

Assessing need in a privately insured population - the MBF Preventive Health Survey

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Abstract

A self-administered mailed questionnaire was used to assess the health behaviours and health status of a random sample of members of the Medical Benefits Fund of Australia Limited (MBF). The data reaffirmed that the privately insured were more likely to have lower levels of major health risks and to practise better prevention than the uninsured. The survey was useful as a planning tool for MBF, confirming areas of preventive health that were already taken seriously by MBF members. Given the social advantages of these privately insured people, the results may also point to optimal health promotion and disease prevention rates expected in a population.

Why the survey was undertaken

The Medical Benefits Fund of Australia Limited (MBF), established in 1946, is the largest privately managed health insurance fund in Australia, with around 1.3 million members. Typically, health insurance companies fund medical care for their members, but fewer efforts have been directed at risk factor reduction and preventive activities. This paper explores the prevalence of preventable health risks in a random sample survey of MBF members and tests the assumption that the MBF population, and other health insured populations, were more likely to be health-conscious compared to those without health insurance.

The MBF Preventive Health Survey was undertaken in 1998 to assess the health behaviours and risks of a random sample of 20,000 members, to determine whether MBF members were different to the general community. Such information could determine whether additional preventive health activities should be developed for MBF members.

MBF aims to be more than just a transaction-based processor of claims. Its mission for members is "... to promote good health and long life, minimising illness and disability". MBF already provides some preventive health services and education and awareness programs to help achieve this goal and is incorporating rewards for appropriate preventive health behaviours into health insurance products, thus further encouraging members to maintain good health.

Overseas research suggests that private health insurance (PHI) membership is associated with socio-economic status and that members are more likely to be interested in their health and in preventive health messages. Those with a high level of education are more often privately insured (Bongers 1997). Another study found that educational attainment is related to values and attitudes that result in healthier behaviours and greater use of preventive health services (Bennett 1995). Several studies, including Australian analyses, have found an association between socio-economic status and risk factors (Mathers 1994). Lairson et al (1995) found that PHI coverage was

directly related to income, with only 20.6% of households in the lowest income group (<\$160 gross weekly income) covered compared to 69.7% of households in the highest income group (>\$800 gross weekly income).

Studies have generally indicated that being without PHI is associated with having poorer general health status compared to persons with PHI (Hahn and Flood 1995). In a 1992 study of 9,400 people in the USA, persons aged 40-64 years with public insurance (Medicaid) and those with private fee-for-service coverage, were much more likely to undertake preventive screening, such as mammography and Pap smears, compared to those who had no insurance coverage (Potosky et al 1998). The CARDIA study in the USA, into barriers to health care access (lack of health insurance, lack of regular source of medical care and expense), found a direct association between access to health care and the prevalence of smoking in young adults (Kiefe et al 1998).

Methods

Information on the prevalence of risk factors and the health status of MBF members was obtained using a self-administered mailed questionnaire. The questions covered demographic details, including education as a proxy measure of socioeconomic status (SES), general perception of health, immunisation (adult - tetanus, flu; child - doses administered), physical activity, height, weight, smoking, blood pressure, cholesterol screening, women's health (hysterectomy, Pap smear, breast self-examination and mammogram). Questions were previously shown to be reliable and valid, and were derived from the Australian Bureau of Statistics (ABS 1998), 1995 National Health survey (NHS), and other population surveys.

A pilot of the survey instrument and the process was conducted in South Australia between 1 April and 6 May 1997, using a sample of 500 MBF members. Two questionnaires were administered - one for adults and one for children (to be completed on behalf of a specific named child, by a parent or guardian). As a result of this pilot it was decided to use only one adult questionnaire, with a question on childhood immunisation included for the main survey.

The target population for the main survey was the 1997 national membership of MBF, from which a random sample of 20,000 members aged 20-90+ was drawn. This study employed a stratified random sample design of fixed strata size for each of the five states (NSW, Queensland, Victoria, South Australia and Tasmania).

The survey was conducted between 27 January and 7 April 1998. The survey process comprised an introductory letter, followed one week later by the questionnaire with an accompanying letter and reply paid envelope. A telephone and mailed follow up of non-responders occurred two weeks later. Participants were instructed not to include their name, address or any other identifying details on the form. All responses were sent directly to a designated post office box established for the survey.

The data from the MBF Survey were compared to the general Australian community, mainly by comparing the data to the 1996 Australian Census (ABS 1997) for demographic characteristics and to population health status data, as measured through the 1995 National Health Survey.

The MBF Survey used questions from the National Health Survey (NHS 1995). The 1995 NHS dataset was used for comparison, and was divided into those who reported that they had PHI (n=8373) and those who did not (n=10656). Those with missing data for this question showed a mixed socioeconomic pattern, intermediate between the insured and non-insured group. They were not included in either category for insurance category analyses, but included as part of the total denominator for overall prevalence estimates. This provided three levels of data reported in this study: the MBF prevention survey responders, and the NHS survey sample, stratified into those with and without health insurance. There were substantial missing data to the question on PHI in the NHS, so the whole NHS survey was used, which equates to around 37646 responders aged 20 and above.

The questions on physical activity were not directly comparable to the National Health Survey but were the questions asked in the Active Australia Physical Activity Survey conducted in November 1997. The Australian Childhood Immunisation Register and the ABS Immunisation surveys were used for comparative purposes for immunisation questions. While the definitions were not identical across the three surveys, the data obtained was compared.

Data analysis

For the MBF Survey, prevalence estimates by state, gender and age group were presented for a range of health factors and issues. Weighting of data by strata was necessary to correct for the unequal probabilities of selection for different states and to adjust for the state members' age and sex distribution. The sampling fractions ranged from 10% (SA) to 0.5% (NSW). Stratum weights were constructed using the inverse of the selection probability of that stratum (taking into account non-responders). For each record the sample weight will be the product of post age and sex stratification weight and the stratum weight. The variance for the state level estimate calculated was as per a simple weighted random sample. The variance for the national level estimates was calculated as per weighted stratified sampling methods using Taylor series linearization, as implemented in SUDAAN (Shah, Barnwell and Bieler 1997).

Women only were asked a series of questions relevant to prevention of cervical and breast cancer. Childhood immunisation was analysed using data where the child's age was between 3 and less than 72 months old. Outliers (e.g. weight of 321 kg for a female 158 cm tall) and unacceptable values (e.g. a value of 25 where an answer of "Yes" (1) or "No" (0) was required) were omitted from the analysis. Analysis was carried out using SAS and SUDAAN software packages (SAS Institute 1989-1996, Shah, Barnwell and Bieler 1997). Prevalence estimates and their 95% confidence intervals formed the main method of comparison between various health states and their risk factors.

Results

In the main survey, 11,378 completed questionnaires were available for analysis giving a response rate of 57%. Compared to the Census data (1996) MBF members (both males and females) were slightly under represented in the younger age groups and over represented in the older age groups, in the 50-59 years category and the 60-69 years category in particular. The MBF sample was quite similar to the NHS, but slightly less representative of the Census, with fewer responders from a non-English speaking background. Only 12% of males and 10% females spoke a language other than English at home compared to around 18% in the Census. Further, the MBF survey sample showed higher educational attainment than the NHS sample.

The data for general health measures are shown in Table 1, with the MBF survey in the first two columns, followed by the NHS survey (insured, uninsured and then overall estimates). MBF members reported high levels of very good to excellent health with little difference by gender. Similar high rates were shown in the NHS for those with PHI. Those without PHI showed a lower prevalence of very good to excellent health; 57% males and 56% of females (20-49 years) and 28% and 29% (65 years and over).

Adequate physical activity was defined as adults who reported at least 'five sessions of 30 minutes of at least moderate physical activity or walking during a week' (USSG 1996). More than half of the MBF sample at each age group reported adequate physical activity, particularly amongst those aged 50 years and older, with males slightly more often than females. MBF members were generally more physically active than the NHS responders, with the same gradient across insured status.

For both the MBF group and NHS group, the rates of overweight, (defined as a body mass index > 25) and obesity (body mass index > 30), were greater for males than for females in the MBF sample, particularly amongst the younger age groups, where 55% of males but only 34% of females were in this category. These differences persisted in other age groups. The NHS sample, with and without PHI, showed similar rates of overweight and obesity to the MBF sample. The only differences were for younger males, where health insured members were more likely to report being overweight than those without PHI, but for other age groups the differences were not significant. For females, there was a trend for those without PHI to be more overweight than those with PHI in the 50-64 age group.

MBF members showed very low rates of current smoking. These rates were marginally lower than the NHS sample with health insurance. The rates for both privately insured samples were much lower than the NHS uninsured sample.

Table 1. General health and preventive health measures: MBF Preventive Health Survey and National Health Survey

Health measures	MBF % (95% CI)		NHS95 % (95% CI)					
	Male	Female	Had private health insurance		No private health insurance		All (n=37646) **	
	(n=4660)	(n=6627)	(n=8373)		(n=10656)			
			Male	Female	Male	Female	Male	Female
General health: excellent/very good								
20-49 years old	69 (67-72)	69 (67-72)	65 (63-68)	69 (67-71)	57 (55-59)	56 (54-58)	61 (60-62)	61 (60-62)
50-64 years old	52 (48-56)	51 (48-55)	53 (50-57)	53 (49-57)	32 (28-36)	41 (37-45)	45 (43-47)	48 (46-50)
65 and over	32 (28-36)	33 (30-37)	39 (34-44)	37 (33-41)	28 (25-32)	29 (26-33)	31 (29-33)	34 (32-36)
Adequate physical activity (5 x 30 min/week)								
20-49 years old	56 (53-59)	53 (50-55)	41 (39-43)	43 (40-45)	38 (36-40)	39 (37-41)	39 (38-41)	41 (40-42)
50-64 years old	60 (56-63)	52 (48-55)	44 (40-47)	43 (39-47)	39 (35-43)	38 (34-42)	41 (39-43)	42 (40-44)
65 and over	58 (54-62)	42 (37-46)	49 (44-54)	36 (32-41)	41 (37-45)	37 (33-41)	44 (42-47)	35 (33-37)
Body Mass Index (BMI): overweight/obese								
20-49 years old	55 (52-58)	34 (31-36)	54 (52-57)	31 (28-33)	48 (46-50)	32 (30-34)	50 (49-51)	32 (30-33)
50-64 years old	69 (65-72)	52 (49-55)	64 (61-68)	47 (43-51)	62 (58-66)	56 (52-60)	63 (61-65)	50 (48-52)
65 and over	56 (52-60)	39 (35-42)	45 (40-50)	33 (29-37)	48 (44-52)	40 (36-44)	48 (46-51)	41 (39-43)
Smoking status: smoke daily/occasionally								
20-49 years old	18 (16-21)	16 (14-18)	20 (18-22)	15 (14-17)	38 (36-40)	32 (30-34)	32 (30-33)	25 (24-26)
50-64 years old	13 (11-16)	10 (8-12)	14 (12-17)	10 (8-12)	32 (28-35)	22 (18-25)	23 (22-25)	17 (15-18)
65 and over	9 (6-11)	5 (4-7)	10 (7-13)	6 (4-8)	19 (16-23)	11 (8-13)	14 (13-16)	9 (8-10)
Smoking status: Ex smoker								
20-49 years old	23 (21-26)	23 (21-25)	29 (27-31)	25 (23-27)	22 (21-24)	22 (20-23)	24 (24-25)	23 (22-24)
50-64 years old	46 (42-49)	25 (22-28)	45 (41-49)	24 (21-27)	40 (36-44)	21 (18-24)	44 (42-46)	23 (22-25)
65 and over	53 (49-57)	29 (26-32)	56 (51-61)	23 (20-27)	57 (53-61)	22 (19-25)	58 (56-60)	23 (21-25)

CI = Confidence Interval based on non-missing values and adjusted for sampling designs

** sample size selected on age greater than 20 years old including 'not applicable' answers for private health insurance.

Table 2 shows aspects of women's health in this sample. Hysterectomy rates were marginally higher for those with private insurance. Pap smear rates were reasonably high in all groups amongst younger women, but showed some differences among older women. Both MBF and NHS privately insured samples were similar, but higher than the rate among the uninsured older women. Time since the last Pap smear showed a similar gradient across insured status.

For each age group, rates of knowledge about mammograms were highest amongst MBF members, intermediate amongst the NHS sample with PHI and lowest amongst those with no PHI. Those who reported having a mammogram showed the same pattern. For the target age group of 50-69 years, MBF members showed substantially higher rates than those without PHI and slightly higher rates for those with PHI. This latter difference was most marked for those aged 70 and older. Of those who had had a mammogram in the 50-69 year age group, most reported having it within the past two years - 86% of MBF sample and 85% in NHS insured, 79% in non-insured.

Table 2. Women's health issues: comparisons between MBF Preventive Health Survey and National Health Survey

Health Issues	MBF members%	NHS95 (95% CI)		
	(95% CI) n=6456	Had private health insurance	No private health insurance	All sample (n=7066)**
Had a hysterectomy?				
20-49 years old	7 (6 - 8)	7 (5-8)	5 (4-6)	6 (5-7)
50-69 years old	35 (33-38)	28 (25-32)	23 (19-26)	26 (23-28)
70 and over	35 (31-39)	35 (28-41)	32 (26-37)	33 (29-37)
Had a Pap smear test? (excluded those who had hysterectomy)				
20-49 years old	92 (91-94)	94 (93-96)	91 (90-93)	93 (92-94)
50-69 years old	96 (94-97)	94 (92-97)	93 (90-96)	94 (92-95)
70 and over	80 (76-85)	80 (74-87)	64 (56-72)	71 (65-76)
Last Pap smear test was 0 to < 2 years ago (only those who had a pap smear test)				
20-49 years old	85 (84-87)	82 (80-84)	81 (79-83)	82 (80-83)
50-69 years old	74 (71-77)	66 (62-70)	60 (55-65)	63 (60-66)
70 and over	31 (25-37)	30 (22-38)	27 (20-34)	29 (23-34)
Heard of a mammogram?				
20-49 years old	97 (96-98)	90 (88-92)	83 (81-85)	86 (85-87)
50-69 years old	98 (97-99)	96 (94-98)	91 (88-93)	94 (92-95)
70 and over	96 (94-98)	82 (76-87)	79 (74-84)	80 (77-84)
Had a mammogram?				
20-49 years old	33 (31-35)	34 (31-36)	24 (22-26)	29 (27-30)
50-69 years old	87 (85-89)	83 (80-86)	72 (68-77)	78 (75-81)
70 and over	63 (59-67)	52 (44-59)	42 (35-49)	46 (41-51)
Last had mammogram less than one year to less than two years ago				
20-49 years old	68 (64-72)	68 (63-73)	61 (56-66)	65 (62-68)
50-69 years old	86 (84-88)	85 (81-88)	79 (75-84)	82 (80-85)
70 and over	69 (64-75)	64 (54-74)	67 (57-76)	66 (59-72)

CI = Confidence Interval based on non-missing values and adjusted for sampling designs

** sample size selected on age greater than 20 years old

Data on childhood immunisation, based on parental report, are shown in Table 3. MBF members appear to have high rates of up to date immunisation for triple antigen for infants and children less than 24 months old - 90% up to date, with a further 5% partly immunised. Measles/Mumps/Rubella (MMR) was reported by 92% of age appropriate MBF members and 87% reported up to date polio immunisation. Hib (Haemophilus influenzae type b) was complete for 78% of MBF age appropriate members with a further 6% partial immunisation. These data generally suggest that MBF members are appropriately immunised at a greater rate than the population norms, suggesting that this aspect of preventive care was well considered by MBF members who were parents.

Table 3. Childhood immunisation: comparisons between MBF Preventive Health Survey, the Australian Childhood Immunisation Register and ABS Immunisation Survey

Variables	MBF members estimates (95% CI)	ACIR *	ABS**
Diphtheria/Tetanus/Pertussis (DTP/triple antigen)			
3 to <24 months old			
immunisation up-to-date	90 (86-94)	77	88.5 ^a , 86.2 ^b
partly immunised	5 (3 - 8)		
Measles/Mumps/Rubella (MMR)			
13 to <72 months old only			
immunised	92 (90-95)		
Oral Polio Vaccine (Sabin)			
3 to <24 months old			
immunisation up-to-date	87 (83-91)	77	86.9
Hib (Haemophilus influenzae type b)			
Hibtiter/HibPedvax (Aboriginal)			
3 to <24 months old			
immunisation up-to-date	78 (72-83)	75	62.3
partly immunised	6 (3 - 9)		

CI = Confidence Interval based on non-missing values and adjusted for sampling designs

* = Australian Childhood Immunisation Register: data extracted 20/11/97 for children aged 12-15 months only

** = ABS data from "Children's Immunisation Australia, April 1995" ABS Catalogue No. 4352.0. Data for children aged 1 year

a = received three doses of Diphtheria and Tetanus vaccine

b = received three doses of Pertussis vaccine in any form

Discussion

The main findings of this study were to reaffirm that those with PHI were more likely to have lower personal health risks and practise better prevention, for themselves and their families, than those without PHI.

It is likely that a number of selection issues operated with respect to this health insured population. MBF members reported higher educational attainments and are therefore likely to have higher health literacy. Health fund membership has been declining since the introduction of Medicare in 1984 and at the time of the survey being conducted was around 32% of the Australian population (Australia's Health 1998). It is likely that this further skewed health fund membership towards those who were more concerned about their health. The selection issues are likely to explain the observed differences between the insured and uninsured. It is not possible completely to attribute better health to fund membership in the light of these selection issues.

Generally, the "better" health risk status of MBF members was noted compared to other privately insured in the NHS, although these differences were small. The reason for this could be that MBF members were more health conscious than other fund members, or that MBF provides better and more proactive preventive services for their members. Other possible explanations include the response bias in the MBF sample and the timing of the survey. Despite substantial efforts, responses were obtained from only around 57%, which was lower than the NHS and it may be the case that the more health concerned among MBF members responded. The

temporal effect, with declining PHI rates between 1995 (NHS) and 1998 (MBF survey), could have contributed to further selection effects.

The privately insured generally reported better health. Possible explanations include greater health literacy and health awareness, as well as the capacity to access and afford preventive services. MBF does provide some services to members, such as the Breast Clinic in Sydney. MBF members had the best rate attendance at this preventive procedure, even when compared to other NHS insured.

From MBF's perspective, this survey was used as a planning tool for future preventive health activities, particularly in terms of allocative efficiency for optimal health services. The data confirmed that MBF members showed a high uptake of preventive health behaviours, and lower rates of health compromising risk factors. MBF will attempt to maintain these low levels of health compromising risk factors, although inactivity and overweight remain areas of concern even among MBF members.

Overall, these data point to greater preventive health needs among the uninsured in Australia, and relatively small differences among the insured. This represents one dimension of health inequality that has seldom been explored in previous studies. These data extend beyond simple education or income differentials noted by Mathers (1994), and suggest that health fund membership may encourage preventive health in additional ways - such as communication with members and the provision of, or access to, preventive services. The causal mechanisms cannot be distinguished here, but these data suggest the need to explore these strategies further in order to elucidate which mechanisms, beyond socioeconomic status, may be contributing to improved preventive health status.

Given the social advantages of members, and the services provided by PHI organisations, these rates may be "optimal" in a population sense, and point to possible limits for any national health goals and targets. Some parameters of concern remain (for example, high rates of overweight and obesity) even among the insured populations, and it may be more difficult to modify this behaviour in the whole community. High rates of sedentary behaviour remain, although substantially lower among insured populations, suggesting that further strategies are required here. Smoking shows very low levels among insured adults, indicating the "best expected" levels of outcome for the general community with respect to anti smoking initiatives. Even immunisation rates are around 90% for MBF members' children, suggesting that this may be an optimal value to target for population health.

In conclusion, this preventive health survey of a privately insured population reinforced the importance of assessing the needs of a population for service development and not just inferring that need always exists. When considering those with PHI there is also a need to identify whether it is the self-selection process or the provision of services which assists insured members to be more prevention focussed.

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