Creating Patient Flow

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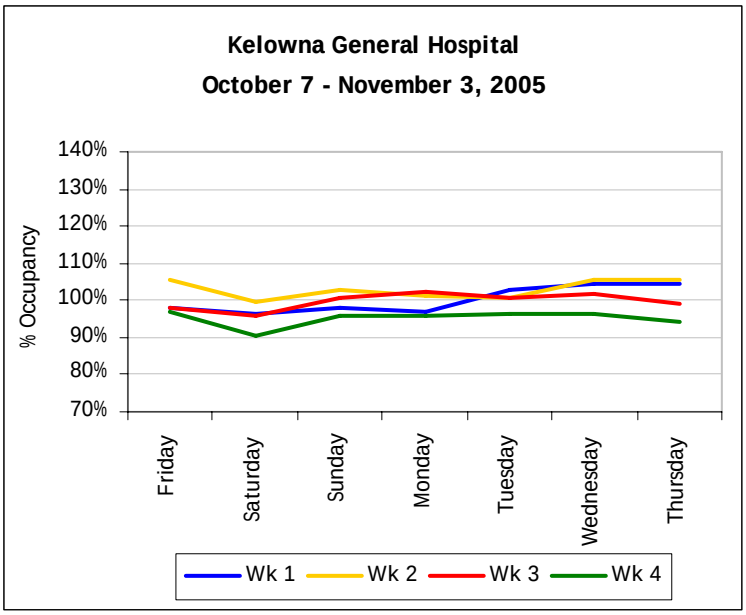
Creating Patient Flow

Our hospitals are too full and we need to do something about it. No one person or group is likely to come up with all of the solutions needed to address all of the stresses acting upon our system but our hospitals are having difficultly coping with the number of patients that are coming through the door and we need to apply some collective wisdom to lessen the load. Maintaining our current approach would seem to be a recipe for an unsustainable situation. Given the demographic trends, it would seem that we can expect more business on the way. The economic reality would suggest that there is a limit to what we can spend on health care before we are faced with the possibility of having little left to spend on anything else. Our health care providers are retiring faster than we can replace them making the possibility of increasing their numbers unlikely in the near future. The people in the system are working about as hard as they can possibly be asked to do and indeed, even at times well beyond what they probably should be doing. The answers would seem to be in developing a full understanding of the current pressures on the system and then reforming the system in a way that is likely to be more efficient. Patient flows will need to be completely understood in order to attempt to reduce the flow of patients entering the hospital system and to improve the speed with which they go through the system. There is a "perfect storm" of forces lining up against our hospital system. This paper is an attempt to find some potential lifeboats to ease our situation.

Current System Pressures

While the pressures on the Royal Inland Hospital, Shuswap Lake General Hospital and Kelowna General Hospital have been in the news of late, most of us have been aware of significant pressures for quite some time. Here is a sampling of hospitals in IH over a 4 week period obtained through Anne-Marie Broemeling and Fern Hind:

IH Hospital Occupancy Levels Oct 7 – Nov. 3, 2005


Kelowna General Hospital
October 7 - November 3, 2005
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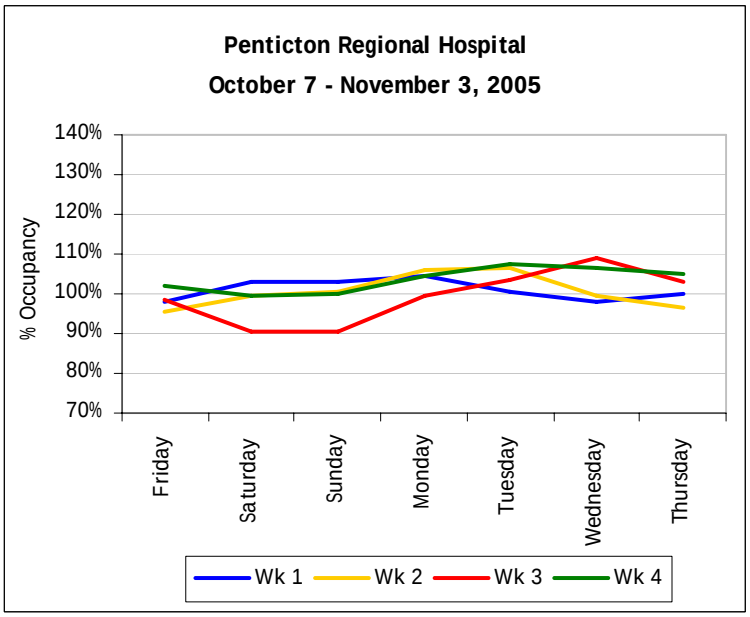
Penticton Regional Hospital
October 7 - November 3, 2005
% Occupancy
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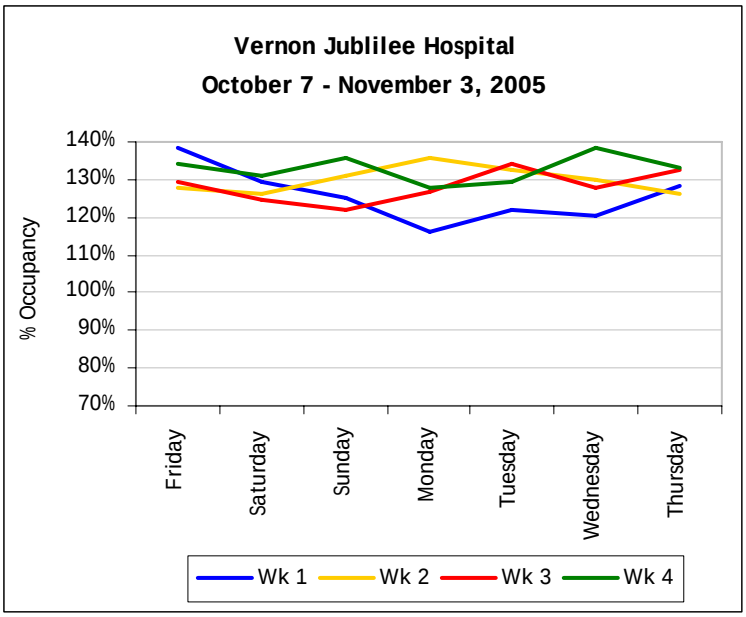
Vernon Jublilee Hospital
October 7 - November 3, 2005
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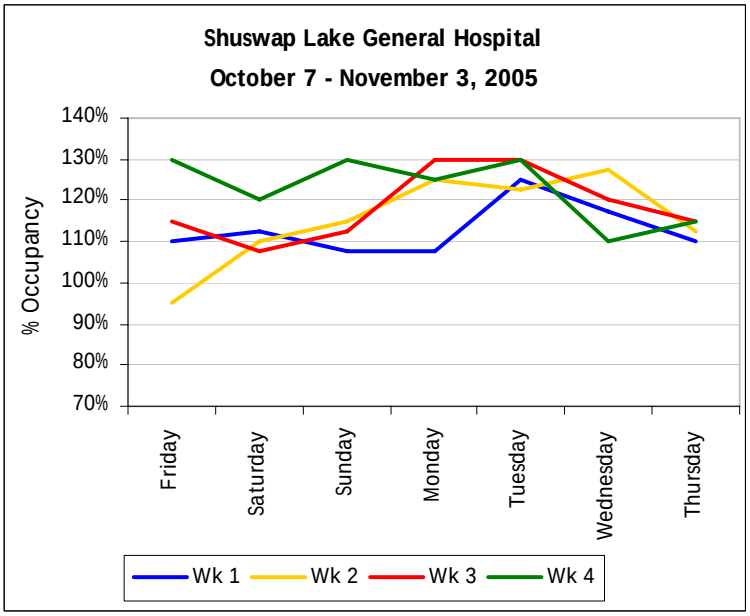
Shuswap Lake General Hospital
October 7 - November 3, 2005
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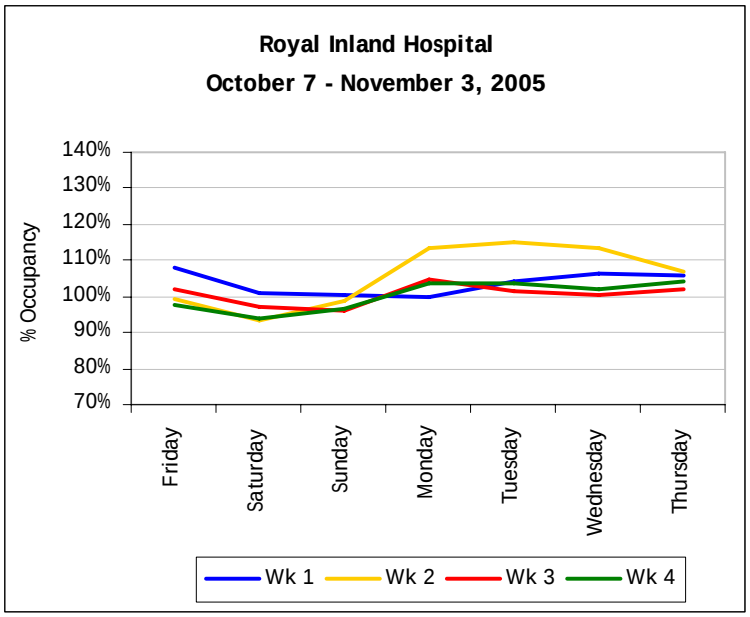
Royal Inland Hospital
October 7 - November 3, 2005
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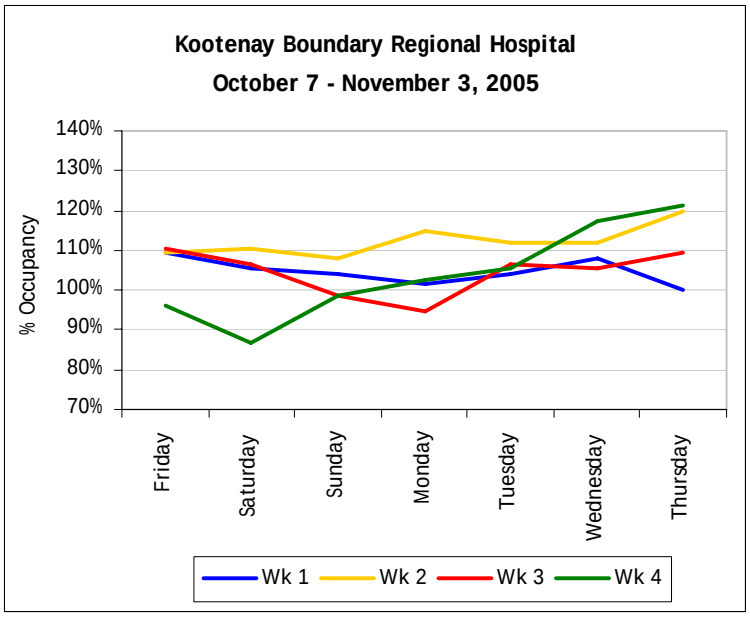
Kootenay Boundary Regional Hospital
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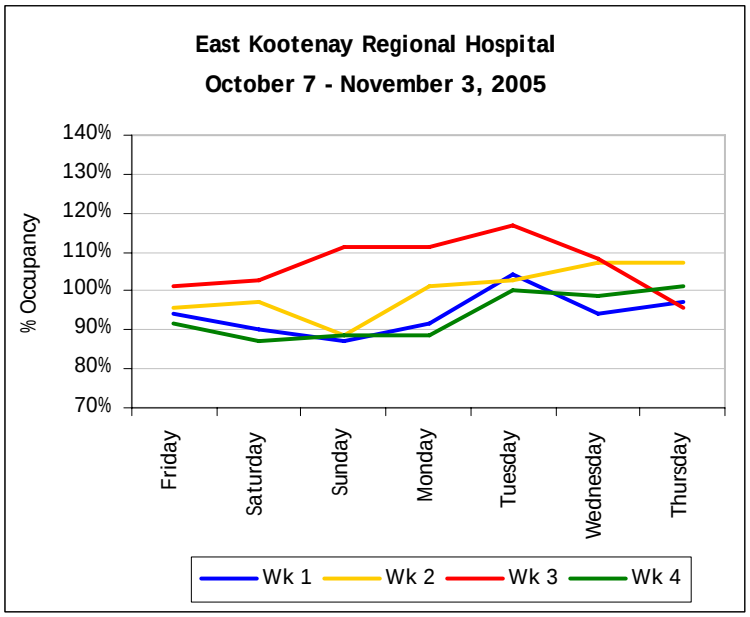
East Kootenay Regional Hospital
October 7 - November 3, 2005
% Occupancy
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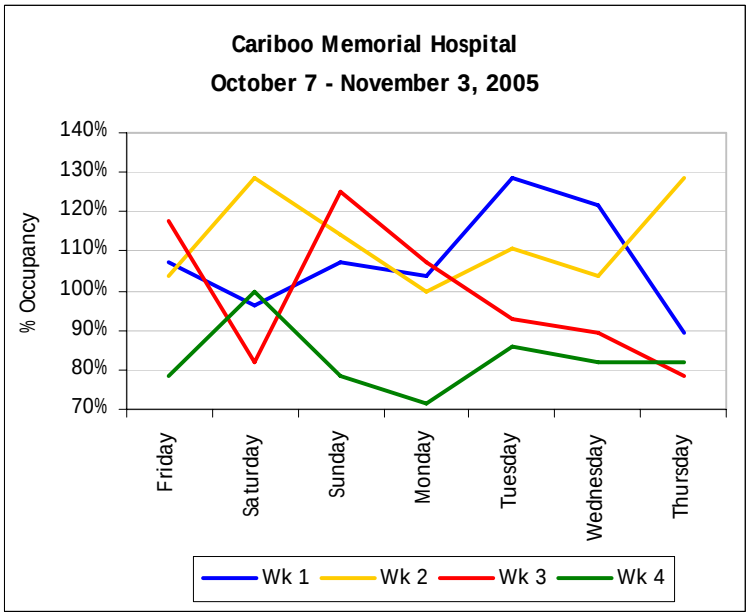
Cariboo Memorial Hospital
October 7 - November 3, 2005
% Occupancy
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Looking at the Kelowna General Hospital over several periods gives an idea of the pressures within our current system:

This data was provided by Stan Marchuk.

KGH Occupancy statistics 2005

KGH Hospital Area	Period 6	Period 7	Period 8
Overall Hospital Census	95%*	102%	103%
Midnight Census	92%*	99%	99%
Overall Average Occupancy of Medical Beds	101%	102%	103%
Overall Average Occupancy of Surgical Beds	98%	101%	100%
Overall Average Occupancy of Critical Care Beds	93%	95%	95%
Overall Average Occupancy of Mat-Child Beds	72%		75%
Overall Average Occupancy of Psychiatry	104%	113%	109%
Overall Average Occupancy of Rehab	67%*	99%	98%
Patients being held in Emergency (average)	7	8	10

*Summer partial closure of rehab and surgical beds skew results.

Hospital overcrowding has significant effects on the efficiency of the organization. If greater than 2% of patients are parked during the day or the hospital is greater than 90% full one-half of the time, it is likely that the hospital will encounter regular flow problems (31). We may have reached the maximum of what can be achieved by staff working more hours at increased intensity. There is a need to transform the system rather than just focusing on improving a particular department or part of the system. Delays in the Emergency department result in a delay in treatment and yet increasing the capacity of the emergency department to accommodate more patients is like broadening only the large end of the funnel (32). There is not enough forward movement and inadequate capacity.

There is ample evidence that we are overcrowded. Evaluating the system requires a review of the factors which play a role in sustaining and straining the system now and into the future, so that it is possible to design a system that has the capacity to deal with the future. Once the extrinsic pressures are understood, an attempt must be made to evaluate the factors which influence the flow of a patient through the hospital system. To be successful, we must identify methods to reduce the number of patients flowing into our system, improve the efficiency of flow within the hospitals and speed up the flow of patients out of our hospitals. No one strategy will solve all of our problems in all likelihood. This paper hopes to address some areas that have the potential to lessen the strains on our hospitals.

Extrinsic Pressures on the System

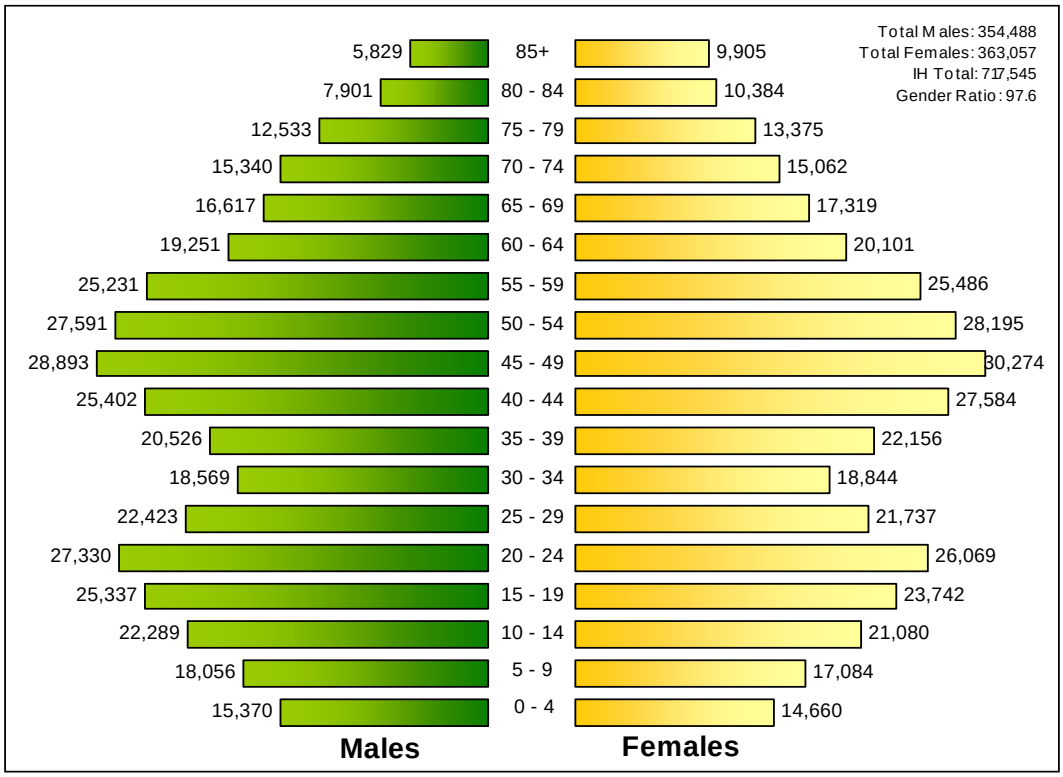
The main extrinsic pressures on the system relate to demographic, economic and personnel pressures.

Demographics

The population sample of IH is shown on the following diagram. The general proportions have remained the same as this modeled on the BC Stats PEOPLE 29 population projection update. The new PEOPLE 30 data show that the population projections are about 1.8 % higher than PEOPLE 29 for 2005. The 2006 population of Interior Health in B.C. is approximately 717,545 (PEOPLE 30).

There are projected to be major changes in the demographics in the years to come. There is expected to be 10.6% growth in the population between 2006 and 2016 (PEOPLE 30). Much of this increase will be through migration. The median age of death is expected to increase to 82 years. There will be a significant growth in the over 65 age group.

B.C. is aging, resulting in a larger population over 65 now then ever before. Those trends are expected to continue. Roughly 8% of Canadians aged 65 or over suffer from dementia. However, the prevalence rises steeply with age, from about 2% among people aged 65 to 74, to 11% for those 75 to 84 and 35% for people aged 85 and over (8).

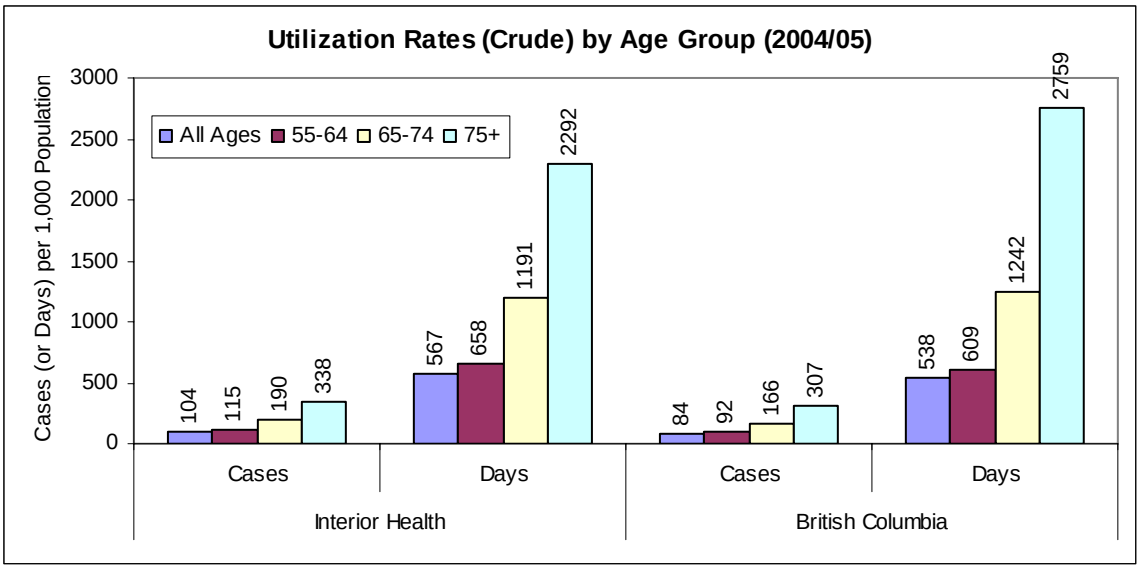


Source: BC STATs, PEOPLE30 Population Projections.

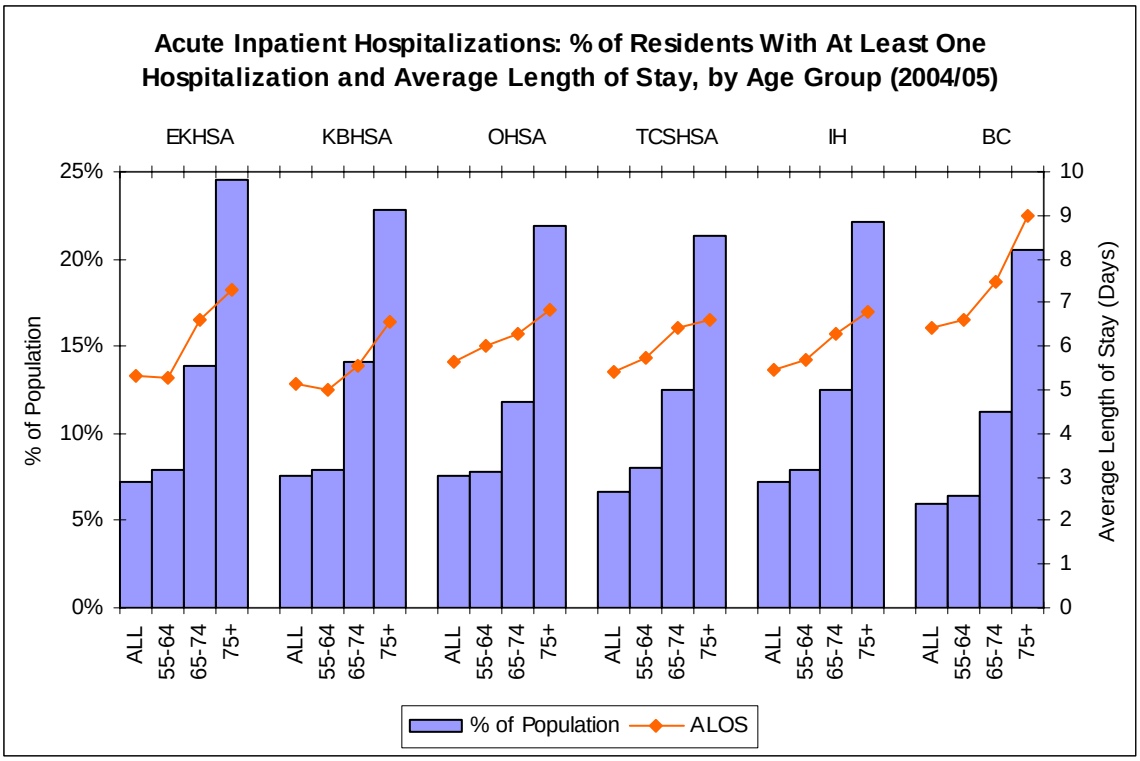
Age Group	2006 Pop'n.	2011 Pop'n.	2016 Pop'n.	2021 Pop'n	% Change (2006-2011)	% Change (2006-2016)	% Change (2006-2021)	2006 % of Total	2011 % of Total	2016 % of Total	2021 % of Total
< 20	157,618	150,795	151,498	157,368	-4.3%	-3.9%	-0.2%	22.0%	20.0%	19.1%	19.0%
20–44	230,640	241,968	257,074	265,877	4.9%	11.5%	15.3%	32.1%	32.1%	32.4%	32.1%
45–64	205,022	223,191	223,968	219,459	8.9%	9.2%	7.0%	28.6%	29.6%	28.2%	26.5%
65+	124,265	138,842	161,294	185,782	11.7%	29.8%	49.5%	17.3%	18.4%	20.3%	22.4%
75+	59,927	67,691	73,956	82,528	13.0%	23.4%	37.7%	8.4%	9.0%	9.3%	10.0%
85+	15,734	19,415	22,737	25,209	23.4%	44.5%	60.2%	2.2%	2.6%	2.9%	3.0%
Total	717,545	754,796	793,834	828,486	5.2%	10.6%	15.5%	--	--	--	--
BC	4,284,053	4,539,056	4,823,750	5,093,171	6.0%	12.6%	18.9%	--	--	--	--

Source: BC STATs, PEOPLE30 Population Projections
Note: Total IH Population = sum of first four rows.

On average, about 10% of IH residents of all ages had one or more hospitalizations during 2002/2003. As resident age goes up, hospital admission rate and length of stay also increases. For residents age 65-74, 19% had one or more hospitalizations. For residents age 75+, 34% had one or more hospital episodes that year (41% in the East Kootenay HSA) (31). The length of stay increases significantly with age. To plan for the management of this group, there is a need to consider all aspects of the hospital environment and the characteristics of older people.



Source: B.C. Ministry of Health Planning and Ministry of Health Services



At today's mortality rates, the Canadian population over 65 will go from one in eight to one in 4 by 2030 (4).

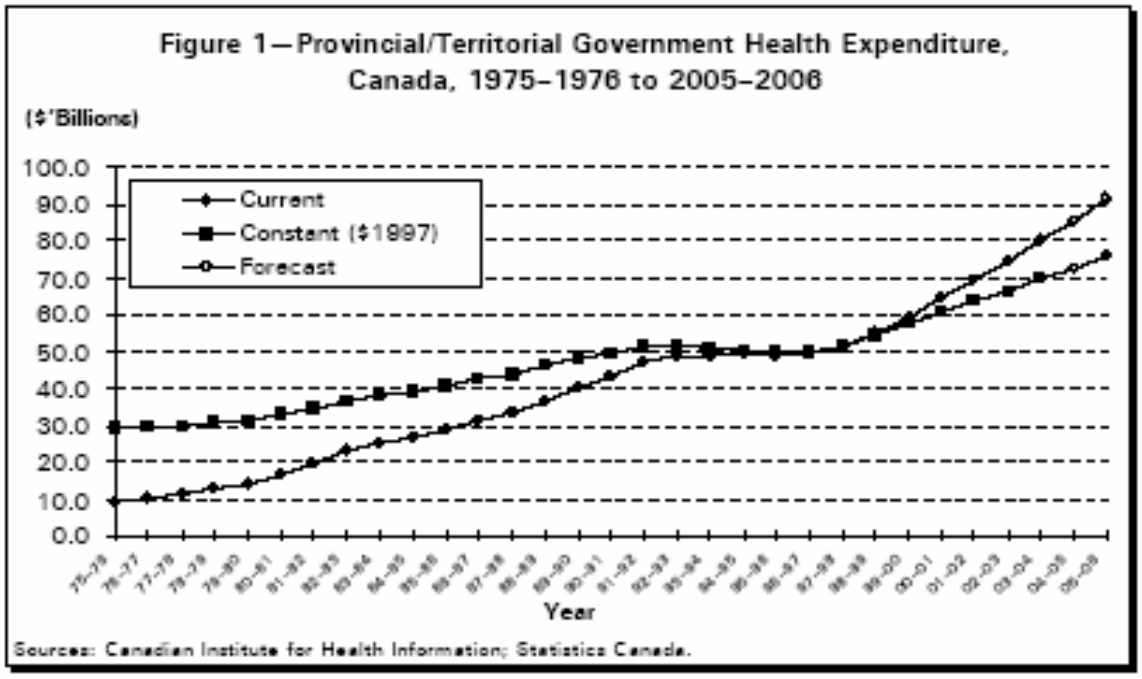
A smaller birth rate will have a significant effect on the availability to support the current system. Two thirds of health expenditures that occur during a lifetime are made after a person reaches 65 years of age (3). The beneficiary proportion of the population will increase relative to the contributing population in the years to come which will place additional strains on the budget.

How much Government support can we expect?

Health care is about science, hope and compassion. Millions of people fear that they are in state of permanent under diagnosis and feel that they need the newest and most powerful diagnostic tests when their management is unlikely to influenced by them in a lot of cases. There is a growing fear of lawsuits that results in a pressure to order everything "to be complete" rather than going with a strong probability on a diagnosis. This leads to a unique business model where it seems that you never treat cheaply what you treat expensively. It is like arranging for your morning newspaper to be delivered daily by Fed-Ex instead of the kid down the street (28).

Provincial and territorial health expenses account for about 65 % of the total health expenditures in Canada and 90% of expenditures by all levels of government (33). In the fiscal year ending March 31, 2004, provincial and territorial governments contributed 79.9 billion dollars for health goods and services and forecasts are that the bill will be 91.4 billion for 2005/06 (33). The total health care spending in Canada has reached $4000 per capita. Beyond $600 to $800 per capita, there is no correlation between life expectancy and spending (28).

In B.C. 43 to 44% of the provincial budget in B.C. is directed to the health system (29). In B.C. the health budget in 2001 was 8.3 billion while the 2005 budget is 11.75 billion, an increase of 38% over that time.



Health expenditures increased steadily until the beginning of the 1990's. Between 1992 and 1997, expenditure remained relatively constant although when comparing with 1997 dollars, the per capita health expenditure decreased. There has a more rapid increase in expenditures from 98/99 until 03/04 than at any time since 1975/76. There has been a steady pattern of growth since 1998. Overall provincial and territorial expenditures increased 5.2% in 03/04 and are expected to rise 4 and 4.7% respectively in 04/05 and 05/06 (33).

Health expenditures are influenced by inflation, population growth and the amount of resources allocated to health. The following table outlines the expenditure per capita at 1997 price levels, indicating growth levels over 5 and 10 years.

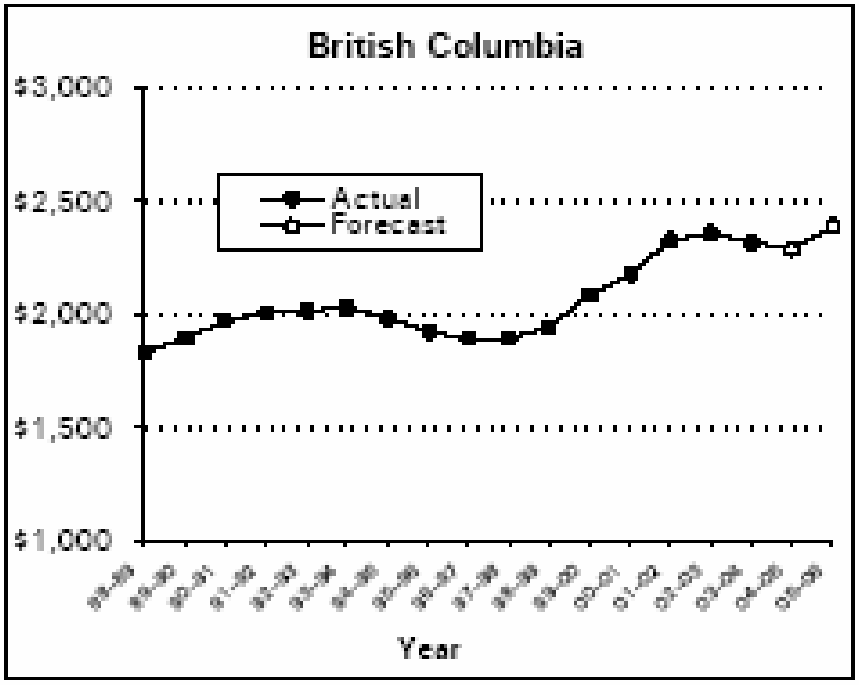
Table 1—Expenditure per Capita at 1997 Price Levels and Annual Rates of Growth, Canada

Fiscal Year	Expenditure per Capita $1997	Annual Rates of Growth 5 Years	Annual Rates of Growth 10 Years
1978–1979	$1,274	---	---
1983–1984	$1,488	3.2%	---
1988–1989	$1,711	2.8%	3.0%
1993–1994	$1,761	0.6%	1.7%
1998–1999	$1,801	0.5%	0.5%
2003–2004	$2,189	4.0%	2.2%

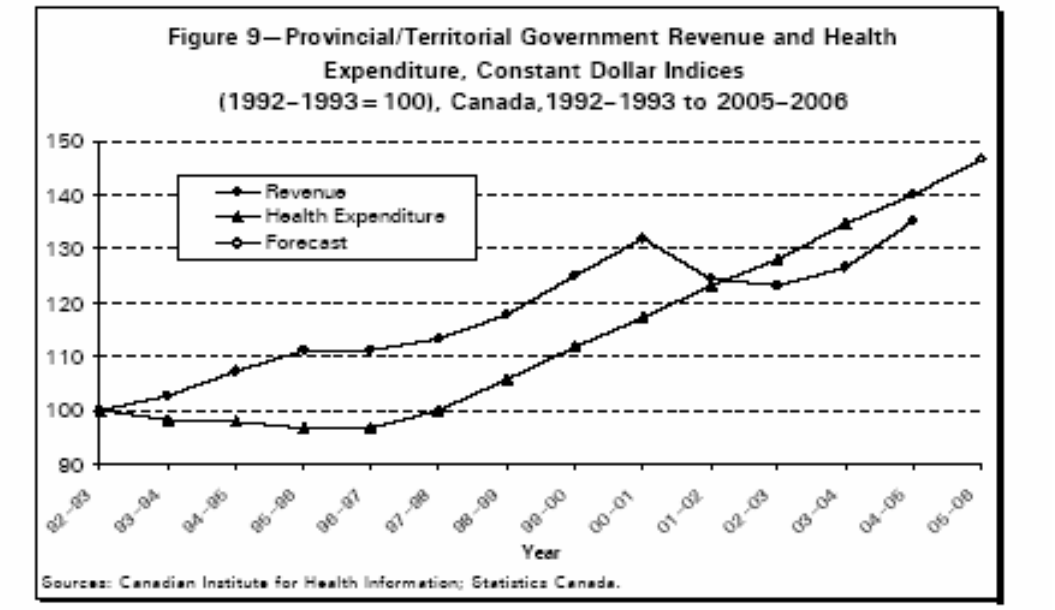
Source: Canadian Institute for Health Information.

In all provinces except PEI and BC, spending was expected to go up in 04/05. In Alberta spending went up 8.8% while the others went up 1.2 to 4.9% (33)

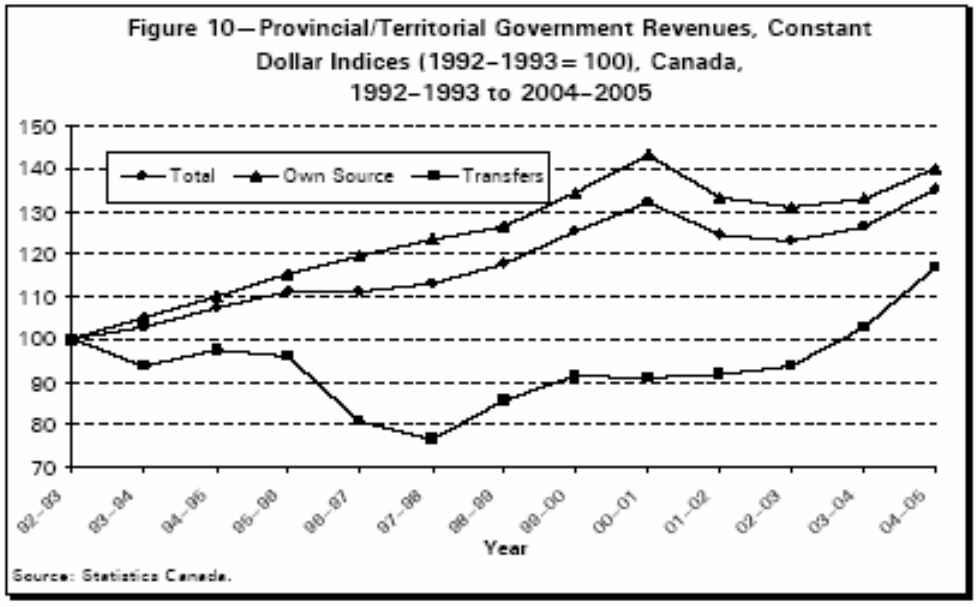
B.C. Government Health Expenditure per capita based on constant 1997 dollars from 88/89 to 05/06 (32).



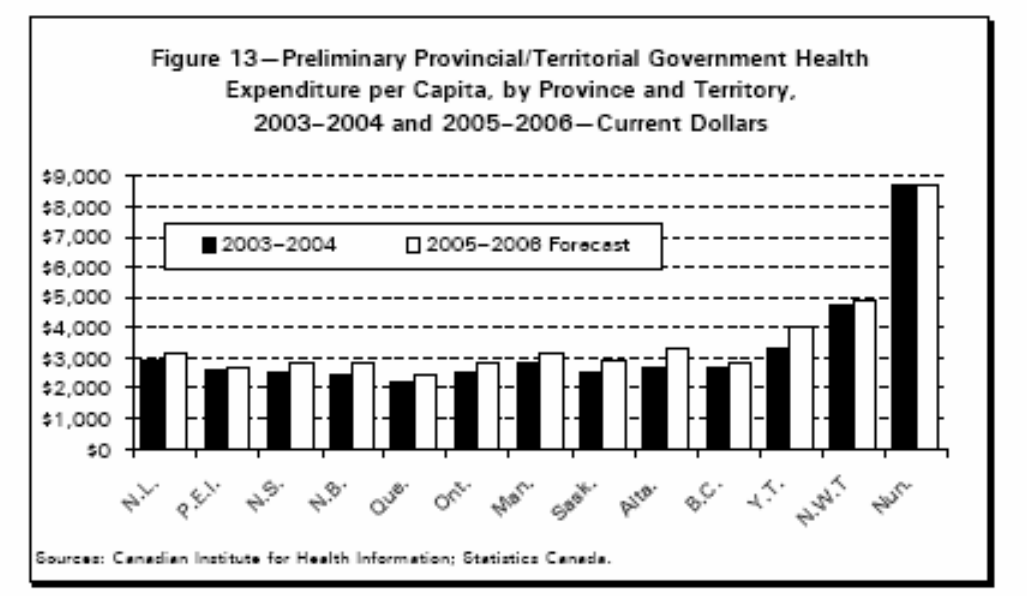
Prior to 02/03, the rate of increase in provincial revenue remained greater than or equal to the increase in health expenditures. Since 02/03, the rate of health expenditures continued with a relatively reduced rate of revenue.



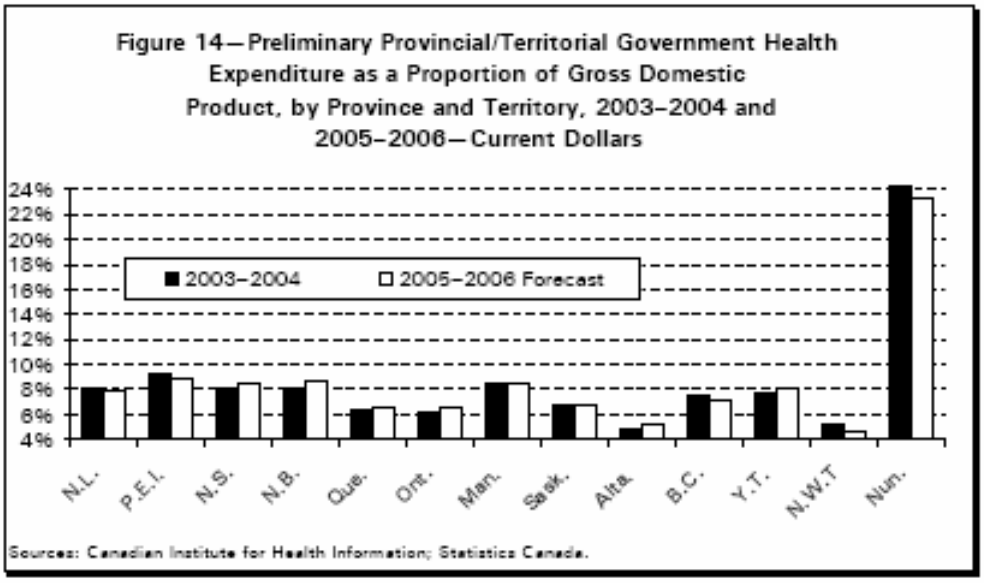
For the most part, provincial health expenditures did not follow the trend of federal transfers (33).



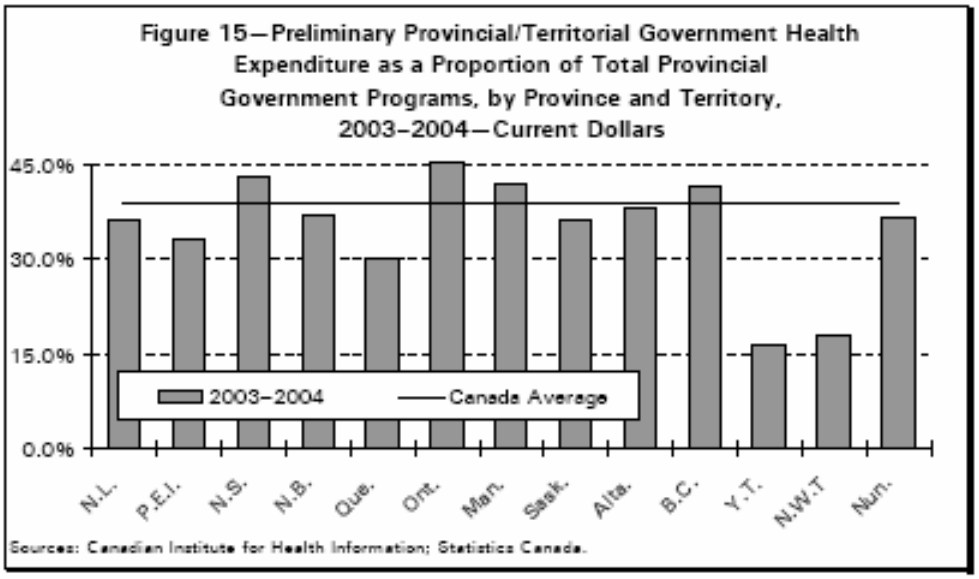
The provincial territorial government expenditure/capita averaged $2517 in 2003/04. The expenditure is expected to be universally greater in 2005/06 (33).



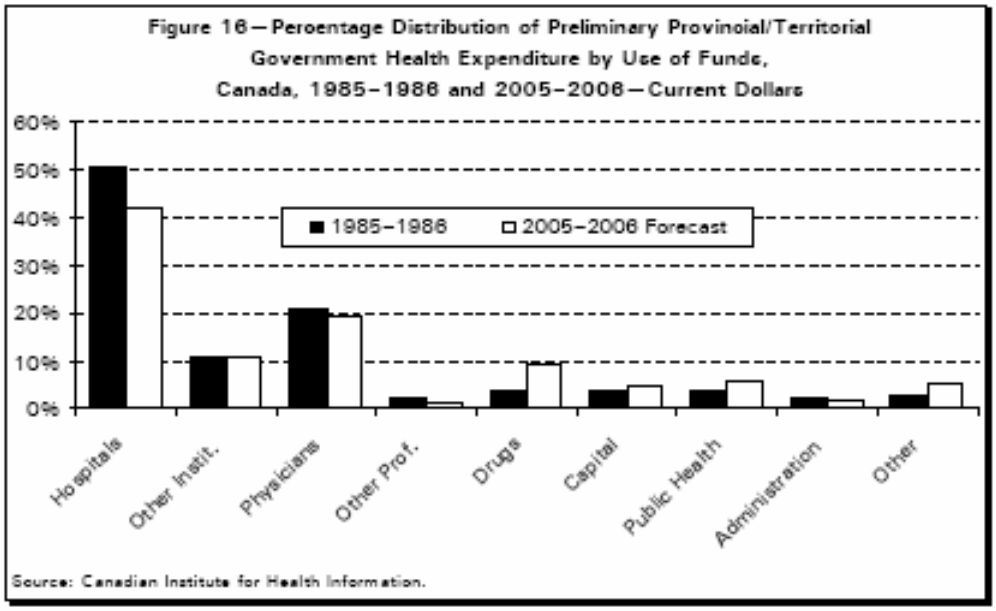
Health expenditure as a percentage of the GDP is expected to be higher in 2005/06 relative to 2003/04 everywhere except Newfoundland, PEI, Saskatchewan and B.C (33).



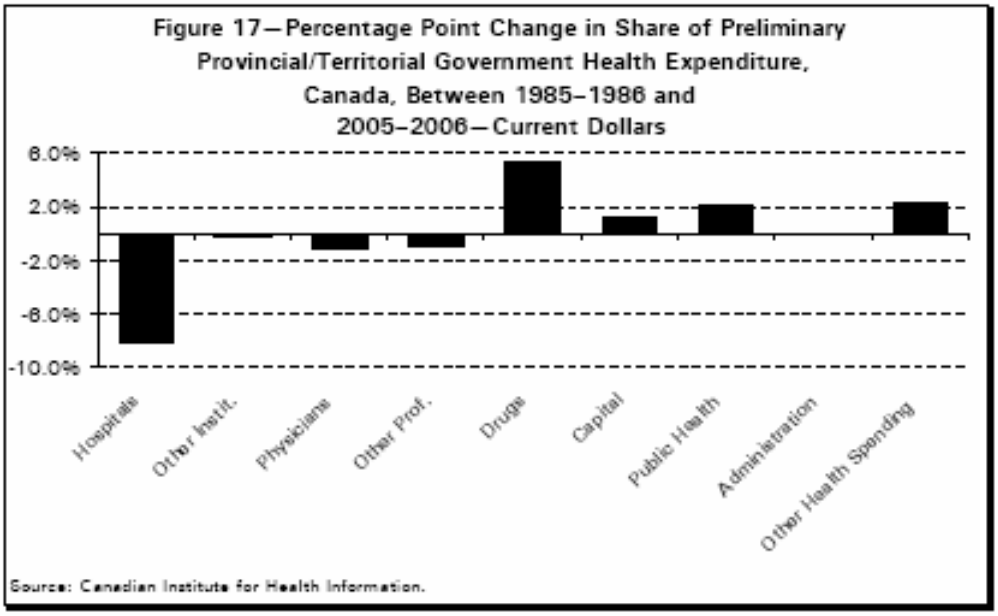
In 2003/04, health care consumed 39% of all program expenditures(33).



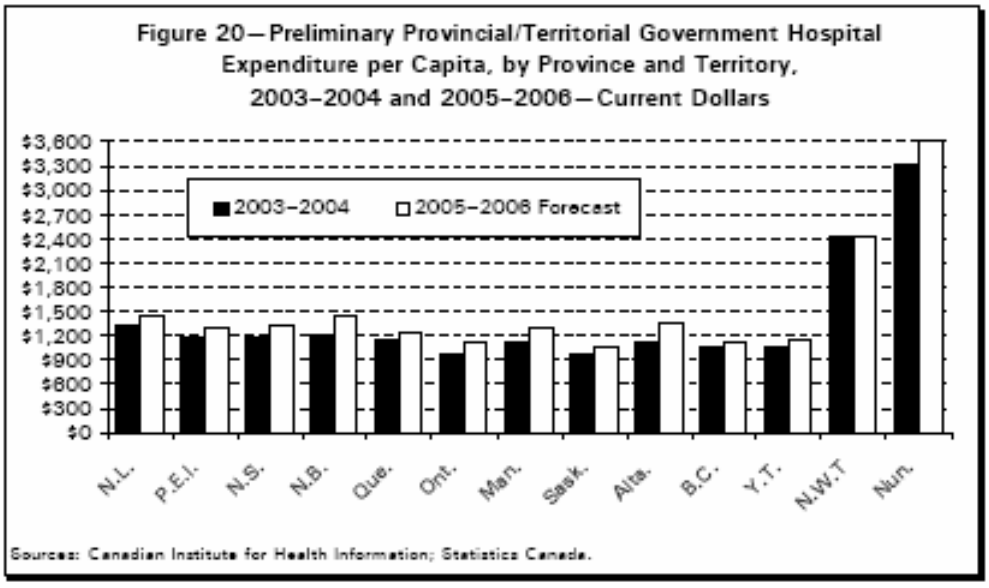
There have been significant changes in the allocation of funds over the course of time. From 1985/86 to 2005/06 plans, the percentage of provincial health expenditures directed toward hospitals has dropped from 50.4% to 42.3%. That allocated toward physicians changed from 21.6% to 19.6%. The major increase was in the cost of drugs where the allocation has changed from 3.8% to 9.1% (33).



Costs are increasing with new technologies, new drugs and aging.



Hospital funding is still increasing on a per capita basis across the country.



To some extent the problems of health care could be lessened with more government spending but we have to ask ourselves to what extent we are prepared to sacrifice everything else to prop up health care. There would seem to be first an obligation to do everything possible to make the system as efficient as possible before asking for an even greater portion of the pie which is increasingly being directed toward us. We have to be certain that we have trimmed all the waste from the current system before we go and ask for more money.

Will people be able to supplement their health care by paying for private services?

Adequate income has a very direct relationship to health in being able to afford such necessities as adequate housing to proper nutrition. Many seniors will have extra expenses such as prescription drugs, access to private rehabilitation and additional services if they can't carry out what is necessary around their own home. Their ability to access community resources to maintain physical and mental fitness will be influenced significantly by the cost of those resources and their disposable income.

The main users of the health system are seniors and given the reality of the average income of seniors, the public system will remain the main and often the only avenue open to them.

The three main sources of income for seniors are old age security, CPP and private savings. Almost all Canadians receive old age security benefits and seniors with low income also receive a guaranteed income supplement which varies with marital status and income. The qualification for the GIS also affects other benefits such as drug coverage and subsidized housing. If you don't get GIS, you don't get the benefits of provincial programs which use the GIS as an eligibility criterion (1).

Most seniors currently receive CPP.

The OAS and CPP are the main source of income for 2/3 of seniors. 35% get GIS. In 2003, an unattached person in Canada getting OAS and GIS had an annual income of $12,031. It is necessary to apply for OAS and CPP by filling out an 11 page form. In December 2001, it was estimated that 300,000 seniors eligible for GIS did not receive benefits. Every year 100,000 seniors fail to renew their application for GIS by failing to fill out an income tax declaration or renewal form. Some lack the literary skills or cognitive ability to understand the forms or the significance of reminder notices (1).

In a study of a Toronto food bank, 10% of their clientele were seniors. In those individuals, the average money left after paying the rent was $34.65 per week. Over 40% had difficultly paying for their medications and 27% weren't taking their medications for lack of money. One third of their households had more than 3 people living in one room (1).

Private savings are found in employers pension plans, RRSP's and investments. This source of income is concentrated in a small percentage of families. Overall, 25% of families hold 84% of these benefits. The proportion of employees contributing to an employer pension has decreased from 45% in 1992 to 40% in 2002. The self-employed, part time workers and those who experience periods of unemployment contribute less to CPP and most don't have employer pension plans (1).

There is little incentive for many seniors to make income to supplement their situation. For every dollar earned, the GIS is decreased by 50 cents, taxes go up by 25 cents, GST credit goes down by 5 cents, social housing subsidy is reduced by 30 cents and the cost of home care goes up by 30 cents (1).

People with low income may feel that they derive little benefit from investing in RRSP's. They pay little tax to begin with and will be penalized at retirement if they cash

it in by having reduced GIS benefits. There is a discouragement of low income earners to save.

Among people now between 55 and 64, 21% have no retirement assets and 32% have retirement assets less than $100,000. In Canada, 1/3 of those between 45 and 59 and ½ of immigrants who arrived after 1980 believe that they are not financially prepared for retirement. There is a 10 year residential requirement to qualify for OAS and CPP (1).

It is estimated that over 50% of seniors are in core housing need. Over 30% had income that was not sufficient to pay the median rent for housing of an acceptable size and quality in their locality (1).

Three quarters of women over 70 and 63% of all seniors have incomes less than $25,000 per year. Only 5% of those over 70 have incomes greater than $50,000 per year which will limit the degree to which they will be able to access private care or pay beyond the coverage for additional care (6).

Seniors income increased during the 1980's and has since stabilized. The gap between seniors income and the revenues of other Canadians has grown (1).

Growth of Mean Income between 1997 and 2003

Senior Households	$4,100
Other Canadian Households	$9,000

The main increase in income for seniors over the last 25 years was the maturation of Canada's public pension plans. More seniors qualified so that whereas in 1983, less than 75% of seniors qualified for the support, in 1999, 85% qualified. This occurred because of more women in the paid labour force. The plans were established in 1966 with the first group to receive full benefits on turning 65 in 1976. It has only been since the 1990's that a majority of retirees have received full benefits. (1).

The low income cut off is used as an indicator of economic vulnerability. 10.3% of seniors in B.C. are below this cutoff and 19% are near the poverty line. Women are more at risk because their wages were inferior to men while working and they have had a greater chance of having used their savings (1).

At a time when the relative proportion of seniors in the population is increasing, many seniors will have little extra disposable income and a good proportion will have difficulty making ends meet. Poverty among seniors is not a rare occurrence. Particularly at risk are females that are widowed, separated or divorced. Private residential care now costs $44,000 to $67,000 per year. Private nursing costs $37 to $45 per hour and private home support costs $16 to $25 per hour (9). Public transportation and recreational facilities cost money.

Human Resources

A large proportion of the health care providers are at or approaching retirement age. While there has been an increase in the production of all providers, it will prove to be extraordinarily difficult to obtain the staffing necessary for hospitals, residential care and community care for the next 10 years. From 1994 to 2001 the number of registered nurses per 10,000 residents has declined from 74 to 68. In 2000, 28.9% of registered nurses employed in Canada were over the age of 50. The average age of an RN employed in B.C. in 2000 was 44 years (23).

The demographics are undergoing major change in the area of the family doctor. More than 40 % of family physicians in B.C. are over the age of 50. Women now make up over 60% of the graduates from medical school and women G.P.'s are said to work less hours and take more time away from their practices than their male counterparts (23).

Fewer family doctors are taking new patients. In 1999, 1420 B.C. family doctors were taking new patients compared to 1068 in 2001. In 2001, Canadians identifying that they have a regular doctor dropped from 90% in 1999 to 71% in 2001. There are estimated to be at least 100,000 orphan patients in BC. (23). This lack of continuity results in a serious reduction in the quality of care.

Full spectrum care is associated with improved patient satisfaction, better preventative care, improved compliance with treatment, reduced medical costs during hospitalization and reduced discomfort with chronic diseases and disability. The existing fee schedule does not adequately address care of the elderly and/or complex patients and rewards volume rather than quality. In 2001, 19% of general practitioners indicated that walk in clinics are their primary practice (23).

Suggestion: There is an immediate need to increase the proportion of patients that have a family doctor.

There is a declining interest in family practice among medical school graduates. Traditionally, 50% of the graduating class became family doctors but this ratio has been steadily declining to 35% in 1997 and 26% in 2002. The number of GP's per 100,000 population has fallen from 102 in 1993 to 94 in 2000. By requiring a general practitioner referral there is an increase in the appropriateness of specialist referral. Only 26.5% of physicians practicing in B.C. were trained here (23).

Suggestion: There is an immediate need to recruit more physicians to B.C. and to make family practice a more attractive option for medical graduates.(new 3)

<u>Impact of Chronic Conditions</u>

Chronic conditions are those expected to persist or recur beyond a year such as diabetes mellitus, hypertension, congestive heart failure, renal failure, asthma and depression. The prevalence of these will naturally increase with an aging population

making it even more important that we optimize patient care in these groups and attempt to prevent their occurrence in younger groups.

Patient Categories by Health Authority (age 18+)

Health Authority	Non-Users%	Acute%	Chronic Conditions possible%	Chronic Conditions confirmed%
B.C.	13.3	32.6	18.5	35.7
FHA	12.1	32.6	18.9	36.4
VCHA	14.8	33.3	18.5	33.4
VIHA	11.2	31.6	18	39
IH	13	32.2	18	36.8
NHA	18.1	33.2	18.1	30.6

(24)

In VIHA, seniors over the age of 75 accounted for 9% of the population, 27% of the admissions and 45% of the inpatient days. Typically the frail elderly present to the emergency ward with multiple problems and if they are admitted it usually proves very difficult to get them functioning at a level where they can function independently in their own home.

Utilization

In IH, the 2002 the Acute Care Roles Review established population based target utilization rates for acute/rehab as follows:

- 475 days/1000 for urban LHA's
- 525 days/1000 for rural LHA's
- 575 days/1000 for rural remote LHA's (new 1)

IH days/1000 did drop from 2003/04 to 2004/05 but case rates and weighted case rates are still above provincial rates. (5)

Utilization Rates/ 1000 population, IH vs B.C.

Category	Area	2003/04	2004/05	Change	%
A/R days	IH	545	519	-26	-4.9%
	B.C.	548	545	-3	-0.6%
IP Cases	IH	101	98	-3	-2.3%
	B.C.	85	85	0	-0.1%
IP Weighted Cases	IH	124	124	0	+0.1%
	B.C.	120	121	1	+1.5%

(5)

A/R Utilization Rates Days/1000 population within IH

Area	2003/04	2004/05	Change	%
EK	649	594	-55	-8.5
KB	553	524	-29	-5.1
OK	508	502	-6	-1.2
TCS	571	519	-52	-9.1
IH	545	519	-26	-4.9

(5)

Within IH, the inpatient weighted case rates are above the B.C. average in KB, E.K and TCS. A/R days increased from 2003/04 to 2004/05 in Golden, Castlegar, Penticton, Keremeos, Princeton, Cariboo Chilcoutin and South Cariboo. (6)

In IH, 13/31 LHA's have utilization rates notably higher than targets (6).

The current ALC days rate are 22% higher than the benchmark established in the performance agreement of 60 days/ 1000 (6).

The IH 10 year capital plan calls for no new acute beds until 2014/15. As a result, if there are to be no new beds, capacity can only be increased by improving utilization and decreasing our ALC rate. (6)

Suggestion: Establish targets for ALC N and P with action plan on how to hit them. Possible targets are less than 4% of total beds for ALCN by 2006/07 (frees up 29 beds) and reduction of ALCN and P to less than 8% by HAS by 2007/08 (frees up 65 beds). (6)

Our H.S.A's are expecting deficit run rates primarily because of acute pressures. Despite this, budget surpluses have been achieved primarily because of one time funding. While this does allow a balanced budget in individual years, it does create problems if the source of one time funding were to dry up. People can not be necessarily hired on a permanent basis if the funding has a significant chance of being reduced. The lack of long term stable funding makes it difficult to make major adjustments to your base budget which in turn, seriously limits the ability to build capacity into the health system. The one-time funding initiatives, while allowing governments to target areas and balance their own budgets, serve to stifle long-time funding of the health system. Without the ability to increase capacity of the general system, suddenly increasing the output of one aspect of the system to meet a target will additionally serve to limit the output of the system as a whole.

Suggestion: Rather than pursuing an approach of unpredictable one time funding allocations, governments should consider increasing the base budgets of health authorities as a whole in a predictable pattern, thereby allowing authorities the ability to properly plan ways to maximize capacity into the future.

Patient FlowThough Our Hospitals

The only way to improve flow is to reduce the amount of patients entering our hospitals, maximize the efficiency of patients going through our hospital and make it easier for patients to get out of our hospitals. The discussion was initiated by a discussion related to overcrowding in our hospitals. We have seen from our demographics that the pressures to admit patients will increase over time unless fundamental changes occur in how we handle them. A significant proportion of our tax dollars are already committed to health care and we have a responsibility to use that money responsibly to ensure that there are additional resources available for other government programs such as education, transportation etc. There are no plans to build new beds in our health authority until 2014 and we can expect utilization targets to become increasingly tight from the Ministry of Health, leveraged through the rewarding of funding. Many of our citizens are not in a position to pay for private health care if the public system is not in a position to help them.

To examine the current state of affairs, we will evaluate the recent state of affairs at the Kelowna General Hospital. Information provided in the following charts was obtained with the hard work and cooperation of Barb Ellis, Stan Marchuk and Anne-Marie Broemeling.

To recap the current pressures on one of our hospitals which is representative of many I put the following table forward again.

KGH Occupancy statistics 2005

KGH Hospital Area	Period 6	Period 7	Period 8
Overall Hospital Census	95%*	102%	103%
Midnight Census	92%*	99%	99%
Overall Average Occupancy of Medical Beds	101%	102%	103%
Overall Average Occupancy of Surgical Beds	98%	101%	100%
Overall Average Occupancy of Critical Care Beds	93%	95%	95%
Overall Average Occupancy of Mat-Child Beds	72%		75%
Overall Average Occupancy of Psychiatry	104%	113%	109%
Overall Average Occupancy of Rehab	67%*	99%	98%
Patients being held in Emergency (average)	7	8	10

*Summer partial closure of rehab and surgical beds skew results.

he first chart below indicates that there has been an increase in the number of patients waiting for placement and for an appropriate level of care. There are a significant proportion of patients present that may not require hospitalization. This indicates that they may be some patients that are currently being admitted that might be managed in an ambulatory or day care fashion if resources were available to do so and the physician utilized those resources.

KGH Utilization 2004/2005 Adult, Pediatric not NB

Category	2003/04	2004/05
RIW	1.18	1.19
Patients that may not Require hospitalization	7%	6%
Average Length of Stay	5.8 days	5.8 days
Average Wait in ER for bed after admission		5 hours
ALC % total bed days	8.6%	11%
Average LOS for ALCP patients	14 days	17.6 days
Average LOS for ALCN patients	5.3 days	5.7 days

(B. Ellis, KGH (13)

Looking at the RIW or resource intensity weighting is perhaps best done if we compare KGH to other hospitals in B.C(13).

2004/05 RIW Comparisons per Quarter of B.C. Hospitals

Hospital	1	2	3	4
Kelowna General Hospital	1.17	1.17	1.21	1.19
Royal Inland Hospital	1.31	1.32		
Burnaby General Hospital	1.37	1.26	1.36	1.49
MSA	1.02	.99	1.08	1.05
Richmond General Hospital	1.18	1.16	1.12	1.17

(B.Ellis, KGH)

This would indicate that there is a possibility that relatively "lighter" patients are being admitted to KGH than Royal Inland and Burnaby.

A further review of cases and ALOS of the hospitals are shown below. An inverse relationship is seen between the RIW average of the hospital and its ALOS. The efficiency of any one hospital has to take several factors into account (14).

Peer Comparison of Case Numbers and ALOS in B.C. Hospitals in 2004/05

Hospital	Number of Cases	Average Length of Stay (days)	RIW
Kelowna General Hospital	21333	5.6	1.18
Royal Inland Hospital	12215	6.5	1.31
Lions Gate Hospital	12798	7.2	
Richmond General Hospital	10102	5.7	1.15
Burnaby General Hospital	12965	7.8	1.37
Nanaimo General Hospital	14122	6.2	
Matsqui-Sumas-Abbottsford	13110	5.5	
Prince George	9940	6.8	

A further review of the admissions of KGH reveals that a significant proportion of patients are admitted for a relatively short period of time. Excluding newborns,

obstetrics, admission to ICU deaths, signouts and transfers to other facilities still demonstrates that 222 patients were admitted for less than 6 hours (208 through Emerg) in 2004/05. Of these patients, 188 were discharged from the emergency ward. When you look further 1952 patients were admitted less than 24 hours (1738 through E.D). Of these patients, 924 were discharged from Emerg and the rest were discharged from elsewhere in the building. There were 2668 patients admitted for less than 48 hours (2272 through Emerg.) with 1016 being discharged from Emerg and the rest from elsewhere in the building (18,19,20).

KGH patients with Short Length of Stay

ALOS	# of Patients
Less than 6 Hours	222
Less than 24 Hours	1952
Less than 48 Hours	2668

(B.Ellis, KGH)

A review of these cases indicates that the majority of them were related to disorders of the digestive, circulatory and respiratory systems in addition to mental health.

A further comparison of the peer hospital RIW per quarter of 2004/05 removing these short stay patients is shown below. It can be seen that all hospitals must have a proportion of these patients as the RIW (likely lower in this group) goes up in all of them. The relative distribution of the RIW is unchanged.

2004/05 RIW Comparisons/Quarter of B.C. Hospitals excluding Pts with LOS < 1 day

Hospital	1	2	3	4
Kelowna General Hospital	1.37	1.36	1.41	1.39
Royal Inland Hospital	1.52	1.51		
Burnaby General Hospital	1.68	1.57	1.72	1.89
MSA	1.29	1.26	1.34	1.33
Richmond General Hospital	1.42	1.38	1.37	1.41

Going further out to exclude patients with LOS less than 48 hours makes a significant change in all of the hospital indicating that short stays of less than 48 hours is a common occurrence. The main value in looking at this is that this category may include a number of patients that might be managed without a hospital admission if adequate resources and a plan for their management were in place.

2004/05 RIW Comparisons/Quarter of B.C. Hospitals excluding Pts with LOS < 2 days

Hospital	1	2	3	4
Kelowna General Hospital	1.6	1.57	1.6	1.59
Royal Inland Hospital	1.79	1.74		
Burnaby General Hospital	2.07	1.96	2.13	2.29
MSA	1.55	1.53	1.6	1.63
Richmond General Hospital	1.69	1.64	1.63	1.63

Suggestion: Evaluate patient groups admitted to hospital for less than 48 hours to determine whether there are some patient categories that could be managed in an ambulatory or day care facility if adequate resources were available.

The MCAP data further indicates that approximately 7% of our admissions may not require hospitalization. There are a wide variety of disorders that fit into this category but some of the more common are as follows:

Most Frequent MNRP categories at KGH 2004/05

Description	Number of Cases	Patient Days
Back Pain	95	400
Urinary Obstruction	176	310
Anxiety Disorders, Adjustment disorders, personality disorders	172	545
Other transurethral or biopsy procedures	120	256

(B.Ellis, KGH)

Patients in the MNRP category have the potential to be managed outside the hospital if an appropriate care plan and resources were available. It might be useful to explore the most common categories here to see if an alternate method of management might be obtained. One has to examine the root cause as to why these patients are being admitted and then determine what other options exist. Beds might become available for other uses.

Suggestion: Establish a multidisciplinary group to assess the most common categories identified as MNRP by the MCAP data in order to carry out a root cause analysis as to why they have been admitted. Evaluate what options might exist to evaluate, manage and treat these individuals in an alternate fashion.

Looking at the CIHI data, reveals a number of procedures being done on an inpatient basis that might be managed in a day care facility if appropriate space and time were available. It is not a simple transfer of these numbers into reality but they are nonetheless interesting and worthy of exploration. Here are a very few of the identified procedures:

KGH 2004/05 Potential Cases that could be moved to Day Care

	Entry Code				
Procedure	Patients	Direct	ER	Clinic	Day Care
Respiratory Procedures (biopsy)	47	104	13		3
Cardioversion	67	32	31	4	
Implantation Pacemaker	134	78	50	2	4
GI procedures (Appy, dil'n, scope)	332	31	296	3	2
Misc. day procedures (CT, US)	522	38	481	3	0

(S. Marchuk)

There are many types of procedures on this list some of which may be able to be moved to a day care option if space and resources existed. Beds might become available if patients being admitted for these procedures could be managed in an alternate fashion.

Suggestion: Establish a multidisciplinary group to assess the most common procedures identified as being possibly capable of being moved to day care by the CIHI data in order to carry out a root cause analysis as to why they have been admitted. Evaluate what options might exist to evaluate, manage and treat these individuals in an alternate fashion.

The MCAP data reveal causes of delays within our system. When you review the non-qualified days the following are the most common reasons why a patient did not meet a particular level of care:

Most Common Reasons at KGH for a Slow Down in Patient Flow 2004/05

Reasons	Beds per day
Awaiting consultant review	3.4
Awaiting diagnostic tests available as outpatient	3.7
Insufficient Discharge planning	3.9
Waiting for community placement process	4.5
Waiting for convalescent bed	1.9
Waiting for RC bed	3.3
Waiting for rehab bed	1
Patient in ICU waiting for ward transfer	2.5
Waiting for higher level of care (Cardiac)	3.3
Hospice unavailable	1.4

(S. Marchuk)

The most common delays identified for qualified days are identified as follows:

Most Common Delays at KGH 2004/05 for Qualified Beds

Reasons	Bed Days
Waiting for Consultant	770
Waiting for transfer out of KGH	301
Waiting for angiograms	510
Waiting for Surgery in facility	536
Waiting for CT	413
Waiting for US	192
Waiting for Echo	120
Waiting for Endoscopy	147
Waiting for Doppler	40
Waiting for Cardioversion	17
Waiting for V/Q scan	85
Waiting for ERCP	47

(S. Marchuk)

There is a preponderance of waiting for diagnostic procedures which may be influenced by demand and supply. It would seem reasonable to consider both aspects in attempting to improve the speed of patient flow. There may be a role in disseminating guidelines for diagnostic procedures as this educational process can lead to a reduction in the number of inappropriate referrals for investigation and a reduction in the amount of medical radiation exposure. A useful investigation is one in which the result, positive or negative, will alter clinical management and/or add confidence to the medical diagnosis. The chief causes of the wasteful use of radiology are as follows (10):

- Repeating investigations already done (Hopefully reduced by PACS).
- Ordering an investigation that is unlikely to affect patient management (example mechanical back pain and CT's, MRI's)
- Investigating too early before disease has progressed or resolved or before results could affect treatment.
- Doing the wrong investigation.
- Failing to provide the appropriate clinical information or outlining what information is being sought which may result in the wrong technique being used.
- Over-investigating

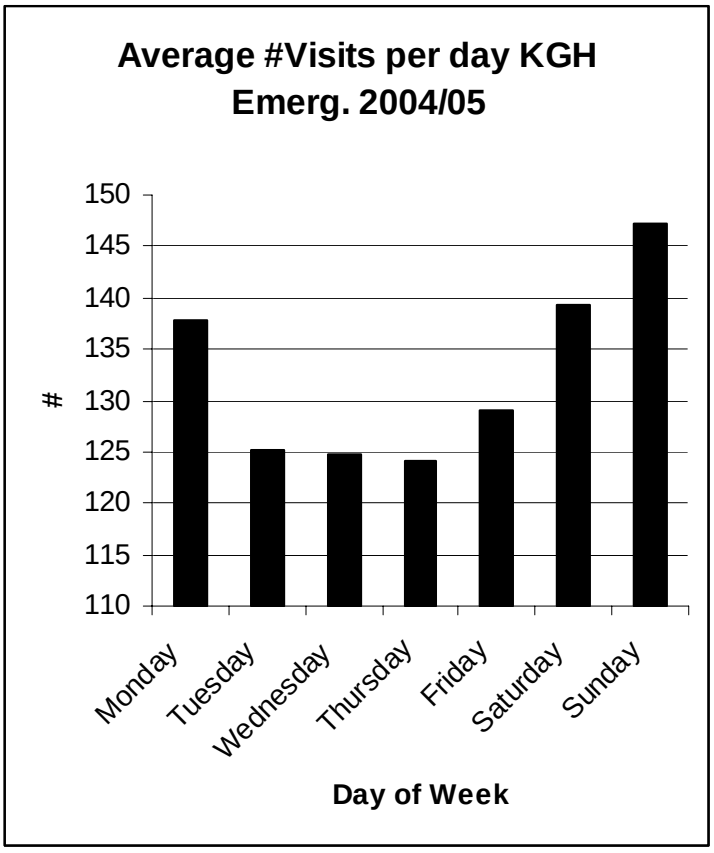
Clearly this is a sensitive area. Nevertheless, review of guidelines by our diagnostic imaging committee, coupled with a coordinated education program may significantly reduce the demand on our limited resources. The same process might pay dividends in the area of laboratory investigations and other health authority activities.

Suggestion: Have the IH Diagnostic Imaging Committee establish guidelines for ordering Diagnostic Imaging.

Suggestion: Establish a coordinated Continuing Medical Education program with funded central and health service area coordinators to assist in the dissemination of

information pertaining to maximizing efficiency and improving the care of medical patients throughout IHA, including the activities of the therapeutics, infection control, quality, diagnostic imaging, laboratory and HAMAC committees.
When you look further at this list, I wondered how much the delays were induced by volume and how much the delays were influenced by days of the week.

There is a variation in Emergency visits that occur with each day of the week and with the time of day (17).



(B.Ellis)

Emergency Visits to KGH by Registration Time 2004/2005

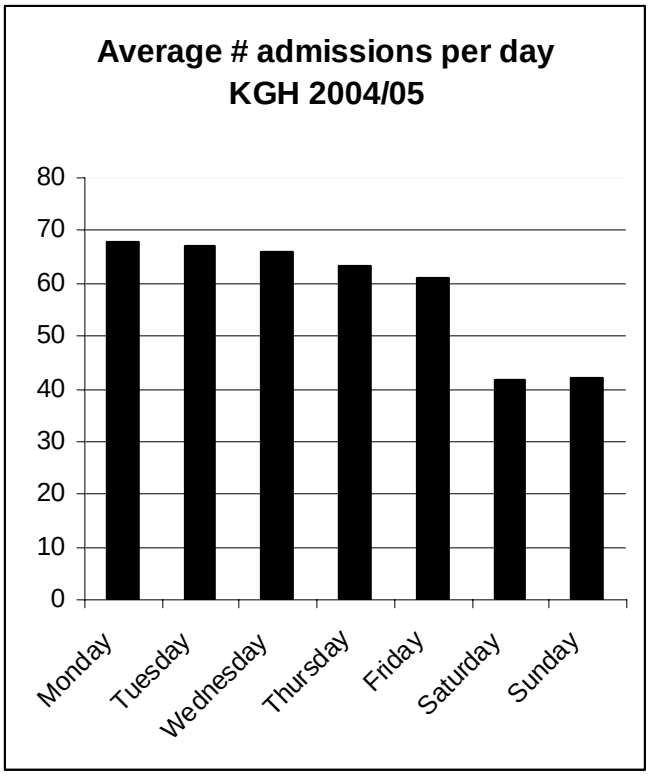
0001-0359	3395
0400-0759	2869
0800-1159	7728
1200-1559	7688
16001959	7668
2000-2400	7490

(B.Ellis)

The admissions to KGH per day of the week showed little correlation with the Emergency visit statistics, with a marked reduction seen as the week progressed and a sharp reduction on weekends (11).

Admissions by Day of Week at KGH April1, 2004 to March 31, 2005

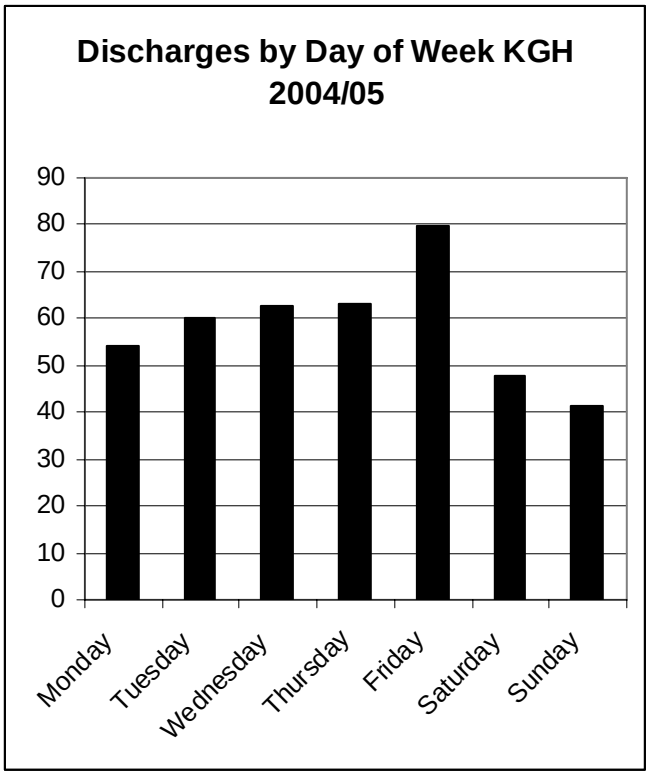
Day of Admission	**% of admissions**	**Average # admissions/day**
Monday	17	67.9
Tuesday	16	67.1
Wednesday	16	65.8
Thursday	16	63.4
Friday	15	60.9
Saturday	10	41.8
Sunday	10	41.9



The discharges showed a completely different distribution, skewed severely toward a large number of Friday discharges (15).

Discharges by Day of Week at KGH April1, 2004 to March 31, 2005

Day of Discharge	% of discharges	Average # discharges/day
Monday	13.2	54.17
Tuesday	14.68	60.21
Wednesday	15.33	62.9
Thursday	15.63	62.92
Friday	19.39	79.56
Saturday	11.69	47.96
Sunday	10.07	41.31



It is evident that there is a significant mismatch between time of admission and time of discharge which will have significant impact on the efficiency of the hospital. It suggests that the hospital is largely working on a 5 day a week schedule which will likely have a significant effect on lengths of stay and utilization. This tendency may well be mirrored in the delays of patient flow previously identified. Studies have shown that patients admitted on Fridays have an average 22% greater ALOS than those admitted on a Tuesday (35).

Suggestion: Evaluate the degree to which discharges are influenced by the availability of diagnostics, services and health providers in the hospital rather than by the condition of the patient.

Suggestion: Consider the possibility of operating more services in the hospital on a 7 day a week basis to improve and even patient flow.

Further review of admissions at KGH indicate that a significant number of patients are being transferred from residential care facilities to the acute care hospital for care (12). In 2004/05, 326 patients were transferred to KGH from residential care facilities with an average LOS of 8.3 days. The large majority of admissions occurred between 1600 and 2400. The most common reasons for transfer were as follows:

Most Common Diagnosis of Admissions to KGH from Residential Institutions 2004/05

Diagnosis	Number of Patients
Septicemia	9
Dehydration	7
Myocardial Infarction	8
Congestive Heart Failure	12
Pneumonia	27
COPD with Acute Infection	12
Aspiration Pneumonia	7
Urinary Tract Infection	13
Fractured hip	48
Palliative Care	6

It is evident from this list that a number of patients might be managed in their own facility if there was adequate medical support and the availability of an intravenous team. Clearly there are educational issues with respect to the management of these patients and the skill sets of the staff present in the facility.

Suggestion: An evaluation of admissions from residential care facilities to acute care facilities within IH to determine if a strategy could be arrived at that would permit these patients to managed within their home facility. This might include exploring the possibility of a more formally structured medical management system and the establishment of a mobile intravenous team that could serve patients in facilities and home.

Review of this data illustrates the role that falls have upon our health system. In seniors, 62% of injury related hospitalizations are related to falls, and the fall related injury rate increases 9 fold in people over 65 years of age. It is the cause of 90% of hip fractures. Overall in Canada, 40% of all nursing home admissions to acute facilities are as a result of a fall. The majority (56%) of fall related injuries occur to the femur, pelvis, hip and thigh (34). In the frail elderly, 25% will die within a year following a hip fracture (2).

Approximately 50% of LTC residents fall each year and 40% fall more than once. 10% of these falls result in serious injury and 5% result in fracture. Less than 15% of facility residents who sustain a hip fracture regain pre-injury ambulatory status and the LOS in the acute care facility is 19% longer in those patients with fall related hospitalizations from residential care facilities compared to those not from those facilities. Early mobilization is critical as immobilization results in a loss of strength and muscle mass at the rate of 1 to 1.5% per day (2). The main risk factors associated with falls include:

- Muscle weakness and reduced physical fitness
- Reduced control of balance and gait
- Visual impairment

- Chronic illness such as arthritis, CVA, Parkinson's disease.
- Hypotension (associated with as many as 20% of falls)
- Physical disability such as gait disorders and reduced sensation
- Acute illness
- Cognitive impairment
- Depression
- Behaviour related risk (previous falls, risk taking behaviour, medications, alcohol, nutrition, fear of falling)

The environment figures in causation frequently particularly with fall related admissions from home. Modifications with respect to removing scatter rugs, ensuring the safe placement of electrical cords, adding rails and grab bars, ensuring adequate lighting, and a myriad of other small changes can dramatically reduce the rate of falling. (34)

Suggestion: We should implement a consistent Falls Prevention program throughout IH which will be capable of identifying those at risk in our facilities and at home and be capable of reducing that risk. This strategy would incorporate basic assessment, exercise programs within our communities and facilities, medication review, vision referral and correction as necessary, the prescription of assistive devices as necessary and increase awareness and removal of environmental factors associated with falls.

While the CIHI and MCAP data help us in pointing out patients that might be dealt with differently, an additional aspect that might warrant consideration is to look at our most common reasons for admission and then try to determine what factors might allow us to deal with that patient in a way that would minimize the length of their stay in the hospital without compromising their care. We all have our way of managing these patients, developed as a result of how our current resources are deployed and as a result of past success. Some patients are brought into the hospital to allow for a series of tests to take place that would take a much larger amount of time to be managed outside of the hospital. Is it possible to bundle these tests in a way to make an admission shorter or even unnecessary? Are patients being held in hospital because of a lack of outpatient services such as what occurs in rehabilitation frequently? Can ambulatory space be committed to allow for greater access to diagnostic procedures? At the end of the day, it may be that some problems can not be managed in a more efficient way than we do now but those that we can move will free up beds in our hospitals and speed patient flow through our system.

Here are the most common medical CMG's at KGH for 2004/05, excluding obstetrics and newborns. (21)

Most Common Medical CMG's KGH 2004/05

CMG	Total Cases	Average Length of Stay in Days
Esophagitis, Gastroenteritis, and Misc. Digestive Diseases	1253	3.5
Rehabilitation	492	15.9
Heart Failure	391	7.3
Arrythmia	335	2.7
Chest Pain	326	1.6
Simple Pneumonia and Pleurisy	319	6.4
Cardiac Cath. Without specified Cardiac Condition	236	3.4
Chronic Bronchitis	225	6.7
Schizophrenia	192	14.1
Urinary Obstruction	192	2.1

Here are the most common surgical CMG's at KGH for 2004/05, excluding obstetrics and newborns. (22)

Most Common Surgical CMG's KGH 2004/05

CMG	Total Cases	Average Length of Stay in Days
Knee Replacement	364	5.4
Major Uterine and Adnexal Procedures without Malignancy	311	3.1
Hip Replacement	262	6.2
Back and Neck Procedures without Fusion	246	3.6
Major Intestinal and Rectal Procedures	202	11
Permanent Pacemaker Implant without Complicating Cardiac Conditions.	181	2.8
Laparoscopic Cholecystectomy	177	3.2
TUPR	154	2.9
Vascular Bypass Surgery	150	7.7
Extracranial Vascular Procedures	135	2.9

Suggestion: Establish a multidisciplinary team to work with appropriate specialty groups in an attempt to determine what resources or care bundles would assist them in lowering length of stay or avoiding admission for our most commonly admitted CMG's.

Within the most common surgical CMG's it is evident that we are doing a lot of hip and knee replacement surgery and the demands dictate that we will have do more into

the future. Since 2001, in B.C. there has been an increase of 65% in the number of TKR, and 35% in THR and yet wait lists have remained static (29)

Here is the historical demand for hip and knee arthroplasty in performed in Interior Health (27). There is a larger number when one considers the numbers performed on IH residents which will need to taken into account if we wish to improve our self-sufficiency.

Historical Demand for Hip and Knee Arthroplasty IH

	2001/02	2002/03	2003/04	2004/05	01/02 to 04/05 Change
Elective	1298	1329	1508	1873	44%
Fracture	172	213	242	260	51%
Revision	119	118	133	121	2%
Total	1539	1660	1883	2254	42%

Using the best data available to us and trying to come up with a strategy to lower wait lists to 6 months or less leaves us with this predicted demand for the future(27).

Future Demand for Arthroplasty in IH

Year	Total Number of Patients undergoing Arthroplasty
2003/2004	2050
2004/2005	2220
2005/2006	2362
2006/2007	2509
2007/2008	2656
2008/2009	2805
2009/2010	2955
2010/2011	3109

Demand is increasing due to changes in patient demographics, emerging technology and public policy. If we try to put through more patients for joint replacement without changing anything else, other waiting lists are sure to climb on all fronts because we have essentially no current capacity within the system to accommodate it. To allow an increased throughput, we will need to consider such issues as reducing the length of stay of these patients to 4 days, expanding ancillary resources and considering the advisability of such things as a “focused factory” as not all sites will be able to increase their number proportionately to the others. To decrease demand, preventative strategies will have to be supported.

The ability to lower lengths of stay to 4 days is critical to being able to accommodate these patients without an increase in the bed quota. It will not be easy. Here are the 2004/05 numbers on these patients from KGH (37).

KGH – Hip Replacements for 2004 -2005

Type	Number of patients	Patient Days	ALOS
Single component	72	830	11.5
Dual component	266	1759	6.6
Total	338	2589	7.7

KGH – Knee Replacements for 2004 – 2005

Type	Number of Patients	Patient Days	ALOS
Single component	10	70	7
Dual component	176	940	5.3
Triple component	191	1122	5.9
Total	377	2132	5.7

To achieve an average length of stay of 4 days will require a tightening of the planning for these patients which will include the pre-admission detailing, rehabilitative and community care services to support the efforts of the orthopedic surgeons in order to be successful. If the 4 day stay is not possible, there will be a net loss of beds for other services due to a lack of capacity.

Suggestion: Establish which sites are able to increase their capacity to do joint replacements and prepare a site by site plan with projected numbers. Look at what capacity exists to do a focused joint replacement factory strategy.

Suggestion: Establish a multidisciplinary flow committee for joint replacement which includes representation from patients that have undergone the procedure, pre-admission screening, rehabilitation therapy, home and community care and orthopedics to plan a care strategy that will result in a average LOS of 4 days

General Approaches to Patient Flow Within IH.

To adequately deal with the current and future prospects relating to patient demand we need to approach the flow problem from all sides. It is not merely a matter of speeding up what happens inside the building. Our Emergency wards are a barometer of what is happening within the system. Merely increasing its capacity will do little more than to broaden the large end of the funnel. It will be necessary to evaluate ways to reduce the amount of patient flow in the front door while speeding the amount of patient flow out the back door. When a system allows bottlenecks, they can't be fixed by working harder as a rule (28).

IHI has stated that a hospital is likely to experience regular flow problems if over 2% of its patients are parked during the day or the hospital is over 90% full half the time. We are there with inadequate forward movement and inadequate capacity.

There is a need to look at minimizing variability in the system. We can't really predict when the next true emergency will occur but we can look at why there are such wide variations within the system for similar problems. We have already examined the effect of a 5 day a week hospital. We need to examine the surgical schedules to see if enough flex is available in the system to allow for emergency surgery. We need to be able to plan discharges as soon as possible and where possible do everything that we can to match up admission and discharge times. It has been found that 80% of the time, RN's and MD's can predict one day in advance that the patient will be discharge the following day. Being able to predict discharges would greatly improve the synchronization of discharge planning (31, 35).

Suggestion: At the time of admission, MD's should be asked to state on the chart the estimated length of stay. Charge nurses should be able to identify with 80% accuracy, discharges expected the following day with that information being passed on to the person in charge of coordinating admissions and discharges.

We need to view the patient journey through the health and social system and remove the activites that provide no value. By focusing on overall strategies, bottlenecks can be removed and a system designed where the average capacity exceeds the average demand (35). There is an immediate need to try pilot projects and measure the improvement.

Reducing the Flow into the Front Door of the Hospital

Theoretically, if we did this well enough, we wouldn't have to do anything else.

Prevention

Appropriate public health funding is essential to lessen the burden of chronic disease on our system. Currently less than 2 % of the health budget is allocated to prevention and health promotion. Regular physical activity, a varied and nutritious diet, social interaction, stress management, avoiding tobacco and avoiding excess alcohol would make a major change in the number of patients currently requiring professional health care (30).

Suggestion: That health authorities set target of 5% of their health budget to be directed to public health and preventative strategies within the next 5 years.

Primary Care Renewal

One of the main reasons that our system is struggling is because our primary care system is totally overloaded so that people aren't being optimally managed and have to seek their primary care elsewhere, like the emergency ward.

With the relative drop in family physicians taking new patients and an increasing proportion choosing to primarily work in walk in clinics, there is a lack of full spectrum care. The provision of full spectrum care has been shown to provide greater patient satisfaction, preventative care, medication compliance, reduced costs during hospitalization and a much better chance of compliance with chronic disease guidelines (23). Without this delivery system, optimal care can't be delivered.

The problem is that the existing fee schedule does not adequately address care of the elderly and/or complex patients. Approximately 94% of B.C.'s G.P.'s are on fee for service as their primary remuneration (23) and the majority continue to feel that this is the preferred payment method. The siphoning of the "easier" patients to a walk in clinics has taken away some of the balance from practice of the average family doctor.

There are many potential ways of compensating family physicians for their work but to be successful, patients and physicians must enter each primary deliver model voluntarily. Communities vary too much for a one size fits all model. Perhaps it may be possible to blend fee for service with other stipends to encourage family doctors to be work productively and be compensated for interactions with allied health groups and the IT costs of providing an electronic medical summary which would provide information to other health professionals. The stipend would have to take into account factors involved in a more complex practice and the value of screening and preventative procedures.

Suggestion: That the government and BCMA be encouraged to do everything possible to increase incentives for new medical graduates to enter full service family practice.

Separate from this, there may be a role for specialized primary care practices in the larger areas which would deal with such specialized groups as the frail elderly, HIV/Aids, addicted and those with persistent serious mental health disorders. A number of integrated models exist where the entire primary health care needs of the patient would be taken over on the referral of the patient by themselves or another G.P. Service delivery here might be multidisciplinary in nature with the services delivered by the most appropriately qualified health care professional. To be effective, it would be much preferable if a broad range of services were available on a 24/7 basis.

This type of program has been applied in a variety of locations across Canada with the frail elderly (25,26,36). This group of patients place high pressures on caregivers and the system. They face considerable difficulties in interacting with a health system that has:

- Multiple entry points
- Delivery of service influenced by resource contacted rather than patient need.
- Redundant evaluations.
- Inappropriate use of costly resources.
- Waiting times for service
- Inadequate transmission of information
- A piecemeal response to need.

Integrated service delivery has been shown to decrease functional decline, reduce institutionalization and reduce caregiver burden. Such programs will be characterized by a single entry point and will utilize case management, individualized service plans and a single assessment instrument.

Suggestion: That IH consider setting up pilot projects to provide primary health care for high risk groups such as the frail elderly.

Case Management in the Community

The current case managers in our system are overloaded and unable to provide the direction that would be ideal. They should provide a key link between home and community care and multidisciplinary teams. Their role should be in carrying out evidence-based decision making using established protocols for service allocation based on the characteristics of need using RAI-HC data (8).

Suggestion: Efforts be made to develop guidelines for the allocation of services and resources based on outputs from the RAI-HC.

Suggestion: Support be given to IH Case managers to assist them in carrying out evidence based decision making using established protocols for service allocation based on the characteristics of need using RAI-HC data.

Geriatric Outreach Services

As is common across Canada, IH has very few resources with respect to access to specialized geriatric expertise. The little that we have is concentrated in a few urban areas. Frail patients do not travel easily.

There are many examples of the successful application of geriatric outreach services which usually consist of a geriatrician, geriatric psychiatrist, nurses and support staff. The purpose of these services are to provide support to rural physicians with their geriatric patients. They can provide help with the management of depression, delirium, dementia, pain and chronic disease management issues and provide a knowledge exchange with the community for general benefit. The focus is to attempt to keep people at home and to improve the level of functioning of geriatric patients in RC and AL settings. In the Northern Health Authority such services visit communities 3 to 4 times per year.

Suggestion: That IH consider the feasibility of establishing a Geriatric Outreach Service.

High Risk Screening

Some older patients fail to thrive in the acute hospital setting which results in them suffering at times unnecessarily and staying longer than we would like. The current pre-admission screening is helpful in identifying many issues that can be cleared up before surgery but perhaps it could be extended further, particularly when it comes to the geriatric patient. The goal would be to identify in advance those people whose personal profile, when combined with a hospitalization, may lead to a functional crisis.

This type of screening could be applied to patients wherever they enter the system and the earlier the better. Areas that require screening include:

- Patient has been seen by a geriatrician
- Patient has an altered mental status (previous episodes of confusion, reduced ability to focus and answer questions with detailed information, reduced ability to pay attention)
- History of excessive alcohol use
- History of taking CNS altering drugs for anxiety, insomnia or chronic pain
- Reduced cardiovascular reserve or reduced mobility
- Co-existing medical problems (D.M, cardiovascular problems, pulmonary problems, renal problems)
- Live alone or are the caregiver to someone else
- History of recent falls
- Weight gain or loss of 10 pounds in the last year, unintentional.
- History of frequent visits to hospital.

Those patients that are determined to be at risk should, where possible, receive appropriate further consultation pre-operatively to establish and coordinate a plan of care for the immediate post-operative period with respect to patient and family education and expectations, an “elder-alert” attached to their chart indicating the need for greater care to prevent medication interactions, early intervention to encourage mobilization and a coordinated community action plan on discharge.

Suggestion: IH should consider the advisability of a more inclusive high risk screening program for geriatric patients entering the hospital system.

The loss of the ability to drive makes a significant change in the lives of most geriatric patients. Many communities have no public options for the disabled and those that do have systems that are user-unfriendly and unreliable. To attempt to maintain the activity level of this group of people is seriously hampered by an inability to easily access community resources.

Suggestion: That IH work with communities to improve transportation options for the elderly who are unable to drive.

Suggestion: Encourage the development through education, human resources and funding the development of seniors programs in the community to enhance the opportunities for physical fitness and social interaction.

As already outlined earlier in this paper, preventative strategies to reduce falls is a key ingredient in reducing demand on our system and reducing significant mortality and morbidity. There may be a need to provide additional support to patients in residential care beds to reduce the number of patients requiring hospitalization in an acute facility. Alternate strategies may be possible to reduce our very short stay, low intensity admissions. Increasing available ambulatory care time and space may permit a reduction of the load on the hospital and emergency departments.

Increasing Internal Flow

Many initiatives with respect to this area have been discussed earlier in this account.

A lack of outpatient resources has limited our ability to discharge patients from hospital. Hopefully, the recent increase in resources identified for mental health will allow them to be able to follow up on patients more quickly upon discharge from hospital which in turn will allow for a more confident discharge plan. Over the last decade or more, many hospitals have made significant cuts to outpatient therapy services so that, in some cases, none exist and in others, waits of several months to get in are typical. There are significant inconsistencies in the provision of rehabilitation services across IH and no overall plan of linkage. If patients who have just gained enough function to barely manage independently at home are discharged without specialized rehabilitation, there is a strong possibility that they will fail to improve to their potential and possibly regress. This fact means that rehabilitation facilities are forced to keep patients in the hospital longer than optimal to give their patients a better chance at remaining independent in the community. The existing Handi-Dart service for outpatient programs is essentially only available from 10 am to 3 pm and notoriously unreliable, making program planning for people who are not allowed to drive a haphazard process at best.

Suggestion: That IH consider developing IH wide standards and guidelines for rehabilitation services.

Suggestion: That IH consider enhancing outpatient rehabilitation capacity to enhance the quality of care and speed up discharge of post-surgical and post-rehabilitation patients.

Suggestion: That IH work with levels of government to enhance the Handi-Dart system to improve access to ambulatory clinics and services.

An area of considerable concern has been the ALC rate. The following chart includes a comparison of how ALC rates compare between IH and the overall rate in B.C. (5)

ALC Rates/1000 Population

Area	**2003/04**	**2004/05**	**Overall Change**	**% Change**
Interior Health	47	73	+26	+53.9%
British Columbia	73	75	+4	+6%

Here is the overall rates across H.S.A's (5).

ALC Rates/1000 Population by H.S.A. in IH

Area	**2003/04**	**2004/05**	**Overall Change**	**% Change**
E.K	61	76	+15	+25.1
KB	33	75	+42	+125.8
Okanagan	42	62	+20	+49.5
TCS	61	93	+32	+52.7
Interior Health	47	73	+26	+53.9

Only the Okanagan came close to the performance target. These ALC days account for 63,500 inpatient days or 15% of the total. That is the equivalent of 170 beds. ALCN account for 43% of these days. Vancouver Coastal Health Authority and the Fraser Health Authority have set multiyear targets of 4.4 and 4% annually.

In many situations, there are patients that are responding less quickly than expected during a hospitalization. Some of these patients may ultimately require placement at a residential care level but others have the capability of living more independently. The current system, with its limited capacity, makes it difficult for rehabilitation programs or reactivation programs to "take a chance" on someone with borderline capabilities as if they guess wrong, they will lose significant capacity while waiting for these patients to be placed. This in turn results in delays in moving these patients out of acute care.

Suggestion: Establish quick assessment of patients slow to mobilize from their acute illness to allow for optimal management possibly in a subacute facility. Establish a mechanism for geriatric, mental health and rehabilitation services to take on "borderline" patients with some hope of quick transfer to an alternate facility if the patient can't be moved along past a point of requiring complex care.

Some authorities have reduced the number of these ALC beds by using such strategies as (36):

- Hustle up beds

- Discharge lounges
- Transitional Care units
- Subacute care units
- Enhanced rehab programs
- Increased day programs
- Increased home support.

Transitional Care and subacute care beds have the capability of decanting the acute care beds. They have been particularly helpful in lowering the ALC count in some health authorities as well as reducing the ALOS. It is possible that in the future, these beds will either be included in the acute care bed number or have their own unique classification. There is a subgroup of patients that are stable but not ready for discharge home without a large number of resources being included. These patients may be more economically and efficiently managed in a facility separate from the acute facility. To be effective, there must be clear admission criteria and adequate nursing and medical support. A multidisciplinary approach with clearly defined goals and measures would assist patients in these beds to receive the care that they need in transitioning from the acute care hospital to home. Improperly planned, these beds would soon become a place to send patients that you do not know what to do with and would serve little value. They would merely extend the period of time that the patient is waiting for an RC bed.

Suggestion: IH should consider the role of subacute or transitional beds might serve in decanting patients from the acute care facility. These beds should make up a distinct program with admission criteria and dedicated medical, nursing and therapy support. There should be measurable performance and linkage with acute and community based teams.

In 2004/05, 95% of the increase in ALC days occurred as follows(7):

- Persons awaiting admission to an adequate facility elsewhere 11,554 cases
- Convalescence 3,879 cases
- Unavailability and inaccessibility of health care facilities 3803 cases
- Palliative care 1928 cases

Residential beds have undergone a major change. Admission criteria to complex care beds have been made more stringent. Assistive living beds have been added to the mix to offer an option for residential care for those not requiring complex care. The province has set a target of 75 beds/1000 population over the age of 75 for complex care beds and 14 beds/1000 population over the age of 75 for assisted living beds. The chart that follows outlines the history of bed numbers in the area of residential care since 2002. The chart shows the number of beds available in 2002 and the changes that have occurred with the renovations of the last few years and the plans for new additional beds. The bed counts after 2002 do not include assisted living beds. The bed numbers in black show the planned numbers whereas the numbers in red indicate the recommended number of beds (75/1000 population over 75) based on the Ministry of Health population projections and the projections of the proportion of those over the age of 75 to be found in each H.S.A. The current plans do not achieve the Ministry of Health targets for complex care beds but

are undergoing ongoing planning. The degree to which assisted living beds can offset the need for complex care beds is still uncertain.

IHA Residential Care Bed History and Projections

H.S.A.	Beds 02	Rec. 03	Beds 04	Rec. 05	Planned Beds 04/07	Ratio	Planned Beds 09/10	Rec. 10
EK	524	374	377	398	400	72.1	440	443
KB	739	460	503	489	503	72.6	533	536
OK	2382	2301	2090	2448	2648	72	2704	2730
TCS	1019	820	820	1008	1002	72	1191	1121

These beds will come on progressively over the next few years. It is important to understand that the numbers noted still leave us on the low end of the targets at a time when our population is aging significantly. It will be important to build some flexibility into these beds wherever possible so that private beds in the community can be bought up in times of need. If the contractors only build the number of beds stated there will be no ability to increase capacity in the future.

Suggestion: That IH promote the concept of encouraging contractors to consider the concept of building some flexibility into their building plans for the health authority to purchase additional private capacity if necessary at some point in the future.

Increase external flow from the Hospital

Many of these strategies have been alluded to earlier in the document. Having more options to discharge patients to in the community will make it easier to discharge patients from the hospital.

The provision of home care is essentially a rediscovery of a former brand of care where only those that could not afford home treatment were managed in hospitals. Now with the increased complexity and therapeutic options available, the hospital has gained a greater responsibility.

The largest problem in managing patients at home is unscheduled care. The more that some flexibility can be worked into the system, the more people we will be capable of managing at home and the more caregivers we will save from burnout.

There are some conditions where it might be helpful to group patients to provide more care per unit time particularly in urban areas.

Once it is clear how transitional care beds may be used, this option may permit faster discharge of patients from our hospitals.

The role of assisted living beds remains to be evaluated. This option is theoretically possible for anyone who can direct their own care. As it allows a higher level of independence and privacy, while costing less money to construct, this option has many attractions. As it is early in the game, it will be important to evaluate how we might safely keep patients at this level as long as possible to save our RC bed capacity.

Suggestion: Evaluate the appropriate mix of assisted living to complex care beds on a community by community level.

Conclusion:

With the current and forecast pressures on our system, it is not sustainable without reform. It is not one person's job to that but rather the responsibility of everyone. All levels of government, the health authorities, the health providers, the community and every potential patient needs to roll their sleeves up and take on the responsibility to improve the system in the most responsible manner possible. As Canadians, we take pride in our universal system of health care that is supposed to leave no one on their own. We do not need to throw out our current system but we do need to be flexible in mind and spirit if we wish to make major progress. The recommendations provided are not meant to be a roadmap but rather a means to generate discussion and from there, action.

Summary of Suggestion's

1. **There is an immediate need to increase the proportion of patients that have a family doctor**.

2. **There is an immediate need to recruit more physicians to B.C. and to make family practice a more attractive option for medical graduates.**

3. **Establish targets for ALC N and P with action plan on how to hit them. Possible targets are less than 4% of total beds for ALCN by 2006/07 and reduction of ALCN and P to less than 8% by HAS by 2007/08.**

4. **Rather than pursuing an approach of unpredictable one time funding allocations, governments should consider increasing the base budgets of health authorities as a whole in a predictable pattern, thereby allowing authorities the ability to properly plan ways to maximize capacity into the future**.

5. **Evaluate patient groups admitted to hospital for less than 48 hours to determine whether there are some patient categories that could be managed in an ambulatory or day care facility if adequate resources were available.**

6. **Establish a multidisciplinary group to assess the most common categories identified as MNRP by the MCAP data in order to carry out a root cause analysis as to why they have been admitted. Evaluate what options might exist to evaluate, manage and treat these individuals in an alternate fashion.**

7. **Establish a multidisciplinary group to assess the most common procedures identified as being possibly capable of being moved to day care by the CIHI data in order to carry out a root cause analysis as to why they have been admitted. Evaluate what options might exist to evaluate, manage and treat these individuals in an alternate fashion.**

8. **Have the IH Diagnostic Imaging Committee establish guidelines for ordering Diagnostic Imaging.**

9. **Establish a coordinated Continuing Medical Education program with funded central and health service area coordinators to assist in the dissemination of information pertaining to maximizing efficiency and improving the care of medical patients throughout IHA, including the activities of the therapeutics, infection control, quality, diagnostic imaging, laboratory and HAMAC committees.**

10. **Recommendation: Evaluate the degree to which discharges are influenced by the availability of diagnostics, services and health providers in the hospital rather than by the condition of the patient.**

11. **Recommendation: Consider the possibility of operating more services in the hospital on a 7 day a week basis to improve and even patient flow.**

12. **An evaluation of admissions from residential care facilities to acute care facilities within IH should be carried out to determine if a strategy could be arrived at that would permit these patients to managed within their home facility. This might include exploring the possibility of a more formally structured medical management system and the establishment of a mobile intravenous team that could serve patients in facilities and home.**

13. **We should implement a consistent Falls Prevention program throughout IH which will be capable of identifying those at risk in our facilities and at home and be capable of reducing that risk. This strategy would incorporate basic assessment, exercise programs within our communities and facilities, medication review, vision referral and correction as necessary, the prescription of assistive devices as necessary and increase awareness and removal of environmental factors associated with falls.**

14. **Establish a multidisciplinary team to work with appropriate specialty groups in an attempt to determine what resources or care bundles would assist them**

in lowering length of stay or avoiding admission for our most commonly admitted CMG's.

15. **Establish which sites are able to increase their capacity to do joint replacements and prepare a site by site plan with projected numbers. Look at what capacity exists to do a focused joint replacement factory strategy**.

16. **Establish a multidisciplinary flow committee for joint replacement which includes representation from patients that have undergone the procedure, pre-admission screening, rehabilitation therapy, home and community care and orthopedics to plan a care strategy that will result in a average LOS of 4 days**

17. **At the time of admission, MD's should be asked to state on the chart the estimated length of stay. Charge nurses should be able to identify with 80% accuracy, discharges expected the following day with that information being passed on to the person in charge of coordinating admissions and discharges.**

18. **That health authorities set target of 5% of their health budget to be directed to public health and preventative strategies within the next 5 years.**

19. **That IH consider setting up pilot projects to provide primary health care for high risk groups such as the frail elderly.**

20. **That efforts be made to develop guidelines for the allocation of services and resources based on outputs from the RAI-HC.**

21. **Support should be given to IH Case managers to assist them in carrying out evidence based decision making using established protocols for service allocation based on the characteristics of need using RAI-HC data.**

22. **That IH consider the feasibility of establishing a Geriatric Outreach Service.**

23. **IH should consider the advisability of a more inclusive high risk screening program for geriatric patients entering the hospital system.**

24. **That IH work with communities to improve transportation options for the elderly who are unable to drive.**

25. **Encourage through education, human resources and funding the development of seniors programs in the community to enhance the opportunities for physical fitness and social interaction. The cost of these programs should be kept as small as possible to encourage participation.**

26. That IH consider developing IH wide standards and guidelines for rehabilitation services.

27. That IH consider enhancing outpatient rehabilitation capacity to enhance the quality of care and speed up discharge of post-surgical and post-rehabilitation patients.

28. That IH work with levels of government to enhance the Handi-Dart system to improve access to ambulatory clinics and services.

29. Establish a team to permit quick assessment of patients slow to mobilize from their acute illness to allow for optimal management possibly in a subacute facility. Establish a mechanism for geriatric, mental health and rehabilitation services to take on "borderline" patients with some hope of quick transfer to an alternate facility if the patient can't be moved along past a point of requiring complex care

30. IH should consider the role of subacute or transitional beds might serve in decanting patients from the acute care facility. These beds should make up a distinct program with admission criteria and dedicated medical, nursing and therapy support. There should be measurable performance and linkage with acute and community based teams.

31. That IH promote the concept of encouraging contractors to consider the concept of building some flexibility into their building plans for the health authority to purchase additional private capacity if necessary at some point in the future.

32. Evaluate the appropriate mix of assisted living to complex care beds on a community by community level.

References

1. "Aging in Poverty in Canada." National Advisory Council on Aging. 2005

2. "Aging Matters: Maximizing the Health of Older Adults in the South Shore Health District." South Shore Health. July 2005.

3. Baxter, D. "A Healthy Future: A Demographic Snapshot." BC Medical Journal. June 2000. Retrieved June 6, 2005 from http://www.bcma.org/public/bc_medical_journal/BCMJ/2000/june_2000

4. Baxter, D. "Social Perspectives." RPF-53rd Annual General Meeting. Retrieved June 9,2005 from http://www.rpf-bc.org/agm53dbaxter.html

5. Broemeling, Anne-Marie. "Interior Health. Acute Care Utilization Update. Issue Paper #1." October 23, 2005.

6. Broemeling, Anne-Marie. "Interior Health. Acute Care Utilization Update. Issue Paper #2." October 23, 2005.

7. Broemeling, Anne-Marie. "Highlights." 2005.

8. "Caring for Adults with Long-Term Needs in Ontario." OACCAC. August 2004.

9. Cohen, M. et al. "Continuing Care. Renewal or Retreat?" Canadian Centre for Policy Alternatives. April 2005.

10. " Diagnostic Imaging Referral Guidelines: A Guide for Physicians." The Canadian Association of Radiologists. 2005.

11. Ellis, Barbara. "Admissions by Day of Week – KGH." September 7, 2005.

12. Ellis, Barbara. "Admissions to KGH from Residential Institutions 2004/05." November 2005

13. Ellis, Barbara. "Average RIW – Quarterly for Fiscal 2004/05." September 2005.

14. Ellis, Barbara. "Cumulative Peer Comparison 2004/2005." October 2005.

15. Ellis, Barbara. "Discharges by Day of Week – KGH.." September 7, 2005.

16. Ellis, Barbara. "Kelowna General Hospital. Acute Care Cases" 2005.

17. Ellis, Barbara. "KGH Emergency Visits by Day of Week 2004/05." April 2005.

18. Ellis, Barbara. "Length of Stay< 6 Hours. Kelowna General Hospital." April 2005.

19. Ellis, Barbara. "Length of Stay< 24 Hours. Kelowna General Hospital." April 2005.

20. Ellis, Barbara. "Length of Stay< 48 Hours. Kelowna General Hospital." April 2005.

21. Ellis, Barbara. "Top 10 Medical CMG's Kelowna General Hospital 2004/05". November 2005.

22. Ellis, Barbara. "Top 10 Surgical CMG's Kelowna General Hospital 2004/05". November 2005.

23. "Ensuring Excellence: Renewing BC's Primary Care System." September 2002.

24. "Health Services Plan 05/06 – 07/08" Vancouver Island Health Authority. 2005

25. Hebert, Rejean. "Frail Elderly Patients. New Model fo Integrated Service Delivery." Canadian Family Physician. August 2003.

26. Hebert, Rejean. "PRISMA: a new model of Integrated Service Delivery for the Frail Older People in Canada." International Journal of Integrated Care. March 18, 2003.

27. "Hip and Knee Arthroplasty." Interior Health Medical Administration. November 10, 2005.

28. Lewis, Steven. "Confronting the Christmas of our Health Care Discontent." CMAJ:171 December 7, 2004.

29. "Minister Abott's opening speech – Estimates." November 2005.

30. "Modernizing Medicine for an aging Population." National Council on Aging. Retrieved November 13, 2005 from http://www.naca-ccnta.ca/expression/14-1_6_e.htm

31. "Optimizing Patient Flow." Institute for Healthcare Improvement. 2003.

32. "Population Health Profile 2004." Interior Health Retrieved June 8, 2005 from http://www.interiorhealth.ca

33 "Preliminary Provincial and Territorial Government Health Care Expenditure Estimates 1974-1975 to 2005-2006." CIHI. National Health Expenditure Database. November 2005.

34. "Report on Seniors' Falls in Canada." Public Health Agency of Canada. 2005.

35 "10 High Impact Changes for Service Improvement and Delivery." NHS Modernization Agency. September, 2004.

36. Wright, Bruce. "Cost Effectiveness and Medical Complexity in a Community Based Program for the Frail Older Population." CDM Conference. September 27, 2005.

37. Zerff, Jennifer. "KGH-Hip and Knee Replacements for 2004 – 2005." November 2005.