Brain Care Centre™

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Final Report to Alberta Centre for Injury Control and Research

Project Title:
Concussion Prevention and Awareness

Project File#C13 B 03

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Brain Injury Awareness Day:
Churchill Square

June 1, 2012
Edmonton Alberta

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Background:

The public exposure to the consequences of concussions has escalated dramatically over the last three years in the written, visual and verbal media. This is a direct result of high profile athletes such as Sidney Crosby and a large number of other hockey and football players sustaining a concussion. A review done by the Centre for Disease Control indicated that 1.7 million persons in the United States sustain a traumatic brain injury annually. Of those, 52,000 persons die, 275,000 are hospitalized and 1.3 million are treated in Emergency Departments and released. Most of the injuries are mild and the patient recovers in 7-10 days. A recent literature scan done by the Brain Care Centre in Edmonton indicated that very few follow-up services exist in the community for persons who have sustained a concussion. Therefore, prevention is even more important. The literature indicates that not all concussions can be prevented, but with an appropriate fitting helmet, worn correctly, many can be mitigated.

The primary focus of this event was concussions and helmet use. The Brain Care Centre (BCC) assumes that the general public know little about the potential lasting effects of concussions and the potential mitigating effects of appropriate helmet use. In the last three years, the media have highlighted the effects of concussions and the importance of helmet use. This has been done through the unfortunate events surrounding concussions of some high profile athletes. The emerging evidence indicates that persons who have suffered concussions in sport or work may have significant short and long term consequences from their head injury. Therefore, it was our intent to bring public awareness to appropriate helmet use, the importance of preventing concussions and providing education on the potential consequences of acquiring a concussion.

On June 1, 2012, the Brain Care Centre, with its many partners, launched Brain Injury Awareness Month with the "Heads Up! Concussion Awareness and Prevention campaign at Churchill Square in Edmonton, Alberta. Sixteen stakeholders were present at the trade fair- like presentation. Each stakeholder had a booth and was able to discuss the importance of appropriate helmet use from their perspective. The intent of this day was to determine the attitudes of the attendees toward helmet usage for themselves and their families. We went into the day with the following hypotheses about helmet use and intent to change behavior:

1. Thirty percent (30%) of the respondents view helmet use as very important.

2. Thirty percent (30%) of the respondents believe that it is just as important for them to wear appropriate helmets as it is for their children.

3. Intention to change behavior about helmet usage will increase to 60% after the respondents have attended each booth.

4. The older the respondent, the less likely their willingness to change behavior related to helmet use.

Methods:

On June 1, 2012, BCC and 16 other stakeholders listed in the application set up a trade like event at Churchill Square to run from 12:00 noon to 2:00PM. As each person came through the entrance point they were greeted by a BCC volunteer and given the survey that was provided in the original application. The respondents were asked to fill out the first two portions of the survey prior to attending any of the booths. Part one of the survey asked the respondents questions about their beliefs about helmet use. The second part of the survey asked questions about what they actually do in relation to helmet use. The third part of the survey asked questions about their intent to change behavior related to helmet use and was filled out at the completion of the booth tour. As an incentive to answer part three, a prize draw was done at the end of the process for all of those who completed all three parts. The surveys were taken back to BCC and entered into "Survey Monkey". Through this tool, an Excel spreadsheet was developed and the data analyzed by importing the data into SPSS version 19 yielding demographics, frequencies and a regression analysis. The regression was used to determine if any of the questions in the first two parts of the survey could be used a predicators for our outcome variable "willingness to immediately change attitude toward helmet use".

In an attempt to determine whether the event met the needs of all of the stakeholders, each stakeholder was asked to create two measurable objectives that they would consider as an index of success of the day. The stakeholders were asked to report the results of their evaluation at a post event meeting. The post event meeting was also where a discussion as to whether the venue was the appropriate site for this event and whether the event had added value and should be continued. This would allow the organizing committee to determine lessons learned.

Results:

Demographics

On a average day, about 50 persons will attend Churchill Square during the hours of noon and 2:00PM. This was determined by the BCC staff by inquiring at City Hall and taking a random sample on different days of the week. On June 1, 2012, BCC and its partners held a Brain Injury Awareness Day at Churchill Square from 12:00 noon to 2:00PM. 135 persons were in attendance who filled out part or all of a survey about beliefs about helmet use, actual helmet use and intent to change behavior pertaining to helmet use. The surveys were administered by BCC staff and the respondents were asked to complete parts 1 and 2 prior to starting the booth visits. The demographics of the respondents are demonstrated in Tables 1 and 2 and Figure 1.

Table 1 Age range of Respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	<18	3	2.2	2.4	2.4
	18-25	28	20.7	22.8	25.2
	26-45	37	27.4	30.1	55.3
	46-59	39	28.9	31.7	87.0
	60+	16	11.9	13.0	100.0
	Total	123	91.1	100.0	
Missing	999.00	12	8.9		
Total		135	100.0		

Figure 1 Age Distribution

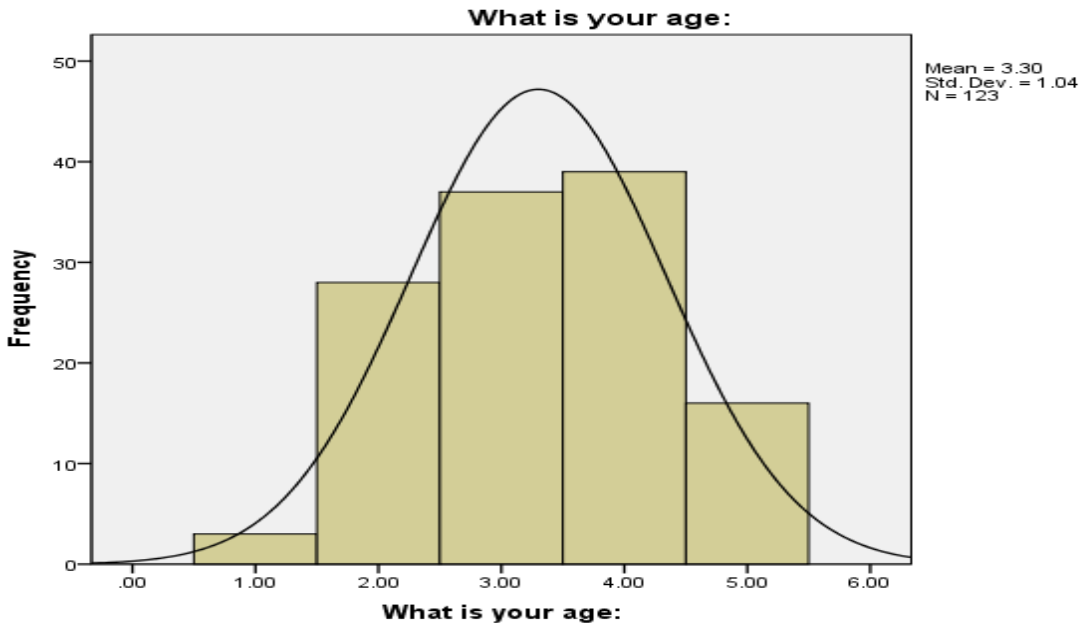

Table 2 Gender Distribution

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	72	53.3	60.0	60.0
	Male	48	35.6	40.0	100.0
	Total	120	88.9	100.0	
Missing	999.00	15	11.1		
Total		135	100.0		

The following Table 3 shows the results for the questions about beliefs as it relates to helmet use.

Table 3 Beliefs about Helmet use questions

As a parent, it is more important for me to ensure that my children wear a helmet than I

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	20	14.8	20.6	20.6
	Disagree	21	15.6	21.6	42.3
	Agree	16	11.9	16.5	58.8
	Strongly Agree	40	29.6	41.2	100.0
	Total	97	71.9	100.0	
Missing	999.00	38	28.1		
Total		135	100.0		

Wearing a helmet is not cool.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	78	57.8	57.8	57.8
	Disagree	33	24.4	24.4	82.2
	Agree	14	10.4	10.4	92.6
	Strongly Agree	10	7.4	7.4	100.0
	Total	135	100.0	100.0	

Helmets are designed so your head does not get overheated.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	31	23.0	23.0	23.0
	Disagree	35	25.9	25.9	48.9
	Agree	43	31.9	31.9	80.7
	Strongly Agree	26	19.3	19.3	100.0
	Total	135	100.0	100.0	

Protecting my head is not worth the cost of a helmet

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	90	66.7	66.7	66.7
	Disagree	21	15.6	15.6	82.2
	Agree	9	6.7	6.7	88.9
	Strongly Agree	15	11.1	11.1	100.0
	Total	135	100.0	100.0	

Protecting my children's head is not worth the cost of a helmet.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	77	57.0	70.6	70.6
	Disagree	14	10.4	12.8	83.5
	Agree	6	4.4	5.5	89.0
	Strongly Agree	12	8.9	11.0	100.0
	Total	109	80.7	100.0	
Missing	999.00	26	19.3		
Total		135	100.0		

Wearing a helmet is too much effort

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	56	41.5	41.5	41.5
	Disagree	49	36.3	36.3	77.8
	Agree	25	18.5	18.5	96.3
	Strongly Agree	5	3.7	3.7	100.0
	Total	135	100.0	100.0	

Protecting my brain by wearing a helmet is important to me,

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	10	7.4	7.4	7.4
	Disagree	7	5.2	5.2	12.6
	Agree	27	20.0	20.0	32.6
	Strongly Agree	91	67.4	67.4	100.0
	Total	135	100.0	100.0	

I do not have enough time to obtain the appropriate helmets for my activities.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	61	45.2	45.2	45.2
	Disagree	52	38.5	38.5	83.7
	Agree	10	7.4	7.4	91.1
	Strongly Agree	12	8.9	8.9	100.0
	Total	135	100.0	100.0	

People who are important to me want me to wear a helmet.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	14	10.4	10.4	10.4
	Disagree	12	8.9	8.9	19.3
	Agree	39	28.9	28.9	48.1
	Strongly Agree	70	51.9	51.9	100.0
	Total	135	100.0	100.0	

The following Table 4 illustrates the results to questions about actual helmet use:

Table 4 -Actual Helmet Use

I wear the appropriate helmet for each specific activity

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	4	3.0	3.0	3.0
	Disagree	16	11.9	11.9	14.8
	Agree	42	31.1	31.1	45.9
	Strongly Agree	73	54.1	54.1	100.0
	Total	135	100.0	100.0	

I wear a helmet when I am required to by law or policy to protect my head.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	37	27.4	27.4	27.4
	Disagree	40	29.6	29.6	57.0
	Agree	20	14.8	14.8	71.9
	Strongly Agree	38	28.1	28.1	100.0
	Total	135	100.0	100.0	

I wear a helmet when I should to protect my head

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	10	7.4	7.4	7.4
	Disagree	14	10.4	10.4	17.8
	Agree	35	25.9	25.9	43.7
	Strongly Agree	76	56.3	56.3	100.0
	Total	135	100.0	100.0	

Whether I go to work or play sports, I plan ahead to wear the correct helmet for the activity.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	7	5.2	5.2	5.2
	Disagree	14	10.4	10.4	15.6
	Agree	45	33.3	33.3	48.9
	Strongly Agree	69	51.1	51.1	100.0
	Total	135	100.0	100.0	

When I wear a helmet, I always do up the chin straps

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	3	2.2	2.2	2.2
	Disagree	8	5.9	5.9	8.1
	Agree	34	25.2	25.2	33.3
	Strongly Agree	90	66.7	66.7	100.0
	Total	135	100.0	100.0	

Table 5 illustrates the results to questions about intentions to change behavior relating to helmet use.

Frequency Table – Intentions to change behaviour

I am willing to try wearing a helmet for the next activity that requires one

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	4	3.0	3.0	3.0
	Disagree	1	.7	.7	3.7
	Agree	37	27.4	27.4	31.1
	Strongly Agree	93	68.9	68.9	100.0
	Total	135	100.0	100.0	

I am willing to educate my family to wear helmets

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	5	3.7	3.7	3.7
	Disagree	2	1.5	1.5	5.2
	Agree	33	24.4	24.4	29.6
	Strongly Agree	95	70.4	70.4	100.0
	Total	135	100.0	100.0	

I am confident that I can teach my children to wear helmets

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	4	3.0	4.1	4.1
	Disagree	1	.7	1.0	5.1
	Agree	24	17.8	24.5	29.6
	Strongly Agree	69	51.1	70.4	100.0
	Total	98	72.6	100.0	
Missing	999.00	37	27.4		
Total		135	100.0		

The decision for me to wear a helmet is entirely up to me

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	14	10.4	10.4	10.4
	Disagree	7	5.2	5.2	15.6
	Agree	37	27.4	27.4	43.0
	Strongly Agree	77	57.0	57.0	100.0
	Total	135	100.0	100.0	

I intend to take action on wearing helmets immediately

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	5	3.7	3.7	3.7
	Disagree	7	5.2	5.2	8.9
	Agree	45	33.3	33.3	42.2
	Strongly Agree	78	57.8	57.8	100.0
	Total	135	100.0	100.0	

I intend to take action on wearing helmets in the next 60 days

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	13	9.6	9.6	9.6
	Disagree	9	6.7	6.7	16.3
	Agree	47	34.8	34.8	51.1
	Strongly Agree	66	48.9	48.9	100.0
	Total	135	100.0	100.0	

I have already made changes to wear helmets in the past six months

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	10	7.4	7.4	7.4
	Disagree	16	11.9	11.9	19.3
	Agree	41	30.4	30.4	49.6
	Strongly Agree	68	50.4	50.4	100.0
	Total	135	100.0	100.0	

In order to determine which questions were the best predictors of the outcome variable "willingness to immediately change behavior as it related to helmet use", a regression analysis was run on the data. Table 6 shows the results of the regression. Four variables had a positive relationship and one had a negative relationship.

Table 6 regression analysis: Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
5	(Constant)	.895	.258		3.462	.001
	I am willing to try wearing a helmet for the next activity that requires one	.563	.077	.512	7.335	.000
	Wearing a helmet is too much effort	-.270	.055	-.300	-4.875	.000
	I intend to take action on wearing helmets in the next 60 days	.142	.060	.175	2.375	.019
	Protecting my children's head is not worth the cost of a helmet.	.126	.045	.167	2.775	.007
	I have already made changes to wear helmets in the past six months	.117	.056	.143	2.111	.037

a. Dependent Variable: I intend to take action on wearing helmets immediately

Discussion:

The results of the survey completed at the Brain Injury Awareness Day at Churchill Square on June 1, 2012 were encouraging in many ways. First, the number of respondents answering the survey was 135 persons. This compares to an average of 50 persons who normally attend this venue from 12:00 noon to 2:00PM on a average day. This reflects the interest that the event created in the downtown area.

The distribution of respondents was skewed toward females, but the age distribution was even in all categories. This distribution is important as the laws pertaining to helmet use for bike riding don't include these age groups. Many other occupations do require helmet use as part of the safety program for employment.

Prior to doing the survey, BCC formed four hypotheses surrounding the results. Hypothesis #1 stated that " it is predicated that 30% of respondents view helmet use as very important and wear on most of the time". In Table 4, the first question pertaining to actual helmet use, the total of respondents that indicated agree and strongly agree was 85.2%. This is much higher than we had predicted. The second hypothesis was that 30% of adults feel that it is just as important for them to wear a helmet as it is for their children. Table 3, question 1 asked the respondent if it was more important for the children to wear a helmet than the parent. The results showed that 30.4% of the respondents disagreed with that statement. This result indicates that 30.4% of respondents feel that is just as important for them to wear a helmet as it is for their children. Hypothesis 3 was that after the visit to the booths, the respondents will show an intention score of 60%. to change behavior towards wearing a helmet In Table 5, question 5,6 and 7 show results that address this hypothesis. Question 5 "I intend to take action immediately" showed that 91.1% of respondents agreed or strongly agreed with this statement. Question 6 "I intend to take action on wearing helmets in the next 60 days" showed 83.7% of respondents agreed or strongly agreed with the statement. Question 7 "I have already made changes to wear helmets in past six months" showed that 80.8% agreed or strongly agreed with the statement. It is clear from this result that the intention to change behavior was well above the predicted 60%.

The fourth hypothesis stated that the older the respondent, the less likely they are to intention to change behavior. Analysis of the data showed there was no significant difference for intention to change behavior as the respondent got older. We found this surprising and do not have a good explanation for this finding.

The final analysis was to do a regression analysis on the data to determine what questions were the best predicators for the outcome variable "willingness to change behavior immediately as it related to helmet use". Table 6 shows the results of the linear regression. There are 5 models shown, but model 5 is the most important. In model 5, 5 variables were significant predicators for intent to change behavior. The following questions are positive predictors of intent to change behavior and willingness to wear a helmet for the next activity that requires one; "I intend to take action on wearing a helmet in the next 60 days"; "Protecting my child's head is not worth the cost of a helmet"; "I have already made changes to wear a helmet in the last 6 months". The statement "wearing a helmet is too much effort" was the only negative predicator of intent to change behavior. One positive predicator was a surprise in that

"Protecting my child's head is not worth the cost of a helmet" was a positive predicator. As this is a pilot, it is difficult to explain this result but may be due to the wording of the statement.

A post event debriefing was held with the organizing committee and a representative group of stakeholders. Prior to the event, each stakeholder was asked to create two measurable objectives that they could use to measure the success of the event from their perspective. The stakeholders have been asked on many occasions to provide the authors with this information. To date, the authors have not received any response. This is extremely disappointing to the outcome of the project. The reasons for this lack of response is perhaps due to the lack of a scientific approach in past years. The authors feel that must be incorporated in future events to assist in measuring success of the event.

The following comments from the post-event meeting indicated that there were some successes and good outcomes:

- *Having music going helped draw attention to what was happening on the square*
- *Because the weather was so nice, our outcome/turnout was high and therefore successful. (Sunny +20 degrees for the day, no rain)*
- *Tents were supplied by the military but we may not get the same in kind donation for 2013 from them*
- *Students for Cell Phone Free Driving had a great booth!*
- *BAM and Students for Cell Phone Free Driving had the same game (drunk goggles), we should try and avoid having duplicates in 2013*
- *The roller derby girls really helped with attracting people*
- *Having food for the organizers manning the booths was great to have on site*
- *We had good verbal feedback from AABIS who thanked Andrea for being included in the event*
- *Barb Adamson from the Sports Medicine Council thanked Andrea for inviting them, they would love to be a part of another event in the future, and they were very grateful for the tents which they felt helped a lot. (Email attached to this document)*
- *The Canadian Blood Services received 10 sign ups and 2 appointments booked in 2 hours and their volunteers had a lot of fun! They were very appreciative of the support. (Email attached to this document)*
- *Brain Care Centre had 150 people approach and engaged at their booth, no other groups on the committee conducted head counts at their booth*
- *WJS was happy with the number of people who took information from their booth*
- *Brain Care Centre feels there may be a better way to conduct research for our primary funding from ACICR and thus feels the committee should look for other ways to fund the*

awareness campaign or come up with an additional event that is more conducive to research and data analysis.

- *Goals and objectives could be better defined, in more detail and set out in advance by all organizations to truly determine the level of success with hard and soft data.*
- *Prizes purchased by WJS: Digital Camera, BBQ kit, and kobo e-reader*
- *Prize purchased by BCC: Ipad2*

The following successes were identified by the stakeholder committee for the 2012 event:

A) *The committee as a whole thought the event was successful compared to the event in past years*
B) *135 surveys were submitted for our research on helmet use and behaviors of helmet use compared to the 44 returned passports received in 2011. We tripled the number of respondents! Major contributor to this was the weather and prizes we gave away including a small BBQ set, a kobo e-reader, a digital camera and an Ipad.*
C) *We increased from 9 organizations in attendance in 2011 to 14 organizations at the event in 2012. Organizations included: Skills Society, OSP, the Military, Derby Girls, Canadian Blood Services, Students for Cell Phone Free Driving, Alberta Health Services, WJS, Sports Medicine Council, AABIS, Brain Care Centre, BAM, Networks, and the EPS Street Legal team*
D) *We had more than enough food for everyone involved*

Finally, the stakeholder post event meeting recommends the following for any future events:

A) *Look at different venues as potential indoor options, or have a rain out plan in place*
B) *Find a different event if we want to continue to do research with the ACICR grant (we need more people contributing to the research)*
C) *Pick a topic that will include everyone on the BI community, Involve more organizations*
D) *Next year we need to determine goals and objective or "hard and soft data" to make more accurate determinations on success*
E) *Have more media coverage, signage, promotional materials*
F) *Have a stage with entertainment*
G) *TV screens in the tents didn't work for effectiveness but the video's being played were great, instead have a stage with a big screen that can run ads and informational videos through the big PA for everyone to hear and see*
H) *Get the school involved and bring classes down to the event*
I) *Carry the event through into the evening or have it on a Saturday*
J) *Have more activities for people to do*

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