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## Objectives

This report had six objectives:

1. Describe the characteristics of InSight participants before and at program entry using all available data sources.
2. Describe key FASD-prevention indicators, taken from the InSight database, for InSight participants during and at program exit.
3. Compare outcomes of InSight participants before, during, and after the program with a comparison group of women who did not participate, in the areas of:
  - a. use of healthcare services;
  - b. pregnancy outcomes (including prenatal care);
  - c. substance use in pregnancy;
  - d. mental health outcomes; and
  - e. use of social services.
4. Contrast outcomes before, during, and after the program for the children of InSight participants and the children of a comparison group of women who did not participate, in the areas of:
  - a. neonatal outcomes;
  - b. involvement with Child and Family Services; and
  - c. FASD assessments.
5. Examine the agreement between data available in the Repository and the InSight database.
6. Identify data limitations and suggest ways to improve data collection by the InSight Program, to allow for ongoing and improved program evaluation.

## Results

### Objective 1: Characteristics of the InSight Participants

Our findings confirm the vulnerability of InSight participants. Using the InSight entry interview and data from the Repository, we identified multiple unmet needs and risk factors for poor outcomes identified in this group of women. Results for the 226 participants revealed:

- Young age at initiation of alcohol use:
  - 59.1% initiated use at 13 years of age or younger; and
  - 45.9% started binge drinking at 13 years of age or younger.
- High-risk-alcohol-use patterns both during pregnancy and when not pregnant:
  - 7.8% reported consuming alcohol daily in the month before enrolment;
  - 80.6% reported high-risk alcohol use in their target pregnancy; and
  - alcohol use was reported in 50.4% of pregnancies before the program.
- High rates of mental health disorders and mental health services need and use:
  - 76.4% reported a history of anxiety or depression;
  - 48.8% reported a need for mental health services; and
  - 36.7% met the definition criteria for a mood or anxiety disorder at least once before the program, as identified by administrative data in the Repository (physician and hospital visits).
- Poor connection to social services (with the exception of the Healthy Baby Community Support programs and the Healthy Baby Prenatal Benefit):
  - 57.1% reported an unmet need for social housing;
  - 26.1% reported an unmet need for food bank use;
  - 25.0% reported an unmet need for intimate-partner-violence services; and
  - 25.0% reported not receiving income assistance in the month before program entry, despite very few reporting income from employment.

### Key Message

InSight participants represent a highly vulnerable population not adequately connected to social services. This program is reaching the population it was intended to reach.

### Objective 2: Program Outcomes Taken from the InSight Database

Outcomes important for the prevention of FASD include the following:

- Lower alcohol use and higher rates of abstinence during and at exit from the program, compared to the period before program entry:
  - 21.3% of women achieved at least six months of abstinence during the program;
  - 54.5% of women achieved at least six months of abstinence during the program, allowing for a brief relapse; and
  - 42.8% of women had achieved at least 30 days of abstinence at the time of program exit.
- An increased percentage of women reporting reduced alcohol use (captured as “no alcohol use” or “low risk alcohol use”) improved in subsequent pregnancies compared to the target pregnancy:
  - No alcohol use was reported in 9.6% of target pregnancies versus in 56.7% of subsequent pregnancies.
- Use of reliable contraception increased during the program from 6.8% of participants to 32.6% of participants reporting reliable use at all assessments; 73.8% reported use of reliable contraception at half or more of their assessments.
- Identification of need for and connection to social services increased for multiple types of social services, as measured at program exit compared to entry.

### Key Message

The findings suggest that the InSight program had a significant impact during participation in its key focus areas.

### Objectives 3 and 4: Long-term Outcomes for InSight Participants and their Children Compared to Women who did not Participate in the InSight Program

In these comparisons, a group of InSight participants who received income assistance (n=214) was compared to a group of women who did not participate in InSight but who disclosed alcohol use in a pregnancy and who received income assistance (n=2,163). These comparisons used a statistical method that adjusts for differences to make the groups appear more similar at baseline to enable an apples-to-apples comparison. Outcomes were measured over three periods: (1) before the program, (2) during the program, and (3) after the program. Outcomes were available for variable lengths of time, depending on how recently the InSight participants finished the program.

Differences between the InSight participants and the comparison group were examined for an overall difference in the change over time and for differences between periods.

We looked for statistical differences in the pattern of change over time for the entire period as a whole between the InSight participants and the comparison group. A significant result for this comparison provides strong evidence of a program effect. We also looked for statistical differences between the InSight participants and the comparison group for each time period (before, during, and after) and between time periods for the InSight participants (e.g., during vs. before). Significant differences for these comparisons provide moderate evidence of a program effect; they could also be due to confounding variables (as noted above) or the passage of time by itself.







# CHAPTER 1: INTRODUCTION

There is a growing body of research demonstrating that interventions that address the complex social determinants of women's health—such as mentoring programs—may have greater effectiveness at preventing fetal alcohol spectrum disorder (FASD) than programs that only address alcohol use (Clarren, 2011; Ospina, 2011).

## Description of the InSight Mentoring Program

The InSight mentoring program<sup>1</sup> provides outreach and intensive case management, support, and advocacy for women who are pregnant or postnatal, have substance use problems, and are insufficiently connected to other community programs and services. The ultimate goal of InSight is to reduce the prevalence of drinking during pregnancy and the number of children born with FASD. Espousing a harm-reduction philosophy, the program works to achieve its goal by supporting women and their families in a variety of areas to improve family health and wellbeing.

InSight replicates the model of the Parent-Child Assistance Program, which proved very successful at preventing FASD in Seattle, Washington (Grant, Ernst, Streissguth, & Stark, 2005). Funded by Healthy Child Manitoba, InSight began in 1998 with two locations in Winnipeg and was expanded to include sites in Thompson and The Pas in 2001. In 2002, the capacity of the two Winnipeg sites was increased by 50% and in 2008 the program was expanded again to the communities of Portage la Prairie, Dauphin, and Flin Flon.

The program operates out of two community health centres, two regional health authorities and a Friendship Centre. Each site has a program coordinator who manages the site, is responsible for community outreach, education, and program referrals, and who supervises two or three mentors. Mentors are well-trained, paid staff who have significant experience working with vulnerable populations. Each mentor may work with up to 15 women at a time, which gives InSight a total program capacity of 240 women. Women are eligible for the program if they are

- aged 18 years or older;
- pregnant or up to 12 months postpartum;
- experiencing substance-use problems;
- not well-connected to community resources; and
- living within a one-hour radius of a program site.

The program works with women whether or not they have custody of their children and whether or not they are abstinent from drinking.

At program entry, each woman is assigned a mentor who works intensively with her and her family for up to three years. Mentors help women build and maintain healthier lifestyles in a supportive, non-judgmental way using motivational interviewing, trauma-informed and harm-reduction practices. Mentors routinely help women set their own goals for the program and help them to achieve these goals, while integrating broader program goals. In this way, services are tailored to each woman and her specific situation, and can include a broad range of supports.

Mentors work with women to connect with community services, get transportation to appointments, and overcome barriers to service. Mentors facilitate access to services, including housing, prenatal care, and healthcare for women and their children, parenting support, spiritual and cultural teaching, substance-use treatment, family-planning services, and services that address intimate-partner violence and trauma. Mentors advocate for clients and assist clients to advocate for themselves as they seek financial security, address child custody or care issues, legal and criminal justice issues and healthcare issues.

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1 For information on the InSight mentoring program, see: <http://www.gov.mb.ca/healthychild/fasd/insight.html>

Over the course of the program's three years, mentors encourage women to develop the confidence to advocate for themselves, to achieve self-efficacy, and to know where in the community to seek help when needed, so that they can maintain gains in health and well-being beyond their time in InSight.

## Background on Alcohol Use in Pregnancy and FASD

Prenatal alcohol exposure places children at risk for adverse health effects including intellectual and learning disabilities, facial dysmorphology, and social and emotional difficulties (Astley, 2010; Bertrand et al., 2005; Burd et al., 2003; Chudley et al., 2005). These disabilities are collectively termed FASD. Due to the range of expression and disability related to prenatal alcohol exposure it is a difficult condition to diagnose. There is also immense stigmatization associated with prenatal alcohol use that results in underreporting and failure to seek a diagnosis. The Canadian Maternity Experiences Survey (2009) indicated that approximately 63% of women reported drinking alcohol pre-conception, and 11% reported alcohol consumption during pregnancy (Walker, Al-Sahab, Islam, & Tamim, 2011). Exact population incidence and prevalence of FASD in Canada and internationally are unknown. Estimates of FASD prevalence vary but a recent comprehensive study generated a midpoint of 3.6% (May et al., 2014) and it represents a significant financial burden, estimated at \$5.3 billion for Canada alone (Stade et al., 2009; Stade et al., 2007).

Because of the complex interplay of environment and genetics, not all women who drink during pregnancy will give birth to children with FASD. Women whose children are diagnosed with FASD are often marginalized with a history of mental illness, poverty, substance abuse issues (their own or in their social network), a history of physical and sexual abuse, and the effects of colonialism. These women often come from lower socioeconomic backgrounds, have lower education levels, and poor nutrition (Astley et al., 2000).

## Study Objectives

The primary aim of this study was to examine whether InSight is associated with any long-term effects after program exit over multiple domains for clients and their children. The specific objectives of this evaluation were to:

1. Describe the characteristics of InSight participants before and at program entry using both the InSight Database and the Population Health Research Data Repository (Repository).
2. Describe the results for key indicators of FASD prevention for InSight participants during and at program exit.
3. Contrast outcomes before, during, and after program exit of clients with a comparison group of women who did not participate in the InSight program in the areas of:
  - use of healthcare services;
  - pregnancy outcomes (including prenatal care);
  - substance use in pregnancy;
  - mental health indicators; and
  - use of social services.
4. Contrast outcomes before, during, and after program exit for the children of InSight participants and the children of a comparison group of women who did not participate in the InSight program in the areas of:
  - neonatal outcomes;
  - involvement with Child and Family Services; and
  - FASD assessments.
5. Examine the agreement between variables available in both information sources (Repository and InSight)
6. Identify areas of data limitations and provide suggestions to improve data collection by InSight, to allow for ongoing and improved program analysis.





# CHAPTER 2: METHODS

## Study Groups

Two study groups were used in this report: one of InSight participants and a comparison group of women who did not participate in InSight.

### InSight Study Group

The InSight database that MCHP received for analysis included data from 1999 to 2012. Our criteria for retaining individuals in the study population were decided to retain the highest number of participants for whom data quality was sufficient for analysis and who had finished the program early enough for one year of post-program outcomes to be measured.

We received information on 525 women. The study cohort's development is described in Figure 2.1. Women were excluded (n=177) from the study population if they:

- were younger than 18 years of age (this program targeted adults and the number of teenagers enrolled was very low (fewer than six), such that they could not be grouped separately);
- enrolled prior to April 1, 2001 (before this date InSight data were very incomplete, thus not enough information was available to include them in the analysis); or
- had a record that Manitoba Health, Healthy Living and Seniors (MHLS) could not associate with a PHIN (a valid PHIN is required to link to other Repository data).

The excluded participants were similar on most characteristics other than program centre and time of enrolment. (These results are presented in Chapter 3.) Please note that women without a recorded PHIN would still have a number available to them and would not be denied access to medical services.

The most recently established centres—Portage la Prairie, Dauphin, and Flin Flon (all started in 2008—were not operating long enough to have women complete the program, and so were not included in the cohort. Despite longer-running programs in the Winnipeg-based centres, issues with the quality of early data collection limited the numbers of InSight participants included (e.g., missing PHINs and completion of Addiction Severity Index intake forms). Details of the cohort's development, including exclusions, are given in Chapter 3.

There were 122 women still enrolled in the program on March 31, 2012, the date that the data were abstracted and processed. These women were excluded because they did not have at least one year of post-program outcome data available. The final study cohort included 226 InSight participants enrolled between April 1, 2001 and June 30, 2008. For some of these women, data are incomplete or missing for certain variables. These will be noted throughout this report. When subpopulations are analyzed, such as those with a pregnancy or those with a Families First Screen, the sample size is even smaller. This is noted in the applicable analyses. For the analyses in Chapter 6, the sample was limited to InSight participants who had received income assistance before entry (n=214).





## MCHP Databases

The following data from the Repository were used for our analyses:

- Cadham Provincial Laboratory (for information on laboratory tests such as sexually transmitted diseases);
- Canadian Census (public-use files);
- Child and Family Services Applications (intake and CFSIS, child daycare, education (enrolment, marks, and assessments));
- Families First Screening (FFS) and Home Visiting Program;
- Healthy Baby (Manitoba Prenatal Benefit, Community Support programs);
- Hospital Discharge Abstracts;
- MCHP Research Registry;
- Manitoba Fetal Alcohol Spectrum Disorder;
- Manitoba Immunization Monitoring System (MIMS);
- Manitoba Maternal Serum Screening Program;
- Medical Claims;
- Employment and Income Assistance program (income assistance or IA); and
- Social Housing (Tenant Management System, Shelter Benefit, and Rent Supplement).

For descriptions of these databases please visit the MCHP website: [http://umanitoba.ca/faculties/medicine/units/community\\_health\\_sciences/departmental\\_units/mchp/resources/repository/datalist.html](http://umanitoba.ca/faculties/medicine/units/community_health_sciences/departmental_units/mchp/resources/repository/datalist.html).

## Additional Reports

Additional information on some of the indicators used and variables reported on in this deliverable, and the impact of some of the services to which the women were connected can be found in the following reports:

- The Experiences of Women Involved with Mentoring: Summary of NAT 4 Research Projects, 2011–12. (Burnside, McDermott, Gough, Tanchak, & Reinink, 2012)
- Perinatal Services and Outcomes in Manitoba, 2012 (Heaman et al., 2012).
- Evaluation of the Healthy Baby Program, 2010 (Brownell, Chartier, Au, & Schultz, 2010).
- Next steps in the provincial evaluation of the BabyFirst program: Measuring early impacts on outcomes associated with child maltreatment, 2007 (Brownell M, Santos R, Kozyrskyj A, Roos N, Au W, Dik N, Chartier M, Girard D, Ekuma O, Sirski M, Tonn N, Schultz J, 2007).
- Please see Reference List for complete reference.

## Indicators and Time Periods Used in this Report

The outcomes of the InSight participants are reported using several indicators from the InSight data and databases in the Repository over different time periods. Table 2.1 contains a list of the indicators used in this report as well as the time period during which they were captured and the data sources from which they were drawn. Detailed technical descriptions of the indicators used in this report are given in Appendix Table 1.1.







In this report, the results of comparisons of the InSight participants to themselves over time as well as the comparisons at each time period between the InSight participants and the comparison group are reported as relative risks with 95% confidence intervals; significance is set at  $p < 0.05$  with adjustments for multiple comparisons. A p-value of 0.05 means that there is a 5% probability that differences were due to chance alone. When the patterns of change over time were compared between the two groups, we looked for a statistical interaction, which requires a larger sample size to achieve significance than single variables analyses. After weighing the risk of missing a true difference, against the risk of falsely assuming a difference where one does not exist, we set the significance for this test at  $p < 0.15$ . Further detail on the interpretation of the statistical results is given in Chapter 6.

# CHAPTER 3: DATA QUALITY IN THE INSIGHT DATABASE

## Data Quality

When evaluating any program, the quality of the data available and its ability to capture the outcomes of interest will affect the conclusions that can be drawn. In this chapter, we discuss the general areas in which data quality and availability affected our ability to conduct this evaluation, and give suggestions for improving the data collection process in the future. The focus is on the InSight database.

### Unrecorded PHINs

As discussed in Chapter 2, when preparing the InSight data for linkage with the MCHP Repository data, the first challenge was the lack of consistently recorded maternal PHINs. This was discussed with the program centres and an effort was made to fill in some of the missing PHINs. Following this, 27.4% of PHINs were still missing. Further analysis revealed that these unrecorded PHINs were not randomly distributed. Table 3.1 shows the unrecorded PHINs by program site and time period. Participant records could not be linked to the Repository without a PHIN, so we could not evaluate the long-term outcomes of these women. This reduced the sample size considerably. The majority of unrecorded PHINs were from earlier years, before 2001. Therefore, we excluded women who entered the program before this date. In addition to their effect on our ability to study long-term outcomes, the missing data. Also differentially excluded women based on the program site they attended, thereby reducing the generalizability of results. Conversely, excluding women enrolled early in the program, when it was newly implemented and sites may have been of variable quality may make the results more representative of those of newer participants. An additional challenge was that a significant number of PHINs belonging to the target children were not recorded (47.4% of the 525 expected target children). Due to this low number we could not reliably identify the target children in the Repository.

**Table 3.1: Distribution of Missing PHINs by Site and Year**

	Before April 2001	April 2001 to June 2002	July 2002 to June 2004	July 2004 to June 2006	July 2006 to June 2008	After June 2008	Total
Site 1	20	s	s	s	s	s	31
Site 2	s	s	s	s	0	0	9
Site 3	36	18	11	s	s	12	91
Site 4	s	0	s	s	6	s	13
Total	58	23	18	18	11	17	145

s indicates data suppressed due to a value of 5 or less

Of those InSight participant records missing a PHIN, many were also missing other variables. Participants without a recorded PHIN were compared to participants with a PHIN on several variables within the InSight dataset. Only a few differences were noted. Women excluded from the analysis were more likely to be married ( $p=0.047$ ), more likely to report a chronic medical problem ( $p=0.012$ ), and more likely to have had depression or anxiety at some point in their lifetime ( $p=0.010$ ). They did not differ significantly on all other variables assessed: education, drug of choice, employment income, depression or anxiety in the last 30 days, use of social housing, use of or need for intimate-partner-violence services, food bank services or mental health services, and receipt of income assistance in the last 30 days.





community-service use. However, fewer areas are covered at the six-month intervals, the questions are asked differently, and they are divided between the target child and the participating mother. Thus, it is not possible to compare social service usage reliably over time. For contraceptive use, the questions differ at intake from the six-month assessments, and are not asked on the exit interview.

Information about alcohol use is gathered using different questions throughout the program, which makes results not directly comparable. For example questions differ when the target pregnancy is compared to subsequent pregnancies, when use is captured in and outside of pregnancy, or before the program to during the program.

Additionally, the intake and exit forms are completed via direct interview by the program director, but the six-month assessments are completed by the mentor using their knowledge of the participant. It is unknown whether the responses would be the same, even if the questions were similar at all time points as the relationship of the program director to the participants differs from that of the mentor and the participants.

### Specific Relevant Data not Gathered

A few specific and highly relevant data points were not captured in the database. Women who enrol in the program are either pregnant or recently postpartum. This information is not captured directly on the intake form, although it can be derived from the target child's birthdate if it is recorded. One of the most significant challenges when we first started working with the InSight database was determining whether the women with missing forms had stayed in the program. Recently a form was added to capture information about participant retention and reasons for leaving. However, its use in this report was limited because only 12.8% of our sample had this form available.

Even though the InSight program works around a harm-reduction philosophy, harm reduction was not well-captured in the database. Questions around alcohol use tended to focus on total abstinence and were not sensitive to reductions in use. The questions on some of the forms also captured all substance use together as an all-or-none quantity; they did not differentiate between substances, and were not sensitive to changing patterns of use or the priority of substances used.

### Suggestions for Improvement

These issues can be addressed by realigning the information gathered during the program with the evaluation objectives and program philosophy. This will require changing the forms, which would not allow for continuity between past and future participants. However, the increased utility of newly designed forms outweighs this drawback.

With this in mind, we make the following specific recommendations:

- Questions about alcohol use should be separate from questions about other substance use. Consideration should be given to gathering information on the most commonly used substances individually. Less commonly used substances could be grouped together to reduce the amount of data gathered overall.
- The same questions about the quantity and frequency of use for each substance of interest should be asked at every time point during and outside of pregnancy.
- Efforts should be made to make information gathered on InSight forms comparable to information gathered by other Healthy Child Manitoba initiatives such as the Families First Screen (FFS), and during routine prenatal care on the Manitoba Prenatal Record.
- InSight administrators should identify evaluation goals in other areas, such as contraceptive use, and ensure that this information is captured at all time points.
- Attention must be given to collecting PHINs, as well as the start and end dates for program involvement for all participants, to ensure they can be identified for study in the MCHP Repository.
- A field for pregnancy status should be added to the intake form.

## Summary

The data-quality issues outlined above had a cumulative effect on the analyses that could be undertaken for this report. The exclusion of earlier years of data for unrecorded PHINs reduced the sample size overall and shortened the length of follow-up after program exit, which reduced the sample size for specific outcomes, particularly those related to pregnancy. This was compounded again when not all pregnancies could be linked to a further data source such as the FFS. Initially, we had planned to study long-term outcomes stratified by program outcomes such as abstinence from alcohol or receipt of different social programs. However, limitations in the sample size and the InSight database made this impossible. Improvement of the information gathered in the InSight database as well as in other program-delivery areas would allow more detailed research longer term follow-up of the results found in this report.









**Table 4.4: Descriptive Characteristics of InSight Participants from Both the InSight Database and the Repository**  
Agreement between sources

Variables	InSight		Repository		Kappa
	n	%	n	%	
<b>Maternal Age (n=179)</b>					
18-19	18	10.1	18	10.1	1.0000
20-24	58	32.4	58	32.4	
25-29	66	36.9	66	36.9	
30-34	26	14.5	26	14.5	
35 and older	11	6.1	11	6.1	
<b>Education Level (n=122)</b>					
Grade 12	14	13.0	25	20.5	0.4889
Less than grade 12	94	87.0	97	79.5	
<b>Social Housing (n=160)</b>					
Yes	45	28.1	23	14.4	0.3099
No	115	71.9	137	85.6	

## Demographic Characteristics

InSight participants were distributed relatively equally across the four program centres included in this study—the two Winnipeg centres (Aboriginal Health and Wellness Centre and Nor’West Co-op Community Health) and the two outside of Winnipeg (The Pas and Thompson) (Table 4.2). Data for enrolment years show an unequal distribution of women across the four periods (Table 4.2). Enrolment of 39% of the women after July 2007 limited our ability to examine longer-term follow-up. There were just five years of follow-up or less for 52% of participants (a breakdown of participants by follow-up length is given in Table 2.2).

Self-reported ethnicity was available for 180 of the InSight participants, with 94.4% (n=170) identifying as Aboriginal.

## Socioeconomic Status (SES)

We used multiple variables to describe the SES of InSight participants:

**Area of residence:** defined in the Repository by the six-digit postal code. To preserve anonymity the exact address of the women was not available for analysis. Postal codes were used to assign participants to a census dissemination area (DA). This is the smallest area (about 400 residents) for which the Canada Census reports multiple non-medical social determinants of health, including average household income, percent of single parent households, unemployment rate, and high school completion rate.

Just over half of InSight participants resided in Winnipeg (54.4%); all others were considered as rural-dwelling (see Table 4.3).

**Social Economic Factor Index (SEFI):** a composite score of SES developed by researchers at MCHP that incorporates all of the non-medical social determinants of health described above. Scores at less than two standard deviations below the mean represent very low SES. Statistically, we would expect only 2.5% of the population to be very low SES. However, 26.2% of the InSight participants were classified as having very low SES (Table 4.3).

**Income quintiles:** the average household income of the DA alone can also be used as a marker of SES, and each DA can be grouped into quintiles, with rural and urban quintiles reported separately. One fifth (20%) of the population is in each quintile, which are numbered 1–5. The quintile with the lowest SES is 1 and the highest is 5. The majority of Winnipeg participants (84.6%) lived in the two lowest income quintiles. For rural participants where the DA is larger and encompasses a wider spread of household income the relationship between individual household income and area level income is not as tightly correlated. Thus for rural participants 43.6% of women lived in the two lowest rural quintiles (Table 4.3).























## Physician Visits

Indicators in this section were taken from physician billing records. Pregnancy-related care was excluded from all categories and reported separately (see Section 6.2). Visits are reported as all physician visits, all mental health, and all other.

Results are presented in person-years<sup>3</sup> due to varying lengths of follow-up for each participant. The unadjusted rates (per person-year) for the InSight participants before program entry were 7.22 for all physician, 1.31 for mental-health-related, and 5.91 all other types of visits. For the comparison group the rates (per person-year) were 5.27 for all-cause, 0.58 for mental-health-related, and 4.69 for all other types.

### Key Findings: Unadjusted Outcomes

**Table 6.1: Unadjusted Rates of Physician Visits for InSight Participants**

Rates per person-year, by time period

	Before	During	After
All Physician Visits	7.22	8.81	10.83
All Mental Health Physician Visits	1.31	1.90	2.43
All Other Physician Visits	5.91	6.90	8.38

Timing in relation to program delivery

Note: Pregnancy-related visits have been excluded.

**Table 6.2: Unadjusted Relative Risks for Physician Visits for InSight Participants: Time Period Comparisons**

95% confidence intervals

	During vs Before	After vs Before	After vs During
All Physician Visits	<b>1.22 (1.04-1.43)</b>	<b>1.50 (1.28-1.76)</b>	<b>1.23 (1.05-1.44)</b>
All Mental Health Physician Visits	<b>1.45 (1.03-2.02)</b>	<b>1.85 (1.32-2.59)</b>	1.28 (0.92-1.79)
All Other Physician Visits	1.17 (1.00-1.36)	<b>1.42 (1.21-1.66)</b>	<b>1.22 (1.04-1.42)</b>

**bold** indicates statistical significance for that time period

Timing in relation to program delivery

Note: Pregnancy-related visits have been excluded.

When compared as a group to themselves over time the InSight participants demonstrated:

- a significant increase or trend towards an increase during the program for rates of physician visits for all categories with results persisting after program exit;
- significantly increasing rates of physician visits for the “all visits”, “all mental health visits” and “all other visits” categories after program exit; and
- no significantly increased rate of all physician visits related to mental health after the program (compared to during)

<sup>3</sup> A person-year is a measurement combining number of persons and the amount of time for which we have data about their risk. For example, if one person has data for three years and was hospitalized once, another has data for one year, and a third has data for two years, we have six person-years of data. Person-years were used in the analyses to allow us to include as many individuals as possible in the calculations and to use individuals who were not part of the evaluation for the entire time period.

























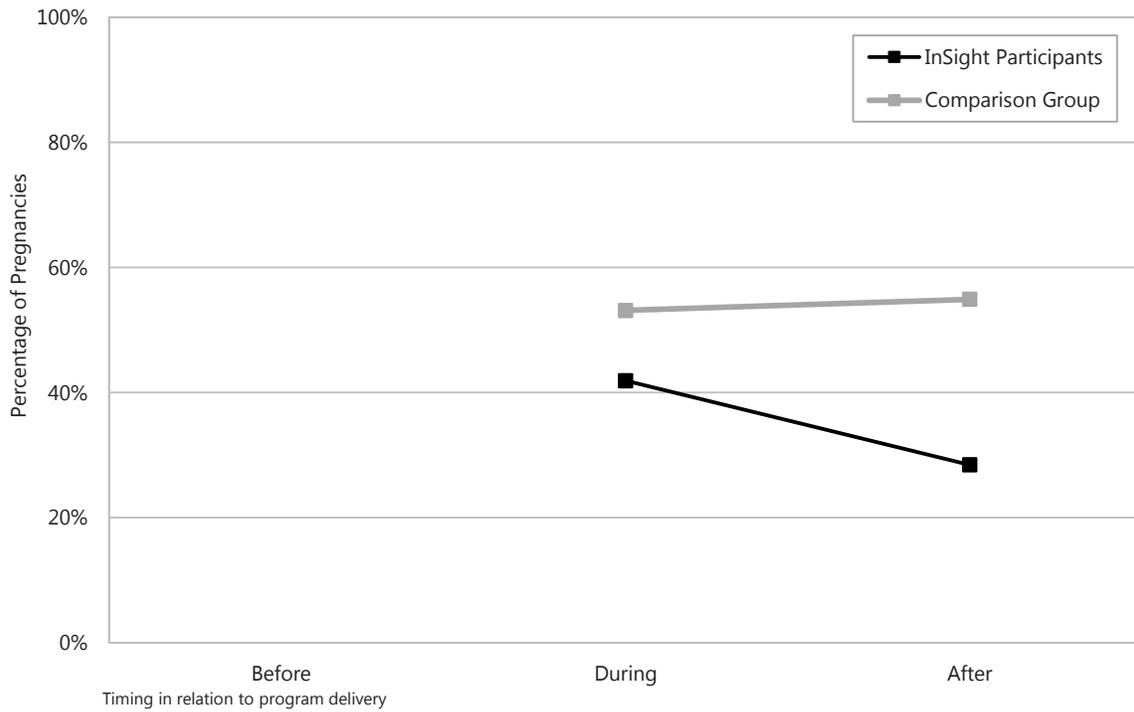






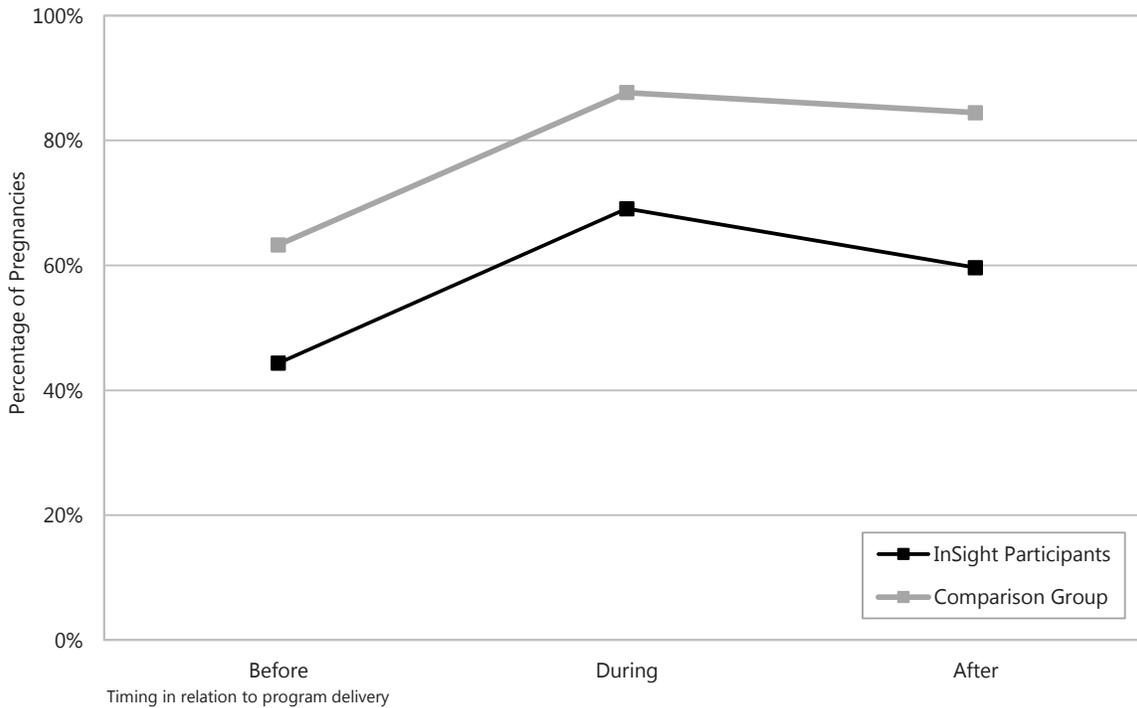


**Figure 6.16: Adjusted Rates of No Alcohol Use in Pregnancy, InSight Participants and Comparison Group**  
IPTW-adjusted, by time period



- No statistical difference in the change over time for no alcohol use in pregnancy ( $p=0.275$ ).

**Figure 6.17: Adjusted Rates of Low-Risk or No Alcohol Use in Pregnancy, InSight Participants and Comparison Group**  
IPTW-adjusted, by time period



- No statistical difference in the change over time for low-risk or no alcohol use in pregnancy ( $p=0.891$ ).







































## CHAPTER 7: CONCLUSIONS AND RECOMMENDATIONS

This report represents a first look at the InSight data and their utility for examining the health and social outcomes of a vulnerable population of women. For many outcomes, sample sizes were inadequate to draw firm conclusions about the impact of the InSight program. The sample size was limited particularly by the lack of maternal PHINs recorded, and data quality in the InSight database. In this chapter we summarize our findings as they address the objectives outlined in Chapter 1.

### Objective 1: What are the Characteristics of the InSight participants?

The vulnerability of the participants in the InSight program was confirmed by findings of multiple unmet needs and risk factors for poor health and social outcomes, including:

- low age at initiation of alcohol use, and alcohol-use patterns both during pregnancy and outside of pregnancy;
- high rates of mental disorders and use of mental health services; and
- poor connection to social services (the exception was the Healthy Baby Prenatal Benefit and community support programs, to which participants were well-connected).

These findings confirm that the InSight program is reaching the vulnerable population it was intended to reach. Because of the missing PHINs, our evaluation did not include the entire population of women who participated in the InSight program. However, as shown in Chapter 4, the sample of participants we studied did not differ from the InSight participants who were not included in the study across most characteristics. Therefore, our findings may be generalized to all InSight participants.

**Key Message:** InSight participants represent a highly vulnerable population not adequately connected to social services. This program is reaching the population it was intended to reach.

### Objective 2: In the InSight Database, What Impact can be Seen on Outcomes Important for FASD Prevention?

Key outcomes important for the prevention of FASD were reported from the InSight database, including the following:

- During the InSight program and at exit, participants had lower alcohol use and higher rates of abstinence.
- The majority of InSight participants achieved at least six months of abstinence during the program.
- Differences in question structure for alcohol use in pregnancy make comparisons difficult, but the findings suggest that the percentage of women reporting low-risk or no alcohol use was higher in subsequent pregnancies during the program compared to the target pregnancy.
- Use of reliable contraception increased during the program.
- Identification of needs for, and connection to social services increased.

**Key message:** The InSight program had a significant impact on its key focus areas during the program.







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# APPENDIX

**Appendix Table 1.1: Technical Definitions of Indicators used to Measure Long-Term Outcomes (Chapter 6)**

Indicator	Definition	Exclusions
<b>A. Healthcare use</b>		
<b>1. Physician visits</b>		
	For all ambulatory physician visit measures, rates were calculated per person-year:  <i>InSight group:</i> Visits within 3 year period before entering InSight and up to 3 years after exiting InSight. <i>Comparison group:</i> Visits from 3 years before the "target" child's birth up to 6 years after the birth.	Pregnancy related visits: prenatal care (tariff codes: 8400, 8401, 8501, 8507, 8509, and 8540), ICD-9-CM codes which suggested a pregnancy: 640-648, 650-669, V22 or V23 (the last two must also have been accompanied with a "prefix" value of '7').
All visits		Pregnancy-related visits
Mental health	Visits with any diagnosis code from chapter 5 of the ICD-9-CM code book.	Pregnancy-related visits
Other		Mental health & pregnancy-related visits
<b>2. Hospitalizations</b>		
	For all hospitalization measures, rates of inpatient hospital episodes were calculated (i.e transfers within the same hospitalization are not counted as separate events) per 1000 person-years:  <i>InSight group:</i> Only hospitalizations which occurred within 3 years of entering InSight and up to 3 years after leaving InSight were counted. <i>Comparison group:</i> Hospitalizations from 3 years before the "target" child's birth up to 6 years after the birth were included.	Pregnancy related hospitalizations: ICD-9-CM codes which suggested a pregnancy: 640-648, 650-669, V22 or V23.
All hospitalizations		Pregnancy related hospitalizations
Mental health	All primary diagnoses from chapter 5 of the ICD-9-CM or the ICD-10-CA code book	Pregnancy related hospitalizations
Injury	ICD-9-CM: all diagnoses with an E-code in any of the up to 16 recorded diagnosis fields. ICD-10-CA: all diagnoses in any of the up to 25 recorded diagnosis fields with a value of "V01" - "V89".	Pregnancy-related hospitalizations; E-codes: 1. Misadventures during Surgical or Medical Care (ICD-9-CM: E870-E876 (or eclass=10), ICD-10-CA: Y60-Y69, Y88.1); 2. Reactions or Complications due to Medical Care (ICD-9-CM: E878-E879 (or eclass=11), ICD-10-CA: Y70-Y84, Y88.2, Y88.3); 3. Adverse Effects due to Drugs (ICD-9-CM: E930-E949 (or eclass=18), ICD-10-CA: Y40-Y59, Y88.0).
Other		Mental health, injury, & pregnancy-related hospitalizations.
<b>B. Pregnancy &amp; Prenatal care</b>		
<b>1. Birth rates</b>		
	For all birth measures: births were assigned to a time period based on the pregnancy start date, not the birth date. Only includes births in Manitoba hospitals. Measured per 100 person-years.	
Live birth	All babies born alive	
Non-live birth	Includes stillbirths, therapeutic and spontaneous abortions and nonviable pregnancies (such as molar pregnancies).	
<b>2. Prenatal care</b>		
	Physician tariff codes used in all prenatal measures: 8400, 8401, 8501, 8507, 8509, 8529, 8540, and 8550.	
Prenatal care in first trimester	Percent of pregnancies for which the first prenatal visit occurred during the first 13 weeks of pregnancy.	Women receiving prenatal care from a midwife, cases missing values for either prenatal care or trimester of first prenatal visit.
Adequate prenatal care	Percent of women who were pregnant and who received adequate prenatal care according to the Revised-Graduated Prenatal Care Utilization Index (R-GINDEX; see MCHP concept dictionary for complete details).	
Hepatitis B serology testing in first trimester	Percent of pregnancies for which women had Hepatitis B serology test results during the first trimester. From the CADHAM lab data if variable serologytest = 'HBSAG', 'HPHBS', 'AHBS', 'AHBCT', 'AHBCG', 'HBEG', 'AHBEA', 'AHBCM', 'HBVN', 'HBVL', 'HBVD', 'HBVVL', 'HBVGT', 'HPAHB'.	
<b>C. Substance use in pregnancy</b>		
<b>1. Smoking during pregnancy (FFS)</b>		
	Percent of women with an FFS who had a live birth and who reported smoking during pregnancy (on the FFS).	
<b>2. Alcohol use</b>		
Alcohol use in pregnancy	Percent of women with an FFS who had a live birth and for whom alcohol consumption during pregnancy was reported on either the FFS (self-report) or the hospital discharge abstract.	Cases where the variable was missing in the data set; stillbirths.
Alcohol use in pregnancy, none (FFS)	Percent of women with an FFS who had a live birth and who reported consuming alcohol during pregnancy (on the FFS).	Cases where the variable was missing in the data set; stillbirths.
Alcohol use in pregnancy, none or low risk use (FFS)	Please see Appendix Table 1.2.	
Alcohol use prior to pregnancy, high risk (FFS)	Please see Appendix Table 1.2.	







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