

# Utah's Licensed Direct-Entry Midwives Report of Outcomes

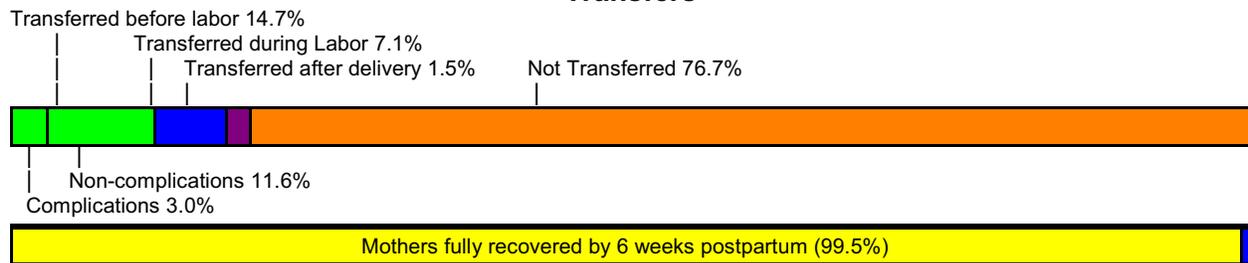
July 1, 2008 through June 30, 2009

## Executive Summary

The outcomes of Utah's Licensed Direct-Entry Midwives for this time period are excellent.

76.7% (303) of 395 LDEM clients delivered successfully without need to transfer at any point. 14.7% (58) of all clients transferred before the onset of labor, of whom the majority 79.3% (46) were for non-complications reasons such as moving away, changing midwives, miscarriages, or choosing to birth in the hospital. 7.1% (28) of all clients were transferred to the hospital during labor prior to the birth of the baby. 96.4% (27) of these transfers occurred by private car, 3.6% (1) was by ambulance. Six mothers (1.5% of all clients) were transferred after delivery of the baby, 1 by ambulance, 5 by private car. Necessary transfers to hospital were handled in a timely manner with generally good outcomes. 99.5% of mothers were completely recovered by 6 weeks after delivery.

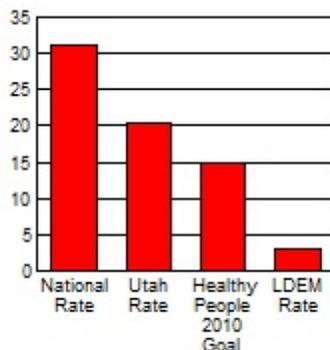
### Transfers



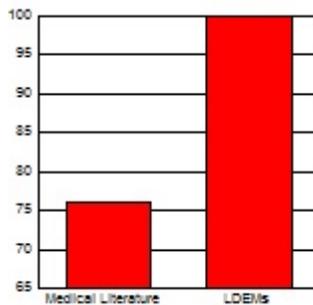
The condition of babies following their delivery by LDEMs is excellent with an average 5-minute Apgar score of 9.3 (out of 10), and 94.1% scoring 7 or better. Two babies (0.6% of the 310 babies delivered by LDEMs) were transferred to the hospital for complications. These baby recovered well with no long-term complications.

LDEMs continue to have a remarkably low c-section rate (3.6%), which is about one-fifth the rate of other Utah providers (21.5%) and one tenth that of providers nationally (31.1%), with excellent outcomes. LDEMs also surpass national vaginal-birth-after-cesarean success rates achieving 100.0% (14 of 14) this year vs. the 76% described in the medical literature.

C-Section Rates



VBAC Success Rates



LDEMs appear to be using Pitocin safely and appropriately, with no injuries. Episiotomy is not being routinely performed (there were only three in this dataset).

## Introduction

When the Direct-Entry Midwife Act was enacted on May 2, 2005, it included a provision (58-77-201(3)(c)) requiring the Licensed Direct-Entry Midwife board to present an annual report to the legislature's Health and Human Services Interim Committee describing the outcome data of Licensed Direct-entry Midwives (LDEMs), to be continued through 2011. This document is the fourth such report to the committee.

## Report Limitations

This year a Licensed Direct-Entry Midwife moved out of state. Ten of her cases were reported as antepartum transfers to other midwives. Limitations of our data collection do not allow us to know whether these clients transferred to other LDEMs. If so, they may be double-counted as cases, however no deliveries (including maternal or newborn outcomes) have been double-counted.

During the 2008 legislative session the Direct-entry Midwife Act was changed. While the act changed a few parameters of LDEM care directly (such as eliminating breeches unless birth is imminent, and changing the delivery window to 37-43 weeks gestation), most of the statute changes were directions to DOPL to revise the rules for LDEMs. Those revisions became effective October 22, 2009, well outside the current reporting period. For simplicity's sake, we have written this report as if nothing had changed between last reporting period and this one. Next year's report will be substantially modified because of the new rules.

## Sources of the Data

As required in the statute (58-77-201(3)(c)(ii)), this report is based largely on data reported to and extracted from the Midwives Alliance of North America (MANA) statistical database. This database is a robust collection of information about the work of direct-entry midwives, including some eight pages of information on each course of care, comprising almost 500 individual data items for each client. This database has been used to conduct research published in national and international journals, such as the recent study "Outcomes of planned home births with certified professional midwives: large prospective study in North America," published June 18, 2005 in the *British Medical Journal*.

All clients for whom data is submitted to MANA must be "logged" upon their booking of services with the midwife. This prevents the midwife from excluding data on clients with poor outcomes. Once a client is logged, the midwife must account for the outcome of that client. The data are therefore considered prospective (the gold standard for research data) and studies resulting from it are considered strongly defensible.

Occasionally, data for a client is not able to be entered in the MANA database. Sometimes it is because they were late to care, or for some reason they were not logged in time. To compile this report, therefore, in addition to data from the MANA database we used data from forms that *would have been* included in the database but could not be submitted due to technical reasons. These represent a minority of the cases in this report.

The additional information for this report that is not normally entered in the MANA database was entered by the LDEMs via a web-based application created for this purpose by the Information Technology staff at DOPL. We would like to express our deep thanks to all those who worked on this system for giving us a tool that so effectively streamlines the collection and analysis of the information.

## Current Status of Licensed Direct-Entry Midwives

As of June 30, 2009, there were 21 LDEMs in Utah, as compared to 16 at the end of the 2008 reporting period. During the period of this report, 395 pregnant mothers began care with an LDEM, an increase of 24 (6%) over the last reporting period.

# Outcomes

Note: Cases may be duplicated on various tables in this report because they fit in multiple categories.

## Transfers of Care

The administrative rules for LDEMs list many conditions that require transfer to another provider. Of these, some are waivable by the client and some are mandatory. In addition to the rules-defined transfer conditions, LDEMs may transfer care for any number of other conditions.

Of the 395 clients who began care with an LDEM, 3.3% (13) experienced a waivable transfer condition as defined by rule, and of these, 5 clients (38.5%) chose to waive transfer. 3.5% of clients (14) experienced a mandatory transfer condition as defined by rule, and all of them were transferred in a timely manner.

<b>Waivable Transfers</b>				
Rules-Governed Condition	Transfer Waived	Transfer Mode	Outcome	Comment
<b>Antepartum</b>				
History severe postpartum bleeding	Yes	n/a	Excellent	
Breech, antepartum	No	n/a	Excellent	When baby was confirmed to be breech mother chose to deliver by planned c-section in hospital.
Breech, antepartum	No	n/a	Unknown	When baby was discovered to be breech midwife advised her of the risks. Client then felt like midwife was not appropriate for her, and she switched to an unlicensed midwife who was comfortable delivering breech if that was how the baby stayed.
Breech, antepartum	No	n/a	Excellent	Transferred at 36 weeks, c-section
Two previous c-sections	Yes	n/a	Excellent	Client waived transfer for prior c-sections, but had SROM w/no labor and was unable to get labor started. So she transferred to hospital where she had another section.
Two previous c-sections	Yes	n/a	Excellent	
Twins	Yes	n/a	Excellent	Upon arrival midwife discovered placental abruption and breech-presenting fetus. Taken immediately to hospital where c-section was performed. First baby (abruption) was compromised, but after 10 days in NICU they could not find any problems with her. Second baby was pronounced healthy within a few hours of birth.
Twins	Yes	n/a	Excellent	
<b>Intrapartum</b>				
Fetal distress	No	Private Car	Excellent	Vaginal delivery in hospital, 5 minute Apgar was 10.
Fetal distress	No	Private Car	Poor	Apgars 0 at 1, 5, & 10 minutes, no brain activity, newborn died at 8 days of age.
Fetal distress	No	Private Car	Excellent	Apgar 9.
<b>Postpartum</b>				
Retained placenta	No	Private Car	Excellent	Client hospitalized few hours for D&C, then released.
Retained placenta	No	Private Car	Excellent	Client hospitalized 1 day, residual anemia.
<b>Newborn</b>				
(none)				

<b>Mandatory Transfers</b>			
<b>Rules-Governed Condition</b>	<b>Transfer Mode</b>	<b>Outcome</b>	<b>Comment</b>
<b>Antepartum</b>			
Severe psychiatric illness	n/a	n/a	
Severe pre-eclampsia	n/a	n/a	Client developed pre-eclampsia that did not respond to midwife treatment, so care was transferred to a physician at 36 weeks.
Severe pre-eclampsia	n/a	n/a	Baby was taken at 34 weeks and was in NICU for 4 weeks.
Severe pre-eclampsia	n/a	n/a	Transferred immediately
Significant bleeding	n/a	Fetal death	Client called midwife to report bleeding and was told to go immediately to the hospital. Hospital confirmed spontaneous placental abruption.
Significant bleeding	n/a	unknown	
<b>Intrapartum</b>			
Progressive labor prior to 36 weeks	Private Car	Excellent	Apgar of 10.
Progressive labor prior to 36 weeks	Private Car	Unknown	Unknown apgar, client did not return to midwife care. Newborn information not available.
Breech at labor onset, birth not imminent	Private Car	Excellent	Upon arrival midwife discovered placental abruption and breech-presenting fetus. Taken immediately to hospital where c-section was performed.
Breech at labor onset, birth not imminent	Private Car	Excellent	First baby (abruption) was compromised, but after 10 days in NICU they could not find any problems with her. Second baby was pronounced healthy within a few hours of birth.
Breech at labor onset, birth not imminent, AND Fetal Distress	Private Car	Good	C-section, Apgar not reported but resuscitation was required. Despite physically healthy mother and baby, mother experienced prolonged postpartum depression due to separation from her baby.
<b>Postpartum</b>			
Hemorrhage	Ambulance	Excellent	Released from hospital in less than 6 hours.
<b>Newborn</b>			
Non-transitory respiratory distress	Private Car	Excellent	Newborn found to have RSV
Non-transitory respiratory distress	Private Car	Excellent	Distress resolved within a few hours, released without complication.

The total prenatal transfer rate was 14.7% (58), of whom the majority 79.3% (46) were for non-complications reasons such as moving away, changing midwives, miscarriages, or choosing to birth in the hospital.

<b>All Antepartum Transfers</b>			
<b>Condition</b>	<b>Mode</b>	<b>Outcome</b>	<b>Comment</b>
<b>Waivable Transfers</b>			
History severe postpartum bleeding	n/a	Excellent	
Breech, antepartum	n/a	Excellent	When baby was confirmed to be breech mother chose to deliver by planned c-section in hospital.
Breech, antepartum	n/a	Unknown	When baby was discovered to be breech midwife advised her of the risks. Client then felt like midwife was not appropriate for her, and she switched to an unlicensed midwife who was comfortable delivering breech if that was how the baby stayed.
Breech, antepartum	n/a	Excellent	Transferred to physician at 36 weeks, c-section
Two previous c-sections	n/a	Excellent	Client waived transfer for prior c-sections, but had SRM w/no labor and was unable to get labor started. So she transferred to hospital where she had another section.
Two previous c-sections	n/a	Excellent	
Twins	n/a	Excellent	Upon arrival midwife discovered placental abruption and breech-presenting fetus. Taken immediately to hospital where c-section was performed. First baby (abruption) was compromised, but after 10 days in NICU they could not find any problems with her. Second baby was pronounced healthy within a few hours of birth.
Twins	n/a	Excellent	
<b>Mandatory Transfers</b>			
Severe psychiatric illness	n/a	n/a	
Severe pre-eclampsia	n/a	n/a	Client developed pre-eclampsia that did not respond to midwife treatment, so care was transferred to a physician at 36 weeks.
Severe pre-eclampsia	n/a	n/a	Baby was taken at 34 weeks and was in NICU for 4 weeks.
Severe pre-eclampsia	n/a	n/a	Transferred immediately
Significant bleeding	n/a	Fetal death	Client called midwife to report bleeding and was told to go immediately to the hospital. Hospital confirmed spontaneous placental abruption.
<b>Condition Not Specified in Rule</b>			

**All Antepartum Transfers**

Condition	Mode	Outcome	Comment
Fetal anomaly	n/a	unknown	Baby diagnosed with a hygomic cyst referred to perinatologist
Fetal anomaly	n/a	Fetal death	Multiple anomalies, genetic syndrome suspected
Fetal demise	n/a	Fetal death	Premature rupture of membranes at 20 weeks
<b>Non-complications</b>			
Client never returned	n/a	n/a	MW was not able to contact client after first few visits
Miscarriage (3 cases)	n/a	n/a	
Chose hospital (11 cases)	n/a	n/a	These clients chose to birth in-hospital for non-complications reasons.
Changed midwives (15 cases)	n/a	n/a	Note: an LDEM moved out of state and her clients changed to other midwives, so this number is artificially high
Moved (11 cases)	n/a	n/a	
Cost (5 cases)	n/a	n/a	

Of the remaining 337 clients who started their labors under the care of an LDEM, 7.1% (28) were transferred to the hospital prior to the birth of the baby. Only 1 of these transfers occurred by ambulance, the rest (27) were by private car.

**All Intrapartum Transfers**

Condition	Labor> 24hrs?	Delivery		Outcome	Comment
		Mode	Apgar 5-Minute		
<b>Waivable Transfers</b>					
Fetal distress	No	Vaginal	10	Excellent	
Fetal distress	No	C-sec	0	Poor	Newborn died at 8 days of age.
Fetal distress	No	Vaginal	9	Excellent	
<b>Mandatory Transfers</b>					
Progressive labor prior to 36 weeks	No	Vaginal	10	Excellent	
Progressive labor prior to 36 weeks	No	Vaginal	Unknown	Unknown	Client did not return to midwife care. Newborn information not available.
Breech at labor onset, birth not imminent	No	C-sec	4 & 7 (twins)	Excellent	Upon arrival midwife discovered placental abruption and breech-presenting fetus. Taken immediately to hospital where c-section was performed. First baby (abruption) was compromised, but after 10 days in NICU they could not find any problems with her. Second baby was pronounced healthy within a few hours of birth.
Breech at labor onset, birth not imminent	No	C-sec	10	Excellent	
Breech at labor onset, birth not imminent, AND Fetal Distress	No	C-sec	Unknown	Good	Resuscitation was required. Despite physically healthy mother and baby, mother experienced prolonged postpartum depression due to separation from her baby.
<b>Condition Not Specified in Rule</b>					
Bleeding in labor	No	C-sec	9	Excellent	Partial placenta previa diagnosed at delivery
Failure to progress/Pain Relief	Yes	Vaginal	Unknown	Excellent	
Failure to progress/Pain Relief	Yes	Vaginal	8	Excellent	
Failure to progress/Pain Relief	No	Vaginal	Unknown	Good	Baby had reflux & respiratory distress, NICU for 3 days (unrelated to labor or midwife care)
Failure to progress/Pain Relief	No	C-sec	9	Good	Baby had tachycardia and fever, no NICU stay, fine at 6 wks
Failure to progress/Pain Relief	Yes	C-sec	Unknown	Excellent	
Failure to progress/Pain Relief	No	Vaginal	Unknown	Excellent	
Failure to progress/Pain Relief	Yes	Vaginal	Unknown	Excellent	
Failure to progress/Pain Relief	No	C-sec	Unknown	Excellent	
Failure to progress/Pain Relief	Yes	C-sec	Unknown	Excellent	
Failure to progress/Pain Relief	No	Vaginal	9	Excellent	
Failure to progress/Pain Relief	No	C-sec	9	Excellent	
Failure to progress/Pain Relief	Yes	C-sec	8	Excellent	
Failure to progress/Pain Relief	No	Vaginal	10	Excellent	
Failure to progress/Pain Relief	No	Vaginal	10	Excellent	
Failure to progress/Pain Relief	No	Vaginal	9	Excellent	
Failure to progress/Pain Relief	Yes	C-sec	7	Excellent	
Failure to progress/Pain Relief	No	Vaginal	9	Excellent	
Failure to progress/Pain Relief	No	Vaginal	10	Excellent	
Failure to progress/Pain Relief	Yes	Vaginal	Unknown	Excellent	

**Non-complications**

(none)

Of the 309 mothers delivered by LDEMs, 5 (1.6%) were transferred after delivery of the baby, 1 by ambulance, 4 by private car. All of these mothers responded well and were released within 2 days; none had residual problems by their 6-week postpartum visit.

All Postpartum Transfers					
Condition	Transfer Mode	Emer-gency?	Labor> 24 hrs?	Outcome	Comment
<b>Waivable Transfers</b>					
Retained Placenta	Private Car	No	No	Excellent	Client hospitalized few hours for D&C, then released.
Retained Placenta	Private Car	No	No	Excellent	Client hospitalized 1 day, residual anemia.
<b>Mandatory Transfers</b>					
Hemorrhage	Ambulance	Yes	No	Excellent	
<b>Condition Not Specified in Rule</b>					
3rd degree tear	Private Car	No	No	Excellent	Was repaired and sent home; never formally admitted.
<b>Non-Complication</b>					
Client choice	Private Car	No	No	Excellent	Client hemorrhaged, but bleeding was stopped by midwife prior to transfer. Transfer was not necessary, but client chose to anyway. She returned home a few hours later.

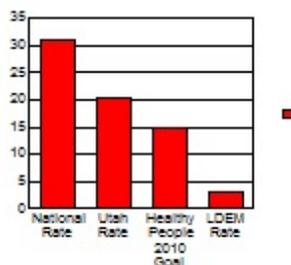
0.06% (2) of 310 babies delivered by LDEMs were transferred within 4 hours after birth, by private car.

All Newborn Transfers						
Condition	Transfer Mode	Emer-gency?	Labor> 24 Hrs	5-Min Apgar	Outcome	Comment
<b>Mandatory Transfers</b>						
Non-transitory respiratory distress	Private Car	Yes	No	10	Excellent	
Non-transitory respiratory distress	Private Car	Yes	No	8	Excellent	Baby began to have respiratory difficulty at 20 minutes of age. At hospital baby was found to have RSV.

Overall, the transfer rate from LDEM care to hospital-based provider care once labor began was 10.4% (35 of 337).

## Cesarean Sections

Of the 337 laboring women under the care of LDEMs, 3.6% (12) were subsequently delivered by c-section in the hospital. A 3.6% c-section rate is a remarkable statistic! For comparison, the national c-section rate is 31.1%, Utah's c-section rate is 21.5%<sup>1</sup>, and the Healthy People 2010 c-section rate goal is 15%<sup>2</sup>



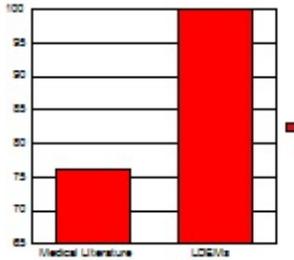
## Breeches, Twins, and VBACs

Some parties have expressed concern about LDEMs delivering breech babies, twins, or mothers delivering vaginally after having had a c-section (VBAC–Vaginal Birth After C-section). The statute as passed in 2005 and the rules as of July 2007 did not prohibit LDEMs from conducting these deliveries. In

<sup>1</sup>Centers for Disease Control/National Center for Health Statistics. *Table D. Percentage of live births by cesarean delivery: United States and each state and territory, final 2005 and preliminary 2006.* [http://cdc.gov/nchs/data/nvsr/nvsr56/nvsr56\\_07\\_tables](http://cdc.gov/nchs/data/nvsr/nvsr56/nvsr56_07_tables)

<sup>2</sup>Centers for Disease Control, National Vital Statistics Reports Volume 54 Number 4, *Trends in Cesarean Rates for First Births and Repeat Cesarean Rates for Low-Risk women: United States, 1990-2003*, September 22, 2005, pg. 2. [http://cdc.gov/nchs/data/nvsr/nvsr54/nvsr54\\_04.pdf](http://cdc.gov/nchs/data/nvsr/nvsr54/nvsr54_04.pdf).





## Length of Labors

There has been some concern regarding the length of time clients labor under LDEM care, especially whether there are an excessive number of mothers laboring longer than 24 hrs, whether outcomes are inferior in mothers laboring longer than 24 hours, whether transfers are being excessively delayed and whether outcomes are poorer when transfer occurs after 24 hours of labor.

Of the 337 clients laboring under LDEM care, 5.9% (20) experienced a labor of greater than 24 hours. Of these, 60.0% (12) were delivered by the LDEM and 40.0% (8) were transferred. Of the 8 transferred, (4) 50.0% subsequently had a c-section. The c-section rate of clients laboring more than 24 hours is 20.0% (4/20). The outcomes for mothers and babies in all cases were excellent, with babies experiencing an average 5-minute Apgar score of 8.9.

Labors Longer Than 24 Hours				
Transfer?	Apgar	Outcome	Delivery	Comment
No	9	Excellent	Vaginal	
No	9	Excellent	Vaginal	
No	9	Excellent	Vaginal	
No	9	Excellent	Vaginal	Jaundice beyond physiologic levels
No	9	Excellent	Vaginal	
No	9	Excellent	Vaginal	
No	9	Excellent	Vaginal	
No	9	Excellent	Vaginal	
No	9	Excellent	Vaginal	
No	10	Excellent	Vaginal	
No	10	Excellent	Vaginal	
No	9	Excellent	Vaginal	
Yes	Unknown	Excellent	Vaginal	
Yes	8	Excellent	Vaginal	
Yes	Unknown	Excellent	Vaginal	
Yes	Unknown	Excellent	Vaginal	
Yes	Unknown	Excellent	C-sec	
Yes	Unknown	Excellent	C-sec	
Yes	8	Excellent	C-sec	
Yes	7	Excellent	C-sec	Severe jaundice

## Use of Pitocin (Oxytocin)

Of the clients delivered by LDEMs (309), 9.4% (29) received Pitocin (oxytocin) to prevent or stop a postpartum hemorrhage, as allowed by the statute (58-77-102(8)(f)(iv-v)). Only 1 of these mothers needed to be transferred. We believe this shows that the ability to legally use Pitocin has greatly improved the LDEMs' ability to safely and effectively control hemorrhages, resulting in better outcomes.

## Episiotomies

LDEMs are permitted to cut an episiotomy (to enlarge the vaginal opening) in an emergency (58-77-102(8)(k)(ii)). Of the clients delivered by LDEMs (309), 1.0% (3) received an episiotomy. The outcomes for both mothers and babies were excellent in all cases.

## APGAR Scores

The Apgar Score is a measurement of newborn well-being taken at 1 minute and 5 minutes after birth.

Any score 7 or above is a good score<sup>4</sup>. We have reported five-minute scores because they are most predictive of the likelihood of significant complications. Of the 37 scores reported for babies born into the hands of LDEMs, 99.0% (304) had a score of 7 or better at five minutes.

<b>LDEM Apgar Scores</b>		
<b>Score of:</b>	<b># Babies</b>	<b>Comment</b>
10	143	
9	134	
8	25	
7	2	
6	2	Case #1: Apgar was 3 at 1 minute. Baby was resuscitated and although 10-minute score was not recorded, the midwife reports it was "7+", that the baby was vigorous & nursing well one hour after birth, was not transported, and has experienced no complications. Case #2: Serious shoulder dystocia that midwife was forced to resolve by breaking the newborn's arm. No long-term complications.
5	0	
4	0	
3	0	
2	1	Infant developed a wad of mucus that occluded the airway after the initial apgar of 9 at 1 minute. Resuscitative measures quickly cleared it and restored the apgar to 7. Baby was uninjured and is doing fine.
1	0	
0	0	
<b>Average:</b>	<b>9.3</b>	

When an LDEM client's baby is born in the hospital subsequent to in-labor transfer, sometimes the Apgar score is known to the midwife, and sometimes it is not. For example, if the baby is born by c-section the midwife is not in the room when the Apgar is taken and may not be able to obtain the score. If the midwife is present at the birth, she will attempt to obtain and report the score. In this dataset, there were 29 babies born in hospital after their mothers were transferred in labor. Of these, 58.6% of Apgar scores (17) were reported. 94.1% of these scores were 7 or better.

<b>Hospital-born Apgar Scores</b>		<b>Comments</b>
<b>Score of:</b>	<b># Babies</b>	
10	5	
9	7	
8	2	
7	2	
6-1	0	
0	1	Neonatal death 10 days post-transfer
<b>Average:</b>	<b>8.6</b>	

## Maternal Complications

Of the 337 women who began labor under the care of LDEMs, 2.4% (10) experienced significant complications that developed after the immediate postpartum period. All of these problems were resolved by the 6-week postpartum visit.

<b>Maternal Postpartum Complications</b>	
<b>Condition</b>	<b>Resolved by 6 weeks postpartum</b>
Anemia resulting from hemorrhage	Yes
Late postpartum hemorrhage (2 cases)	Yes
Persistent retained membranes (D&C)	Yes
Severe postpartum depression	Yes (referred, treated & controlled by 6 weeks postpartum)
Pain in SI joint	Yes
Rectal fistula	Yes
Gall bladder surgery	Yes
Surgical removal of severe hemorrhoid	Yes
Hematoma	Yes

<sup>4</sup>Center for Disease Control/National Center for Health Statistics: National Vital Statistics Reports, Volume 55, Number 1. Births: Final Data for 2004, September 29, 2006, p. 24.

## Newborn Complications

Of the 310 babies delivered by LDEMs, 1.9% (6) experienced complications within the first four hours of life.

<b>Newborn Complications in the First Four Hours of Life</b>			
<b>Condition</b>	<b>Resolved Within 4 Hours</b>	<b>Resolved by 6 Weeks</b>	<b>Comment</b>
Respiratory Distress	Yes	Yes	
Respiratory Distress	Yes	Yes	
Congenital hearing loss	No	No	Caught by midwife during hearing screening
Broken Arm	No	Yes	Arm broken in the course of resolving shoulder dystocia.
Broken Arm	No	Yes	Unexplained. Was a non-traumatic birth verified by video.
Club foot	No	No	Treated at Primary Children's, was resolving well at 6 wks.

The mortality rate for mothers was 0% and there was one fetal death and one neonatal death.

Prepared for the Health and Human Services Interim Committee of the Utah State Legislature  
 December 21, 2009  
 by the  
 Licensed Direct-Entry Midwife Board  
 Holly Richardson LDEM, Chair