a hospital</i>		<i>R 1</i>
	1990-92	1993-96	1990-92	1993-96	1990-92	1993-96	
Driving distance to nearest hospital (km)							
Average (standard deviation)	51 (18.7)				41 (15.9)		
Hospitalization rates							
Number of people hospitalized per 1,000 people	110.4	86.8	113.4	102.4	99.8	88.8	
Hospitalization per 1,000 people	229.9	144.8	247.0	194.9	190.9	153.1	
Base hospitals (%)	28	36	26	26	35	38	
Regional hospitals (%)	13	21	9	11	15	15	
Large community hospitals (%)	9	15	5	6	13	15	
Community hospitals (%)	50	27	60	57	37	32	
Episode of care per 1,000 people*	205.2	133.4	222.5	175.3	175.1	140.7	
Length of in-hospital stay (LOS)							
Average LOS per hospitalization	8.3	7.1	7.8	7.0	7.7	6.9	
Patient-days per 1,000 people	1732.0	919.1	1735.3	1197.9	1397.0	985.7	
Death per 100,000 people							
Death, all causes	803.1	754.4	853.3	833.1	684.9	651.1	
• heart attack (AMI)	117.2	87.1	113.7	90.7	116.9	76.1	
• motor vehicle injuries	22.9	16.6	18.9	21.4	23.6	17.7	
• stroke	59.4	53.1	61.0	59.3	53.3	47.2	
Premature death (aged 0-74)	329.3	297.3	325.3	339.0	271.3	266.6	

All rates are age, sex standardized to 1993 Saskatchewan population.

* An episode of hospital care represents continuous use of hospital care that may include one or more transfers between facilities. This measure adjusts for bias introduced by double counting separations for patients who are transferred from one hospital to another.

- Upon hearing of the cuts, about half of those surveyed anticipated that all existing health services would be lost and their local hospital closed completely.
- When asked why they were dissatisfied, most respondents said it was because doctor, emergency, and hospital services were now less available.

Doctor, emergency services, and overnight hospital stays were the services people thought would be adversely affected.

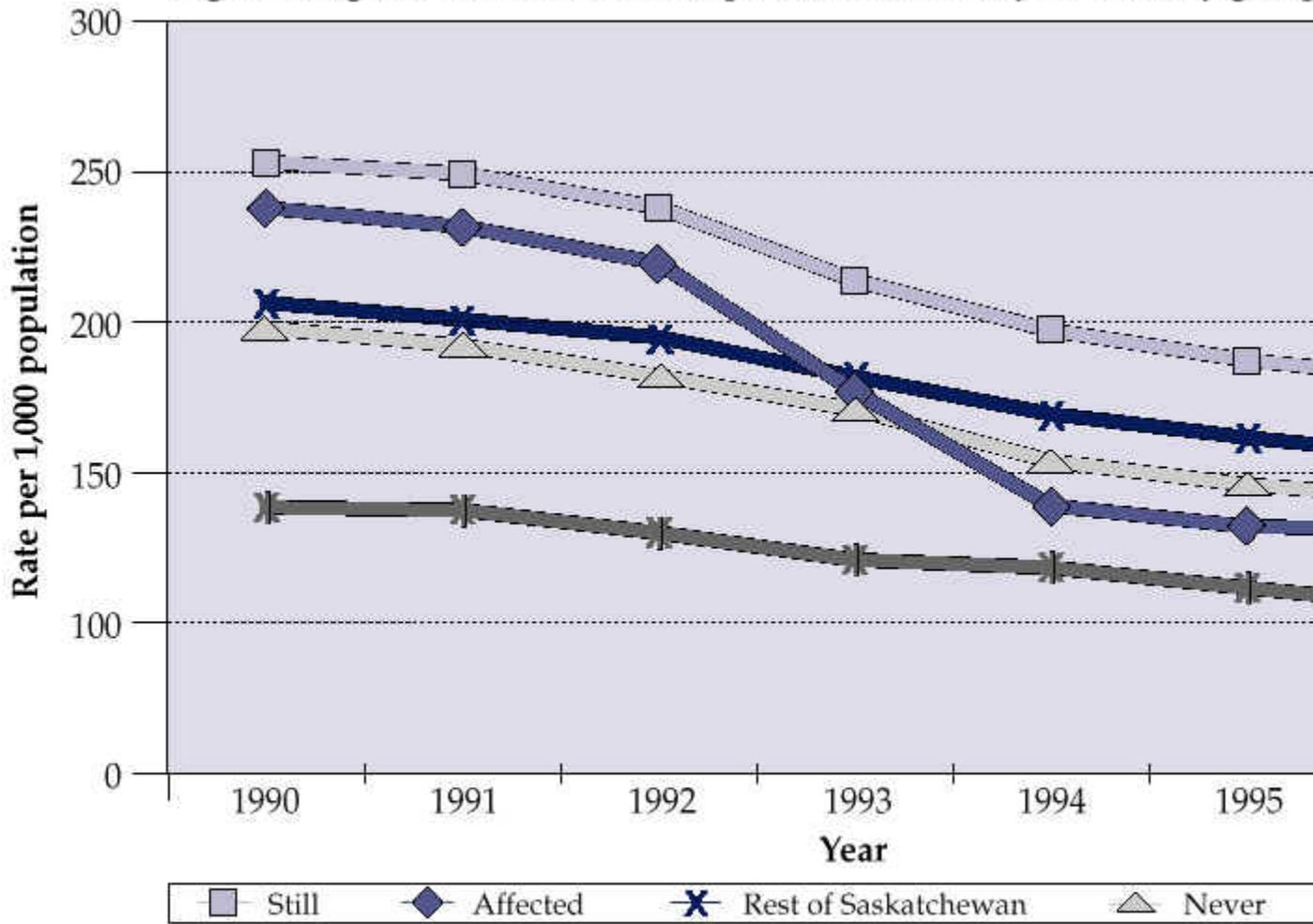
- Although 57 per cent of respondents anticipated their overall use of health services would decrease following the loss of funding, 74 per cent reported their current use was the same or had increased.
- Most respondents (82%) recalled being satisfied with health services prior to the 1993 acute care funding cuts. Over half were dissatisfied with current health services. (Figure 3)

- The most frequently cited additional services rural residents said they would like to have in their communities were doctor and emergency services.
- Those individuals most discontented with the current health system were young, perceived their use of health services had greatly decreased, anticipated harmful effects on their health from the funding cuts, or were in poor health.

ii. Health status

- Upon hearing of the 1993 acute care funding cuts, over 60 per cent of respondents anticipated their

Figure 2. Age, sex-standardized hospitalization rates by community group



Source for crude Canadian rates: Statistics Canada, Canadian Institute for Health Information (CIHI)

Figure 3. Rural residents' satisfaction with health services

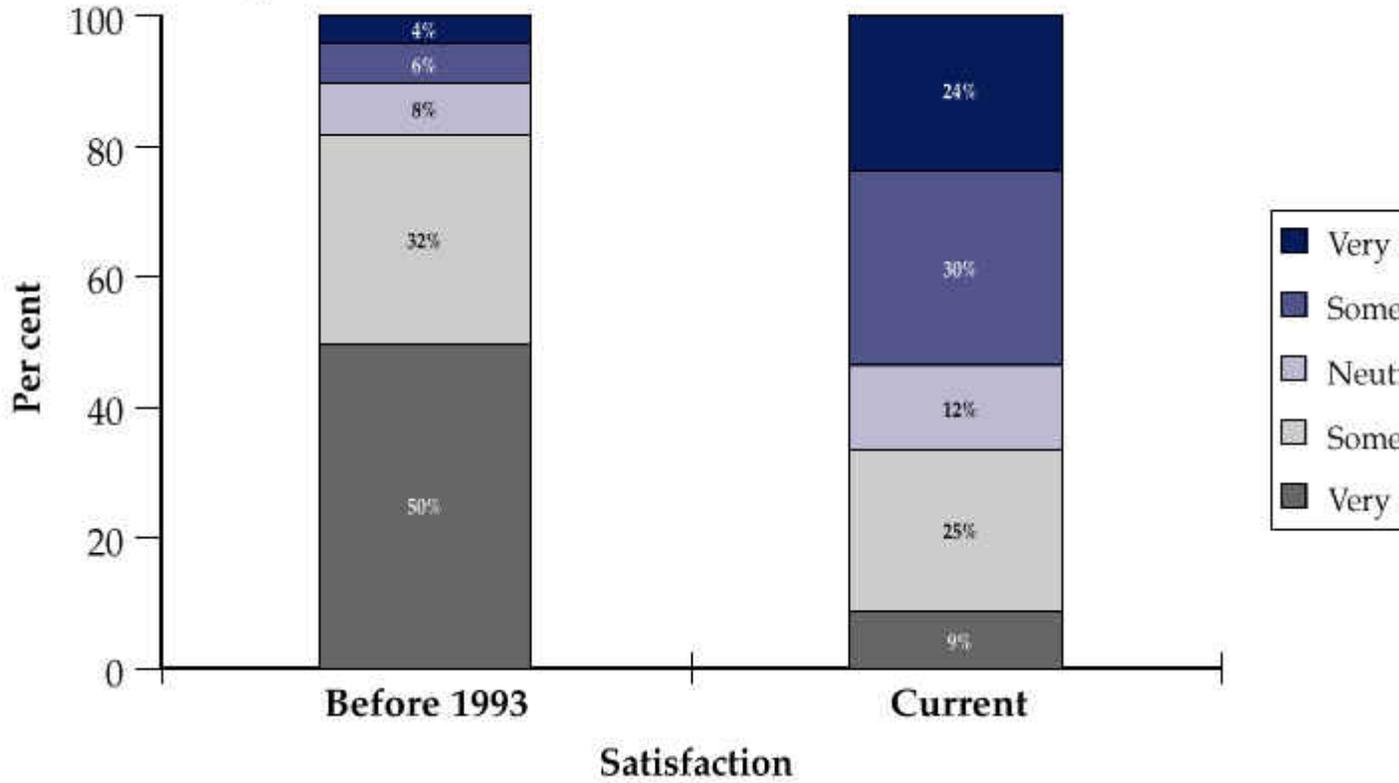
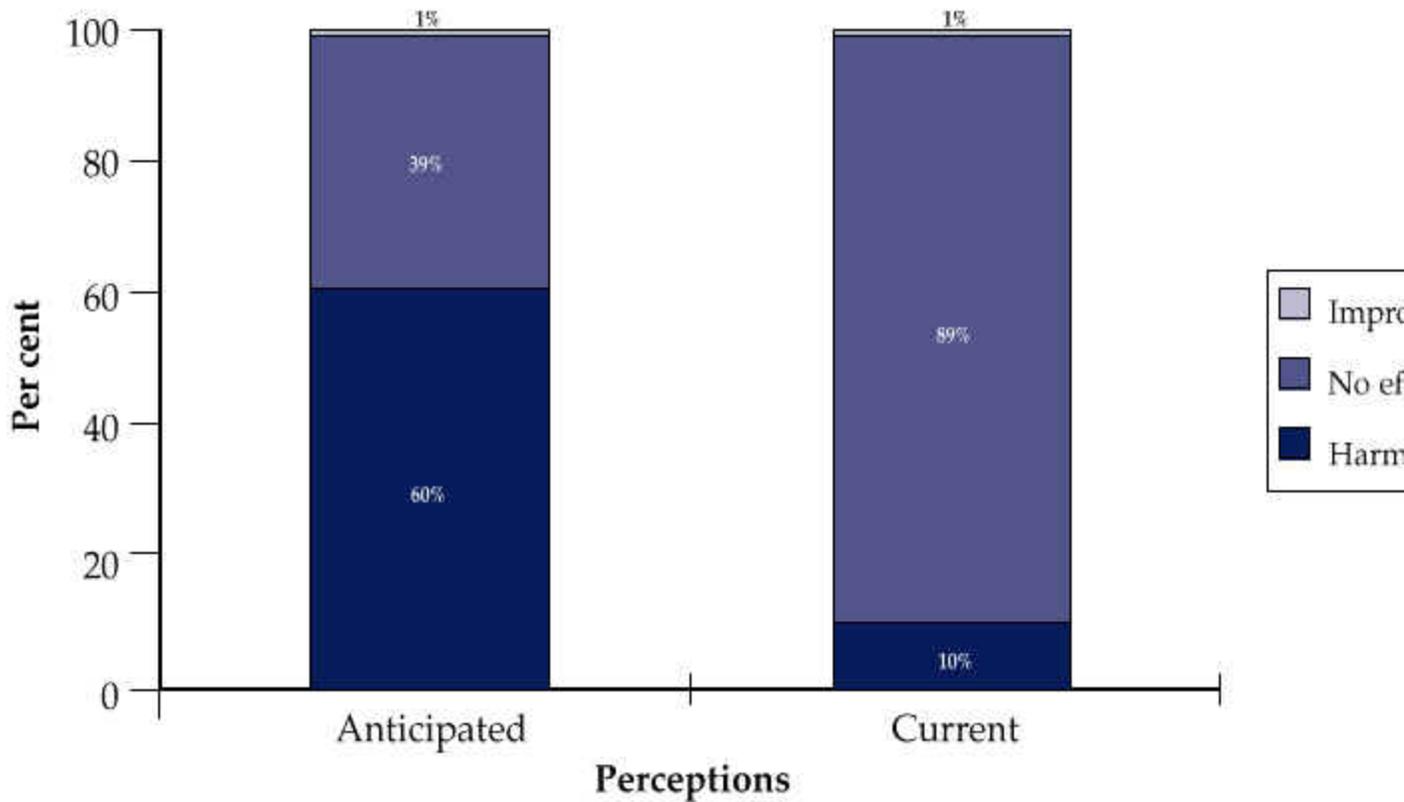


Figure 4. Rural residents' perceptions about the impact of the 1993 acute care funding cuts on personal health status



personal health and the health of other people in their household would be harmed. They were most concerned about reduced access to emergency services, risks associated with having to travel to another hospital, having to travel farther for health care, and decreased availability of health services in general.

- Contrary to what they anticipated, 89 per cent of respondents reported that the funding cuts had no effect on their personal health.

jobs in their town as a result of the cuts to acute care funding. (Figure 5) Most respondents jobs, and personal income either stayed the same or somewhat decreased. However, only 10 per cent believed the funding cuts were largely responsible for any changes to town size, r RM contained both a hospital that

- Respondents identified agriculture, natural resources, and other local business as the factors most responsible for the survival of their towns. When asked what factors would improve their town's viability, they listed higher commodity prices, more health care services, a sustained agriculture industry,

(Figure 4) In addition, 64 per cent of people surveyed said they were in good health.

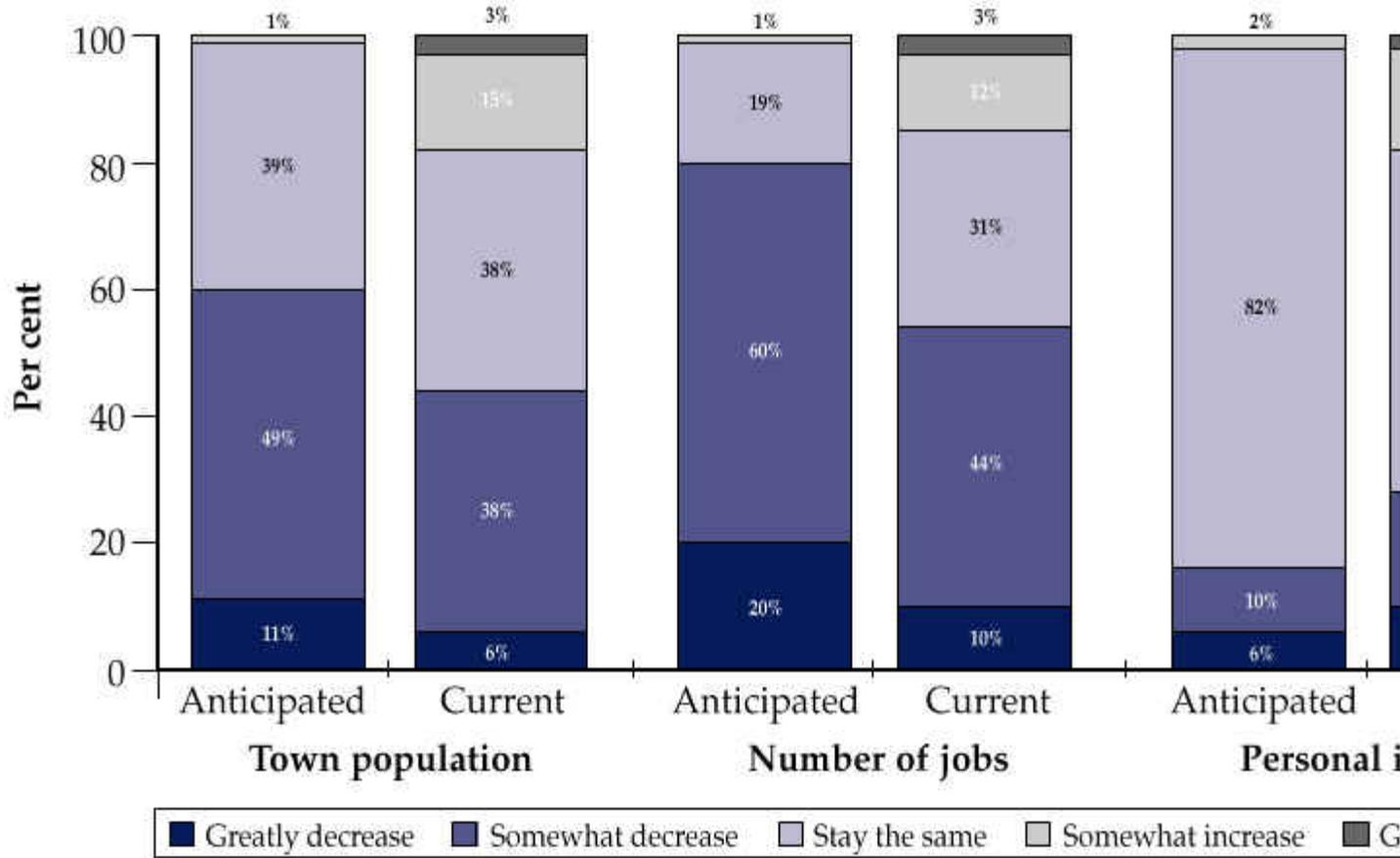
- About half of respondents reported they had made changes in the past five years to improve their health. Getting regular exercise, dieting, quitting or reducing smoking and drinking, and going for more frequent medical check-ups were the most commonly reported steps taken to improve their health. iii. Community viability
- Over half of the survey participants anticipated a decrease in population size and in the number of

and development of other local business.

iv. Satisfaction with health reform

- Most respondents believed that health reform had more to do with cost-cutting than wellness and that its pace had been too fast. Few saw the need for extensive health reforms, nor did they believe the changes made in the past five years had been for the best.
- Those individuals most satisfied with health reform were older, reported better health status, or perceived their use of health services had increased.

Figure 5. Rural residents' perceptions about community viability



C. Focus group discussions

i. Community responses

Communities responded in a variety of ways to news of the 1993 acute care funding cuts. Most pulled together and cooperatively worked toward one or several ends.

Many communities, at least initially, hoped to stop the cuts and keep their building open.

“People of the community got together to try to either delay it or postpone it or

recruiting a local physician or employing advanced clinical nurses).

ii. Community strategies

Communities employed a number of strategies to achieve their goals.

“... small-town rural, prairie people are resilient. Just because one thing doesn't work, well we'll live with that and try something else ...”

Most communities actively lobbied Saskatchewan Health and local politicians by writing letters, attending rallies, and

cancel this decision.”

In one community, leaders focused their energy on helping residents cope with the changes by focusing on the district formation process.

“I think we just knew ... it was cut and dried, so what were we going to do about it? I think what we had to decide was how are we going to cope with this.”

Other communities worked toward ensuring ‘needed’ health services were in place, retaining control of the hospital trust money, and resolving problems related to local primary care services (e.g., keeping or

holding town meetings. Many made their case by researching local needs; negotiating with local health districts; working cooperatively with towns, rural municipalities, and health district staff; forming advisory committees; and participating on district committees.

iii. Community concerns

Focus group participants expressed a number of concerns about how Saskatchewan Health handled the cuts to acute care funding in 1993. Their primary con-

cern was that before the announcement of the cuts, people living in rural communities had not been made aware of any overall long range plan for local health services that included alternative service arrangements for primary and emergency care.

“Well I think there was a lot of fear that once we lost the acute care beds then we would lose emergency and then we would lose the lab and then we would lose. It was fear of the unknown I think.”

In many communities the transition was more difficult because of the lag time between the announcement of the cuts and the establishment of health districts to work with communities in arranging alternate services.

“They...built this community, plan to retire here. The last thing they want is to be in some geriatric center in Regina not knowing anybody, and being scared to die alone.”

Finally, focus group participants felt the manner in which the cuts to acute care funding were handled unnecessarily increased fear, anger, and instability in most of the affected communities and today health districts still have to deal with this lingering bitterness and disillusionment.

iv. Community satisfaction

Only a few communities were satisfied with the out-comes of their collective response to the funding cuts. Despite now

Many community leaders were frustrated because they were not given any guidance about how to communicate what was happening with the rest of the community.

“They gave us some deadlines and said there was going to be a process to accomplish it...and they answered a few of those questions but they didn’t give us any help on how to come home and tell this to the whole community.”

People in the communities were frustrated because they did not know what was going on and did not feel they were consulted.

“They never reached out to the communities themselves and said, ‘How do you think it would best be handled?’...I mean we all know if we’ve got inefficiencies [we] can probably, given a bit of time...address them.”

“...the frustration comes from loss of local control. Who knows your community better than you?...They just felt that it didn’t matter what they said or what they did, nothing was going to do any good anyway. So they became very apathetic and didn’t contribute a lot.”

Many focus group participants told us that the community consultation processes did not appear to be legitimate (i.e., they perceived outcomes were pre-arranged). More importantly, they believed it showed great disrespect to “pioneers” who helped establish community hospital services.

having a variety of health services not previously available locally, many communities continue to be unhappy. Several factors were associated with a community’s level of satisfaction with the out-comes of their responses to the cuts. These factors are interrelated and include:

- Strong, committed leadership (in the community and in other organizations) that is open to innovative solutions, uses flexible problem solving, and is able to establish and maintain non-adversarial relationships.

“We have some individuals that are hard working and very enthused to keep it a thriving community...one of the few that is thriving and growing and that is due to I think some of the citizens that are really working at it.”

- Good communication and information sharing within the community, among leaders, and with outside agencies.
- Addressing local primary care and emergency health services issues, by providing needed services and working with residents to redefine health care needs.

“I think we’ve learned to redefine the word emergency too. Like so many people... have learned that [it] isn’t so acute anymore...”

“Retraining the public...things have changed...It took the community quite a while to adapt to that ...”

- A transparent planning process that draws on existing community expertise, is open to innovative solutions, and is tailored to local community needs.
- Supportive local health care providers willing to work together to find innovative local solutions to meet primary care and emergency care needs.

Discussion

A. Was health status adversely affected by the 1993 acute care funding cuts?

Cutting the acute care funding to 52 rural Saskatchewan hospitals has not adversely affected the health status of residents in these communities. We used two measures of health status: death rates and self-reported health. The mortality data from the affected communities clearly show that, on average, nothing bad happened to the health status of the population. It is important to remember, however, that although overall health status (as measured by death rates) did not appear to suffer, some individuals' health status may have. Overall mortality rates declined, with the largest decreases in communities whose hospitals lost their acute care funding. Death rates from heart attacks and motor vehicle accidents— life-threatening events known to be sensitive to emergency service response times and capacity—declined after the 1993 acute care funding cuts to a greater extent in affected communities than in communities that retained their small hospitals.

all mortality rates. The death rate (per 100,000 population) from motor vehicle accidents declined by 28 per cent in affected communities, but increased by 13 per cent in communities that kept their small hospitals. Similarly, the heart attack death rate declined more in the affected communities than in the communities that kept their small hospitals. ¹ Premature deaths (before age 75) declined 10 per cent in the affected communities, and increased 3 per cent in the communities that kept their small hospitals.

C. What about the communities that never had a hospital?

While it seems implausible that keeping a small hospital open could adversely affect a community's health status, the data from the communities that never had a hospital raise some interesting questions. After the funding cuts, overall death rates and death rates from heart attack and stroke were lowest in communities that never had a hospital. Their death rates from heart attack and stroke were in fact the lowest of the comparison groups. It is certainly plausible that other influences may account for these patterns. For example, healthier people may be more willing to live in a community without a hospital while those people at greater risk of health problems choose to live in communities with a hospital.

Although our results demonstrate a positive association between health status and the 1993 acute care funding cuts, we are unable to prove a direct cause-and-effect relationship. We do know that

Community residents' perceptions were consistent with the mortality data. Despite widespread fears that health status would deteriorate, respondents overwhelmingly reported that the loss of acute care funding did not adversely affect their own or their family's health. In addition, two out of three people surveyed rated their current health status as either good or very good.

B. Was health status positively affected by the 1993 acute care funding cuts?

Although we have no data to confirm that removing acute care funding from communities improved residents' health status, some of the data are intriguing and suggest further research is necessary. Compared to other groups, communities whose hospitals lost their funding experienced the largest declines in over-

residents of the affected communities nearly halved their use of hospitals (in terms of hospital days per 1,000 people) and their health status indicators improved to a greater extent than in the province's other small communities. One possible explanation—admittedly speculative and unconfirmed by the data—is that small hospitals unintentionally create dependencies and patterns of care that result in worse outcomes. Additional research is required to establish whether closing small hospitals is causally related to better health outcomes.

¹ The differences, however, were not statistically significant. This is either because the actual numbers of deaths were quite small or the difference was truly due to random variation. However, these are not sample statistics, but data on the entire population in the defined groups. At the very least there ought to be widespread interest in finding out whether these data signify real trends and deeper meanings or are simply random variations.

D. What do community residents think?

Those people who participated in our telephone survey and focus groups were not aware of the health status data presented above. We do not know whether their perceptions would have been different had they seen the comparisons of outcomes between their communities and those that kept their small hospitals. However, despite acknowledging that the 1993 acute care

communities have been in decline since 1961. All rural communities, including those affected by the 1993 cuts to acute care funding and those that continue to retain their local hospitals, are profoundly affected by long-term trends in technological change, consumer tastes and preferences, and changes in the way goods and services are provided. New production technology in agriculture, as in other primary sectors, has reduced demand for labour. Fewer people are

funding cuts did not harm their health status, study participants continue to resent the changes.

Survey and focus group respondents criticized the process by which the 1993 changes were communicated. Nevertheless, it is difficult to imagine a process that would have made the communities more accepting of the changes and of the general spirit of the poorly understood wellness model, given the impending loss of an important symbolic institution. That the resentment persisted five years after the event suggests that acceptance of change is invariably difficult. But there are limits to what even the best communications and consultation process could achieve.

Two communities in which we held focus groups seem to have adapted more readily to the change. Factors cited by participants as most helpful were community leadership, the development of widely accepted alternative services, and local physician support for doing things differently. These are not unlike the factors that promote rural community viability in general in a changing environment shaped by external trends and technologies.

It has long been assumed in Saskatchewan that local attachments to health care institutions had less to do with health concerns than with community viability. The survey results do not support this. Respondents identified general economic conditions and influences—not health services—as the most important factors affecting community viability. Perceptions are neither right nor wrong; in some communities the loss of acute care may indeed accelerate a decline while in

required to produce an increasing output, resulting in fewer jobs in primary agriculture and thus a smaller farm population. In the absence of an increase in other rural employment to offset these losses, rural population declines. For many goods and services, this translates into an insufficient population base to support outlets in small rural communities. Trends in transportation, communication, retailing, and consumer shopping patterns have also contributed to goods and services being produced and distributed in fewer, larger centres. The forces that have changed agriculture in rural Saskatchewan have also changed health care: changes in technology and increased specialization have resulted in acute care services being expanded in fewer, larger centres.

Residents of the affected communities and their district health boards differ considerably in their opinions about the need for and benefits of health reform. A 1997 survey of district health board members revealed widespread belief that major changes were necessary, that the outcomes had been positive, that both decisions and health status had improved, and that the system would be better in the future. Although two thirds of the board members were publicly elected, their perceptions are very different from those of their constituents (i.e., the survey respondents from the affected communities). This suggests one of two things: either communicating the intent and impact of health reform is extraordinarily difficult or there will always be a wide gap between the opinions of the general public and of leaders immersed in health care issues.

Residents of affected communities are

others this may not be the case. If the community retains jobs in other forms (expanded community services or long-term care, for example), the economic impact of the loss of acute care may be minimal. But in other cases, both the actual financial impact and the symbolic change in status may be significant predictors of community viability.

Agriculture economists at the University of Saskatchewan report that most small Saskatchewan

communities are concerned about emergency services and the availability of local physicians. Ensuring a stable supply of physicians for rural Saskatchewan has been a chronic problem that has not been solved by strategies ranging from intensive offshore recruitment to financial incentives. Turnover is high and some communities have had little or no success in retaining their doctors. The lifestyle and pressures associated with solo rural prac-

HSURC / September 1999 Page 11

tice are forbidding obstacles, yet there remain few multi-physician, multidisciplinary rural health centres. One of the major aspects of health reform was to be significant primary care reform, but with the exception of some experiments involving alternate payment systems and partnerships between physicians and advanced clinical nurses, there has been little movement on this front. It is unlikely that each small community can sustain a comprehensive health centre; unless communities join together to support a viable primary care practice, it is likely that historical recruitment and retention problems will persist.

Similarly, emergency services and transportation are perpetual "hot button" issues in rural Saskatchewan. The data do not suggest that the affected communities have suffered in either area as a result of the 1993 acute care funding cuts; if anything, death rates for heart attacks and motor vehicle trauma, are no different and possibly better.

Still, people's perceptions and concerns are important, and persistent dissatisfaction must be addressed if there is to be support for a restructured health system. Communicating difficult messages will always be problematic. We have learned from this research, however, that without relevant ongoing information systems, transparent communication processes, and continual involvement of community members, the implementation of major changes will be fraught with difficulties: Perceptions and realities will continue to diverge, community members will continue to feel disillusioned and resentful, resources will continue to be inappropriately allocated, and debate will remain mired in rhetoric and fallacy. In this regard, we raise the following issues with the hope that they will warrant further review and analysis by officials at Saskatchewan Health, district health boards, administrators, and the public:

Nevertheless, if acute care is to be increasingly concentrated in larger centres staffed and equipped to provide first-class service, finding the optimal configuration of emergency transportation is essential. In an earlier review of the literature on emergency services, we confirmed the findings of others that remarkably little is known about the relationship between the design of emergency medical transportation systems and health outcomes. The concerns of rural residents and health boards will not go away until there are good data on how service locations, staff mix, and technology affect health outcomes.

Key Conclusions

Spending scarce resources on expensive types of health services such as small rural hospitals is not effective. Despite major increases in provincial health care expenditures in recent years (\$1.92-billion in 1999-2000 compared to \$1.52-billion in 1991-92 and a low of \$1.49-billion in 1993-94), the majority of residents in communities that lost acute care funding continue to be dissatisfied with the current state of health services. They remain concerned about access to physician and emergency services in their communities. Many communities continue to struggle with changes to health care delivery. an answers; this study is no exception. tion. While we think the results generated d from this research should help to inform the debate, there remain a number of ues that warrant further research: □What are the causal links (as

Create community understanding

It quickly became apparent from our research that communities had little or no understanding of the impetus for and process surrounding the 1993 cuts to acute care funding. Although district health boards work diligently at getting information to their constituents, residents continue to feel disengaged long after the changes have occurred. This discrepancy suggests that if health care decision-makers hope to manage change effectively, they must create a level of understanding within the communities their policies will affect. This in turn requires relevant, ongoing, and accessible information on how the system is performing; active community consultation; and effective communication processes. Specifically:

Health information

- District managers and Saskatchewan Health managers must work together to develop the information required for effective decision making and to increase the public's understanding of health care issues.
- Saskatchewan Health and districts must allocate resources to develop better health intelligence systems (i.e., comprising data collection, analysis, and management) that demonstrate to the public what does and doesn't work.
 - To ensure the data are meaningful to health districts and their residents, both district-level

and comparative province-wide information is needed.

- Information on health service use and health status must be produced on a timely basis with regular reporting and monitoring by health districts and Saskatchewan Health.
- Policy makers at the district and provincial level should report the importance and impact of the social and economic determinants of health alongside information on the performance of the health care system.

Community consultation and communications

- Effectively managing change can be facilitated by open, ongoing, and informed communication. Informed communication, however, not only involves sharing information with those affected by the change but also listening to and gathering information from these individuals. Failing to acknowledge past community efforts, respect local expertise, or support community innovation, will limit the extent of joint ownership of problems and solutions and shared decision making between residents and policy makers.
- The more profound and far-reaching the change, the greater the need for an effective process

- How do emergency medical services, primary care organizational structures, advanced clinical nurses, etc. affect health status? What are the most effective and efficient ways to organize and situate these services?
- Why do residents living in communities that never had a hospital appear to be healthier?

Selected references

The Commonwealth Fund. 1998 Commonwealth Fund International Health Policy Survey. New York 1998.

Stabler JC, Olfert MR. The Changing Role of Rural Communities in an Urbanizing World: Saskatchewan, An Update to 1995. Canadian Plains Research Centre, University of Regina. Regina, Canada 1996.

Kouri D, Dutchak J and Lewis S. Regionalization at Age Five: Views of Saskatchewan Health Care Decision Makers. HEALNet Regional Health Planning, Saskatoon. December 1997.

Health Services Utilization and Research Commission. Reducing Non-Urgent Use of the Emergency Department: A Review of Strategies and Guide for Future Research. Issues and Directions Paper, December 1997.

Study working group

Jerry Danielson (Chair), physician, Prince Albert and HSURC board member
Marianne Hodgson, nursing consultant, Regina and HSURC board member

for communicating the intent and expected outcomes to the public. Health care is highly democratized and is typically an issue of great public interest and concern.

Although it may be unrealistic to expect people to support decisions they believe to be unwise or unfair, the major differences of opinion between the public and those who oversee the system are problematic. If any sort of consensus is to emerge, there will have to be more constructive discussion, which in turn requires better-quality information to inform the debate.

James Irvine, Medical Health Officer - Northern Health Districts, La Ronge and HSURC board member
Murray Knuttila, Dean of Arts, University of Regina, Regina
Bernice MacDougall, former board chairperson, Southeast health district, Regina
Russ McPherson, former board member, SAHO and Midwest health district, Outlook
M. Rose Olfert, Associate professor, Department of Agriculture Economics, University of Saskatchewan, Saskatoon
Michael Smith, physician, Lucky Lake (until March 1999)

Future research

Research often produces more questions than answers; this study is no exception. While we think the results generated from this research should help to inform the debate, there remain a number of issues that warrant further research:

- What are the causal links (as opposed to statistical associations) between changes in health service delivery (e.g., the closing of small rural hospitals) and health?

Sandy Weseen, Home Care Coordinator, North Central health district.

HSURC staff involved in the project were Greg Basky (communications manager), Bonnie Brossart, Joanne Hader, Liyan Liu

Appendix

Detailed description of methods

Administrative data analysis

and Robin White (researchers), Steven Lewis (project advisor), Kelly Chessie (internal reviewer) Barb Nisbet (communications support), Raquel Chapdelaine, Judith Wright (research assistants), and Jason Ram (library assistance).

Acknowledgements

HSURC researchers would like to acknowledge the following agencies/individuals for their input to the study:

- The Prince Albert Health District for sharing its analysis on hospital use patterns among residents whose local hospital was affected by the 1993 acute care funding cuts. This intriguing data provided the impetus for HSURC to conduct the research contained in this report.
- Valerie Phillips and Sean Goalen, Corporate Information and Technology Branch, Saskatchewan Health, for their assistance with preparing the administrative data.

Disclaimer

The telephone survey and focus group components of this project received financial support from the Health Transition Fund, Health Canada. The views expressed herein do not necessarily represent the official policy of Health Canada.

Data collection

To study hospital use patterns for the entire province, we obtained from Saskatchewan Health the entire Hospital Separation File for fiscal years 1990 to 1996. The file contains data on every inpatient separation from a Saskatchewan hospital. To monitor mortality over time we also obtained Vital Statistics data from 1990 to 1996. We used Covered Population data from Saskatchewan Health to create denominators for hospital use and mortality rates.

Methodology

In the administrative data analysis component of the study, we wanted to determine whether access to hospital care and the health of rural residents were affected by the 1993 cuts to acute care funding. To assess the impact on the group of communities directly affected by the cuts (affected group), we compared this group's data to three comparison groups:

- rural communities that never had a hospital;
- rural communities that still have a hospital (with an average daily census < 20); and,
- the rest of Saskatchewan

We chose these comparison groups to control for external factors that may account for changes in access to hospital use independent of the funding cuts. For instance, without an independent comparison group, it may appear straightforward to attribute a reduction in hospital separation rates to the removal of acute care services, when in fact hospital separations have been declining both

provincially and nationally.

We chose communities that never had a hospital to help predict what could happen to communities after their hospital no longer provides acute care services. To ensure this group was as similar as possible to the affected group, we matched the never group with the affected group on population size, population density, elderly dependency ratio (i.e., the ratio of people aged 65 years and older to the population aged 15-64), and Stabler and Olfert's (1996) functional classification of economic viability that categorizes communities into hierarchical levels.

Page 14 Assessing the Impact of the 1993 Acute Care Funding Cuts to Rural Saskatchewan Hospitals

To predict what may have happened in the affected group had the cuts not happened, we created a still group of communities with populations of less than 1,500 that continue to have a hospital. Finally, we created a rest of Saskatchewan group to provide an overall summary of hospital use and health status patterns over the study period.

Unit of analysis

To capture the population that would be affected by the presence or absence of a rural hospital, we defined hospital service areas. These areas included the town and its surrounding rural municipality (RM). However, several communities assigned to different comparison groups shared the same RM. For example, Fillmore and Creelman are both in RM 96, yet

minor differences will be statistically significant. Thus, we did not test for statistical significance where the age-sex-standardized hospitalization rates were different between pre and post-conversion time periods. We did, however, test for statistical significance differences in age-sex-standardized mortality rates between pre- and post-conversion.

We also did three multivariate analyses to test for statistical differences in trends between the conversion group and the comparison groups:

- profile analysis based on Generalized Linear Model (GLM);
- analysis of covariance; and,
- mixed modeling for repeated measurements

Fillmore's hospital was converted in 1993 while Creelman never had a hospital. To keep the comparison groups independent or mutually exclusive, the never group excludes those communities that never had a hospital but shared an RM with communities that did. There were 45 communities in the never had a hospital group.

The still group includes communities that still have a hospital. Three communities have been excluded from this group because their RM contained both a hospital that is still open and one that was affected by the 1993 acute care funding cuts. As a result, there were 28 communities in the still have a hospital group.

Statistical analyses

To assess if the 1993 funding cuts affected hospital care, we calculated the number of residents hospitalized and hospitalization rates. We also calculated readmission rates within 30 days of discharge, mortality in hospital, and mortality within 3 months of hospital discharge. Mortality from acute myocardial infarction, motor vehicle injuries, stroke, and GI bleeding were calculated to determine if preventable deaths had occurred. We selected these particular conditions for detailed study because patients may die if adequate intervention is not available within distance- sensitive time periods. Because the number of GI bleeding cases was too small to detect trends or differences, we do not present the results here. We age and sex-standardized all of the rates to the 1993 Saskatchewan population. For very large numbers of hospitalizations such as these, even the

Although based on different statistical modeling, these three procedures produced the same conclusions about the differences in time trends between study groups.

Limitations

As mentioned above, the data we used for our analysis of hospital use patterns came from Saskatchewan Health's Hospital Separation File. This database contains data on every inpatient separation from a Saskatchewan hospital. After the 1993 round of cuts to acute care funding, many converted hospitals set up "observation beds" in their health centre facility. Data on the use of these beds have not been comprehensively collected by Saskatchewan Health and as a result, are not included in our analysis. In some instances, these beds have been used as replacements for previously closed inpatient beds with people staying for periods longer than 24 hours. Our exclusion of these data has potentially resulted in an underestimation of inpatient use during the post-funding cut period.

Another limitation may be our exclusion of the hospital utilization data for First Nations people. For our study period, the residence of First Nations people was collected based on the reserve occupied by the band to which they belonged rather than where they actually lived. As a result, utilization patterns to some facilities may be inaccurate. As well, we did not have an electronic file to link the reserve code to a particular rural municipality residence code (which formed the basis for how we defined the community and the study groups). We did, however, include First Nations

most

data in the "Rest of Saskatchewan" study group. There was little difference in the results whether these data were included.

Communities included in the study groups used in the analysis:

- Affected communities:
Gainsborough, Lampman, Bengough, Rockglen, Mankota, Gull Lake, Eastend, Cupar, Craik, Ituna, Langenburg, Nokomis, Elrose, Kyle, Eatonia, Invermay, Watson, Borden, Macklin, Arborfield, Birch Hills, Edam, Oxbow, Coronach, Climax, Radville, Lafleche, Kincaid, Ponteix, Fillmore, Vanguard, Montmartre, Whitewood, Cabri, Lucky Lake, Beechy, Imperial, Eston, Theodore, Dinsmore, Milden, Dodsland, Norquay, Spalding, Cut Knife, Neilburg, and Smeaton.
- Communities that never had a hospital: Frontier, Willow Bunch, Stoughton, Ogema, Milestone, Maryfield, Avonlea, Mossbank, Wapella, Hodgeville, Richmond, Rocanville, Fox Valley, Killaly, Bethune, Churchbridge, Bredenbury, Dysart, Strasbourg, Burstall, Wishart, Punnichy, Kenaston, Hanley, Buchanan, Coleville, Leroy, Colonsay, Perdue, St. Gregor, Bruno, Archerwill, Naicam, Waldheim, Blaine Lake, Duck Lake, Leask, Lashburn,

complete range of variation among communities, we selected 25 communities on a stratified and random basis. Communities were stratified to ensure representation from each health district in which funding to a rural hospital was cut. In those health districts where more than one hospital was affected, a community was randomly selected.

We received funding for the survey from the Health Transition Fund (HTF) Secretariat of Health Canada. The University of Saskatchewan Ethics Committee reviewed and approved our survey.

The target population for telephone interviewing was all persons aged 26 and older at the time of the survey (i.e., people who were adults for the entire study period, 1990 to 1996), who lived within a 30-kilometre drive of the hospital affected by the 1993 acute care funding cuts, were aware of the funding cuts, and could be contacted by direct dialing. We aimed for sample sizes of about 225 for each community, to provide an accuracy level of +/- 6%, 19 times out of 20.

We obtained electronic phone lists from Direct West based on the telephone exchanges for the 25 communities. These lists consisted of all the available, listed residential phone numbers in the specified communities. There were seven communities that included towns that still had a hospital providing acute care

Meath Park, Canwood, Debden, Glaslyn, Carnduff, Carlyle, and Raymore.

- Communities that still have a hospital: Redvers, Arcola, Wawota, Gravelbourg, Kipling, Wolseley, Herbert, Balcarres, Central Butte, Leader, Lestock, Davidson, Foam Lake, Lanigan, Preeceville, Kerrobert, Kelvington, Porcupine Plain, Wakaw, Rosthern, Hafford, Kinistino, Maidstone, Carrot River, Shellbrook, Turtleford, Big River, Loon Lake
- Rest of Saskatchewan: all other communities in Saskatchewan.

Telephone survey

Administration and sample

To better understand rural residents' perceptions about the impact of the 1993 acute care funding cuts, we conducted a telephone survey in a number of selected communities (i.e., the town and surrounding rural municipality). To achieve a compromise between scope and cost and to ensure we included the

services within the 30-km radius. Phone numbers from these towns were not included in the phone lists.

We mailed a pre-notification announcement of the survey to all residents of the selected communities in late September 1998. We also ran newspaper advertisements in the local weekly newspapers at the beginning and mid-way through the interviewing.

Data collection

Prairie Research Associates Inc. (PRA) of Winnipeg were contracted to administer the survey. They administered it through a 20-station CATI (computer-assisted telephone interview) system located at their office.

The questionnaire was pre-tested by trained interviewers on 27 randomly selected residents of the community of Macklin on September 23, 1998. HSURC staff and PRA supervisors reviewed the audio taped pre-test surveys to identify any confusing wording, inadequate response categories, or problems with questionnaire flow. We modified questions to increase clarity and improve flow in instances where more than one pre-test respondent experienced problems.

Interviewing began October 5, 1998 and was completed on December 15, 1998. All of the data collection was conducted at the PRA site between the hours of 9:00

tor, and a leading business person or citizen active in community work). We asked them to nominate individuals knowledgeable about that community's

a.m. and 9:00 p.m., Monday to Friday, 10:00 a.m. to 5:00 p.m. on Saturdays, and 12 noon to 8:00 p.m. on Sundays. Upon making contact, interviewers identified themselves, verified the telephone number, explained the nature of the study, and then asked the screening questions for selecting the respondent. Before administering the questionnaire the interviewer informed respondents that their participation was voluntary, their responses would be kept completely confidential, and that they could terminate the interview at any time. The interviewers completed interviews with 5,270 individuals. The overall response rate was 59%.

Statistical analyses

The interviewer asked to speak to an eligible person with the next birthday in an effort to recruit an equal number of male and female respondents. Despite these efforts, two thirds of respondents were females. As a result, we age- and sex-weighted our results to the 1997 Saskatchewan population to adjust the survey sample distribution. We also performed analyses of covariance to identify factors related to satisfaction with health services and health reform.

Focus groups

From the 25 communities that participated in our public opinion survey, we selected 10 in which to hold focus group discussions. Our goal in selecting these communities was to collect information on a range of experiences with, and responses to, the restructuring and integration of services. Specifically, we were interested in variation among the communities in such attributes as the

response to the 1993 acute care funding cuts. We aggregated these lists and asked two of the key contacts to re-nominate people. From the lists we invited individuals who were nominated at least twice, along with others, to make sure the groups had variation in background and constituency. Focus group sizes ranged from six to 12 people. On average, eight community residents participated in each focus group.

For each focus group, we used a standard interview schedule. The questions contained in the script were designed to generate information on the character of the community, how it learned of the cuts, the steps the community took to cope, the feelings it had both initially and currently, why the community thought things had happened the way they did, factors that made coping more difficult, and factors that helped the community to cope. We audio taped and subsequently transcribed all focus group discussions. Two researchers independently developed and applied codes to the data, regularly comparing these analyses as a reliability measure. We then organized and compressed the data into a framework that would enable us to both verify the data and generate conclusions.

The University of Saskatchewan Ethics Committee reviewed and approved the focus group research proposal. We received funding for this component from the Health Transition Fund Secretariat of Health Canada. We contracted Moore Chamberlin and Associates (MCA) to organize and conduct the focus groups and to prepare the data. HSURC staff and MCA jointly analysed the focus group

community's response to the 1993 acute care funding cuts, its geographic location, changes in its population and services over a 30-year period, the proportion of residents 65 and older, and the type of facility in the community prior to the cuts (i.e., standalone hospital, integrated facility, or hospital with separate special care home). Some communities approached HSURC to request that a focus group be held, and 4 of the 10 sites were chosen on this basis.

To identify focus group participants, we first contacted three people in each community (the health centre administrator, town or rural municipality administra-

data.

Further Information

Additional printed copies of this report are available. To order contact Barb Nisbet at:

Health Services Utilization and Research Commission

Box 46, 103 Hospital Drive
Saskatoon SK S7N OW8

Telephone: (306) 655-1500; Fax (306) 655-1462;

E-mail: nisbetb@sdh.sk.ca

This report is available on the HSURC website:

<http://www.sdh.sk.ca/hsurc/>