

Tennessee Breastfeeding Hotline FY17 Annual Report

Submitted to: State of Tennessee, Department of Health

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July 2016 - June 2017



Executive Summary

Year 4: July 2016 to June 2017

The Tennessee Breastfeeding Hotline (TBH) is a telephonic breastfeeding support program that is free to nursing mothers, their families and partners, expectant parents, and to health care providers. Participants who call the TBH speak with a certified lactation professional who collects the mother's and baby's information using self-reporting techniques. This information is gathered for the purpose of making assessments, attending to the client's individual needs, referring the client to available resources and ensuring that the lactation professional is able to follow-up with the client.

Lactation professionals offer strategies to empower clients to breastfeed, identify barriers to successful breastfeeding, and provide techniques to cope with and overcome barriers to breastfeeding. Participants receive individualized counseling for common breastfeeding issues. If the caller's issues are beyond the scope of the lactation professional's expertise, or require treatment, the mother is directed to a health care provider or an outside agency better able to offer the necessary support. Some participants receive a 24-hour follow-up call, if the caller's situation requires additional support and encouragement.

The measurement period for this report is July 2016 to June 2017, but the report may make comparisons to specific quarters. Lactation professionals collected quantitative data through the use of a conditional questioning workflow. These workflow data analyzed characteristics such as breastfeeding trends, call volume and repetition, and patterns in caller's age, race, and ethnicity. After the initial call, TBH also conducts follow-up calls that occur at 4, 8, and 12 weeks to assess self-reported outcomes and client satisfaction with services. Over the course of the measurement period, these data are collected to aid in the construction of a continuous quality improvement plan, vital in ensuring the sustainability and productiveness of the TBH.

Participants receive follow-up calls at 4, 8 and 12 weeks for two purposes. First, it is to encourage the women to continue breastfeeding. In Tennessee, the percentage of breastfed infants that were supplemented with formula before three months was 26.5%. When asked about intention to continue breastfeeding, 98.4% responded that they intended to continue breastfeeding (pg. 22, Table 14A). At 4-week follow-up, 81.6% of the moms reached were still breastfeeding (pg. 23, Table 14B).

The second purpose of the three follow-up calls is to acquire necessary information used to determine the effectiveness and quality of the program from the viewpoint of the user. For each follow-up call, clients are asked to rate overall services received from the TBH. During Year 4, nearly 100% of the callers (range: 98.2% - 99.8%) at each follow-up period reported being satisfied or very satisfied with services received (pg. 24, Table 15). When asked about the likelihood to recommend TBH services to another person, almost all callers for the 4- and 8-week follow-up periods and all callers at the 12-week period reported that they were likely to refer someone else to the hotline (pg. 24, Table 15).

Clients are welcome to call the hotline any time they need support, regardless of language barriers. An auto attendant greets callers in both English and Spanish. Interpretive services are available for more than 200 languages. Special operators are available to assist hearing-impaired callers.

Data Limitations

TBH understands and balances the need to provide an important service as well as the desire to collect data for evaluation. TBH staff attempt to capture complete information from all of its callers. However, missing data may be present due to TBH's priority to high quality service, repeat callers, or non-response from a caller. Also, TBH is available to a wide range of individuals who may seek breastfeeding support, so some questions may not be applicable to all callers.

Introduction

Breastfeeding is widely accepted as an effective strategy to promote positive health outcomes for both mothers and their babies. Despite growing data on these benefits, 18.9% of babies born in Tennessee were never breastfed, according to the Centers for Disease Control and Prevention's most recent National Immunization Survey (NIS)¹. By the time their baby reached 6 months of age, the proportion of Tennessee mothers breastfeeding decreased from 81.1% to 57.0%. Although there have been improvements, Tennessee rates for breastfeeding initiation and six months duration remain slightly lower than Healthy People 2020's goal of 81.9% and 60.6%, respectively.

This report was created to examine how the TBH is currently fostering the healthy development of children by promoting and supporting the practice of breastfeeding in Tennessee. By addressing common barriers to breastfeeding in the state, the hotline reinforces the national goal of higher breastfeeding rates, over longer periods of time. Prevalent barriers to breastfeeding include²:

- Lack of knowledge
- Lactation problems
- Poor family and social support
- Social norms
- Embarrassment
- Employment and child care
- Health services

The TBH addresses these obstacles in a multifaceted approach designed around the individual needs of each client. The primary medium for doing so is through International Board Certified Lactation Consultants (IBCLC) and/or Certified Lactation Counselors (CLC). These lactation professionals answer questions and provide information about:

- Inadequate milk production
- Nursing rejection by baby
- Breast or nipple pain
- Medications and breastfeeding

¹ Center for Disease Control, 2015/2016 National Immunization Survey State Estimates. https://www.cdc.gov/breastfeeding/ data/nis_data/rates-any-exclusive-bf-state-2014.htm

² U.S. Department of Health and Human Services. Executive Summary: The Surgeon General's Call to Action to Support Breastfeeding. Washington, DC: U.S. Department of Health and Human Services, Office of the Surgeon General; April 20, 2011.

- Working and breastfeeding
- Breast pumps and rentals
- Breastfeeding in public
- Tennessee laws that relate to breastfeeding
- Weaning
- State-approved online breastfeeding support groups
- State-approved online breastfeeding resource material

The topics of information covered by the lactation professionals acknowledge the barriers to breastfeeding experienced by women nationally.

Caller Demographics

The target population of the TBH includes nursing mothers, their families and partners, expectant parents, and health care providers. During Year 4, 76.4% of the callers were white, 17.6% were black, and 2.3% identified as Asian, American Indian or Alaskan Native, or native Hawaiian/Pacific Islander. In addition, 3.7% of callers were of multiple or mixed race (pg. 17, Table 9B). According to the United States Census Bureau, 77.8% of Tennessee residents are white, 16.8% are black, and 2% are Asian, American Indian or Alaskan Native, or native Hawaiian/Pacific Islander. Two percent of Tennessee residents are of multiple or mixed race. Hispanic women comprised 4.6% of the callers for the 4th quarter (pg. 17, Table 9C). When examining age, the hotline received the highest proportion of calls (43.5%) from callers between the ages of 26 and 30 (pg. 16, Table 9A).

Notable Findings

The TBH received a number of interesting calls this year, which were covered in more detail in the Year 4 quarterly reports. Select calls included:

- A mother called in who was diagnosed with prolactinoma (a type of benign pituitary tumor) looking for advice on how long her engorgement might last, and strategies to manage her oversupply. The TBH staff member who took this call later turned it into a case study which she presented at a staff meeting to educate staff on prolactinomas.
- 2. A mother called in 6 different times with questions regarding the compatibility of her allergy medication and breastfeeding, baby refusing to breastfeeding, overactive letdown, breast redness, pain medication and breastfeeding, and reduced milk supply, demonstrating the multiple ways the TBH can be utilized by just one individual.
- 3. A mother called with concerns about leptospirosis infection. The family dog had recently been diagnosed, and the mother was concerned about bacterial transmission. TBH staff consulted with Dr. Stiles, and the mother was subsequently encouraged to offer her baby previously stored breastmilk until she could consult with her pediatrician.
- 4. The TBH fielded multiple calls from a mother with a premature infant who was struggling to breastfeed and gain weight. Over the course of a month, the TBH assisted this mother with questions about supplementation, breastfeeding technique, resources for postpartum depression, plugged ducts, and, finally, weaning.
- 5. After a local storm caused power outages across most of Memphis, the TBH received a call from a mother with a large quantity of frozen breastmilk. The mother was planning to donate this breastmilk, and was scrambling to find a way to keep it frozen. Working with local resources, the

TBH connected the mother to Regional One's Milk Depot. Regional One had a generator and dry ice, and were able to safely store this breastmilk.

Call volume for the TBH increased about 7% overall from Year 3 to Year 4. Call volume was an average of 511 calls a month, reaching record high call volume in October 2016 with 601 calls. While hospitals remained the most common referral source, the TBH website and online search engines (e.g. Google) directed close to 1 in 8 calls (12.8%) to the hotline. The TBH continues to receive a large influx of out-of-state callers: about 15% of TBH calls in Year 4 were from out-of-state callers. For the first time since TBH's inception, the hotline received calls from all 50 states, Puerto Rico, and four Canadian provinces. These callers were assisted, and then directed to national resources such as the National Breastfeeding Helpline (available from 9am to 5pm [EST] Monday through Friday) and the La Leche League International Helpline (available 24/7).

An ongoing challenge for TBH operations was difficulty finding and retaining staff. Due to the nature of the hotline and funding restraints, most TBH workers are PRNs (i.e., work 'as needed'), but do not always have set hours. Most of these PRNs also work full-time jobs, which can cause scheduling difficulties. The PRNs may choose to quit to focus on their full-time jobs, which forces TBH to hire new lactation professionals. The fluctuating staff causes a strain on the manager's time, as the manager has to ensure all shifts are covered even when short-staffed, and has to invest additional time in interviewing, processing, and training new staff. In total, TBH hired six additional PRN lactation professionals in July and October 2016 and March and April 2017 to cover weekend and holiday shifts, although one of the newly hired PRNs resigned within the year to take a full-time job elsewhere.

In Year 4, the hotline continued to be highly well-received by callers overall despite the aforementioned challenges. About 34% of TBH callers were repeat callers, suggesting that the mothers found the information helpful and continued to reach out when they had additional questions. TBH also had callers requesting support with their 2nd, 3rd, or even 4th baby after receiving assistance from the TBH with their first child. Every baby is unique, and therefore breastfeeding another baby can also bring unique situations, even if the mother has breastfed previously. Finally, feedback from follow-up calls was overwhelmingly positive. Some individuals even reached out to the state specifically to express their pleasure that this type of service was being offered.

Conferences, Continued Education, and Publications

During Year 4, the TBH had multiple opportunities to attend and present at various conferences. Conferences attended and/or presented by hotline staff include:

- Breastfeeding Update Conference (August 3rd, 2016 in Memphis, TN)
- Memphis Latch On (August 6th, 2016 in Memphis, TN)
- Breastfeeding Strategic Planning Meeting (October 14th, 2016 in Nashville, TN)
- Tennessee Hospital Association Leadership Conference (October 19th, 2016 in Nashville, TN)
- Tennessee Initiative for Perinatal Quality Care Conference (March 5-7th, 2017 in Franklin, TN)
- Tennessee Breastfeeding Coalition Meeting (June 9th, 2017 in Nashville, TN)
- Memphis Area Breastfeeding Symposium (June 14th, 2017 in Memphis, TN)

For continuing education, TBH's lactation professionals regularly shared relevant articles and resources during monthly staff meetings. TBH staff also participated in conference calls with the U.S. Breastfeeding

Committee. In April 2017, a TBH staff member obtained her International Board Certified Lactation Consultant (IBCLC) certification. TBH also hired 2 additional IBCLCs and now has 16 lactation professionals, 9 IBCLCs and 7 CLCs. There is also a study group preparing for the IBCLC exam in October 2017, which will hopefully increase the number of IBCLCs working for the TBH.

Finally, the Tennessee Department of Health and Le Bonheur staff collaborated to submit a manuscript for the Journal of Nutrition Education and Behavior (JNEB) WIC-Breastfeeding Supplemental Issue. The article ("Statewide Breastfeeding Hotline Use among Tennessee WIC Participants") focuses on the utilization of the TBH by individuals receiving WIC services. The article will be published in the JNEB July/August 2017 Supplemental Issue and was authored by Sierra Mullen and co-authored by Dr. Michael Warren and August Marshall.

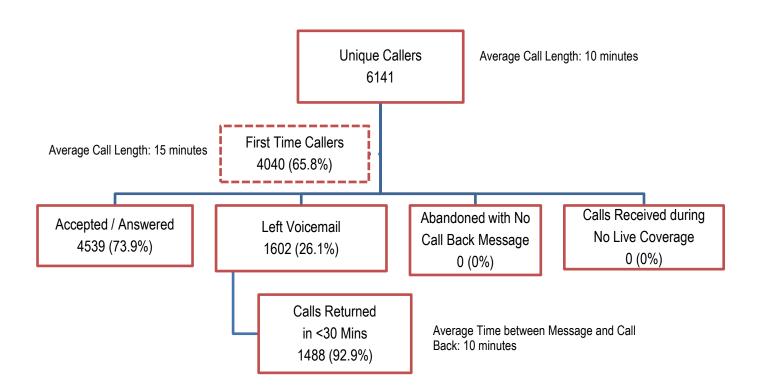
Community Advisory Board Meetings

To keep the community informed about the hotline, the TBH held four Community Advisory Board (CAB) meetings quarterly. These meetings served to update the board about the hotline's successes and challenges, share resources and events, and to open the floor for suggestions or improvements.

Tables and Figures

(1) Call Data

Figure 1. Tennessee Breastfeeding Hotline Call Flow, Year 4 (July 2016 – June 2017)



The flowchart above illustrates calls received to the Tennessee Breastfeeding Hotline from July 2016 through June 2017. For Year 4, the TBH had 6,141 unique callers. Of those total unique callers, 4040 (65.8%) were first-time callers to the TBH. Average call length for all calls was 10 minutes; first-time callers were slightly longer (15 minutes).

Of all calls received, 4,539 (73.9%) were answered and accepted live by TBH staff and 1,602 (26.1%) callers left a voicemail for TBH staff. About 93% of calls were returned within 30 minutes of initial voicemail.

(2) Call Volume & Time

Time of Call	1 st	2 nd	3 rd	4 th	Year 4	Year 4
Time of Call	Quarter	Quarter	Quarter	Quarter	Totals	Percent
12 AM - 7 AM	105	98	145	122	470	7.7%
8 AM - 12 PM	445	490	533	410	1878	30.6%
1 PM - 6 PM	674	687	605	558	2524	41.1%
7 PM - 11 PM	315	334	311	309	1269	20.7%
TOTALS:	1539	1609	1594	1399	6141	100%

Table 2A. Call Volume, by Time of Day (N=6141)

Note: Percent total may not sum to 100 due to rounding.

During the TBH's 4th year, the majority of calls (41.1%) were received between 1 PM and 6 PM. About 72% of calls were received during the traditional workday (8AM – 6 PM).

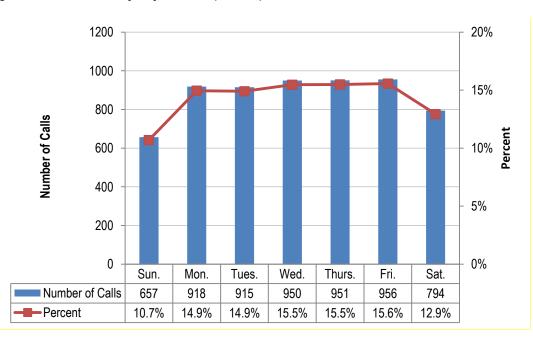


Figure 2. Call Volume, by Day of Week (N=6141)

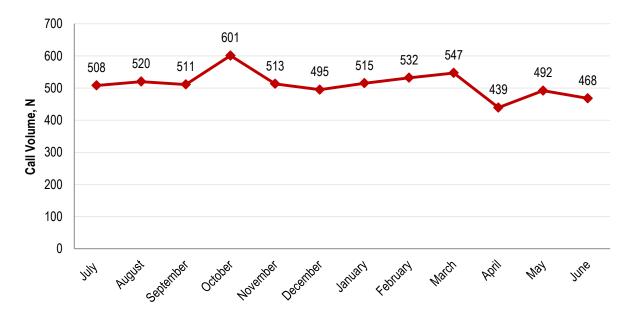
During Year 4, TBH experienced its highest call volume on the weekdays, with each day receiving over 900 calls. Call volume dropped on the weekends.

Table 2D. Call Volume, by Quarter (N=0141)		
Month	Number of Calls	Percent
1 st Quarter (July 2016 – September 2016)	1539	25.1%
2 nd Quarter (October 2016 – December 2016)	1609	26.2%
3 rd Quarter (January 2017 – March 2017)	1594	26.0%
4 th Quarter (April 2017 – June 2017)	1399	22.8%
TOTALS:	6141	100%

Table 2B. Call Volume, by Quarter (N=6141)

Note: Percent total may not sum to 100 due to rounding.

Call volume within Year 4 was highest in the 2nd quarter. Compared to Year 3, call volume increased by 7.3%.





Call volume was highest in October 2016 (601) and lowest in April 2017 (439).

(3) Call Length

Length of Call	Year 4 Totals	Year 4 Percent
0-9 minutes	2717	44.2%
10-19 minutes	2440	39.7%
20-29 minutes	719	11.7%
30-39 minutes	194	3.2%
40-49 minutes	39	0.6%
50-59 minutes	14	0.2%
1 hour or more	18	0.3%
TOTALS:	6141	100%

Table 3. Number and Proportion of Calls within Year 4, by Call Length (N=6141)

Note: Percent total may not sum to 100 due to rounding.

During Year 4, 84% percent of calls lasted less than 20 minutes. Only 18 calls lasted more than an hour. These longer calls were likely due to the certified lactation professional utilizing a language line and interpreter, which could significantly extend call time.

(4) Referrals

Table 4A. Referral Source Reported by Caller (N=3860)

Referral Source	1 st	2 nd	3 rd	4 th	Year 4	Year 4
Referral Source	Quarter	Quarter	Quarter	Quarter	Totals	Percent
Hospital	743	736	726	650	2855	74.0%
Website/Search Engine	118	139	123	116	496	12.8%
Provider's Office	78	50	46	69	243	6.3%
WIC Clinic	58	39	32	32	161	4.2%
Family or Friend	20	13	22	23	78	2.0%
Brochure	1	2	6	11	20	0.5%
Billboard	0	0	3	2	5	0.1%
Radio	0	0	0	0	0	0.0%
TV	1	0	0	0	1	0.0%
Public transit ad	0	0	0	1	1	0.0%
TOTALS:	1019	979	958	904	3860	100%

Not applicable n=2281

Note: Percent total may not sum to 100 due to rounding. There were two TBH callers who reported television and public transit advertisement as a referral source, 0.1% of callers. Due to rounding, it appears as 0%.

During the call, clients were asked how they heard about the TBH. Hospital was the most common referral source, referring 74% of callers, followed by information found on a website or via search engine (12.8%).

Defermel Status	1 st	2 nd	3 rd	4 th	Year 4	Year 4
Referral Status	Quarter	Quarter	Quarter	Quarter	Totals	Percent
Referred to own provider	121	158	110	97	486	8.1%
Referred to other provider in						
the vicinity	9	5	6	7	27	0.5%
No referral given	1366	1410	1441	1261	5478	91.4%
TOTALS:	1496	1573	1557	1365	5991	100%

Table 4B. Number and Proportion of Callers Referred to Provider by the Hotline (N=5991)

Missing n=150

The TBH captured information about whether the caller was referred to a provider for their issue. Overall, 8.6% of callers were referred to a provider, predominantly their own.

Medical Reference Given	1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter	Year 4 Totals	Year 4 Percent
No	1461	1501	1518	1350	5830	97.7%
Yes	42	43	33	20	138	2.3%
TOTALS:	1503	1544	1551	1370	5968	100%

Table 4C. Number and Proportion of Callers Referred for Immediate Medical Attention (N=5968)

Not applicable n=173

In Year 4, 138 (2.3%) callers were advised by the certified lactation professionals to seek immediate medical attention. Reasons that the mother would have been advised could include if the mother had symptoms of mastitis or a yeast infection, or any issue above and beyond the scope of practice.

Table 4D. Number and Pro	portion of	Callers Refe	rred to a Loc	al Lactation	Professional	(N=5622)	
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Referred to a Lactation Specialist	1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter	Year 4 Totals	Year 4 Percent
No	1260	1318	1302	1200	5080	90.4%
Yes	147	139	157	99	542	9.6%
TOTALS:	1407	1457	1459	1299	5622	100%

Not applicable n=519

During Year 4, the TBH advised 542 (9.6%) of callers to seek out a local lactation professional.

(5) First Time or Repeat Caller

Table 5. TBH Caller by Call Type (N=6141) 3rd 4th 1 st 2nd Year 4 Year 4 **Caller Type** Quarter Quarter Quarter Quarter **Totals** Percent 1026 1031 990 993 4040 65.8% First Time **Repeat Caller** 604 2101 34.2% 513 578 406 TOTALS: 100% 1539 1609 1594 1399 6141

The majority (65.8%) of calls received were from first time callers.

(6) Interpretive Services

Table 6. Use of Interpretive Services (N=6141)

Interpretive Services	1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter	Year 4 Totals	Year 4 Percent
Not Used	1524	1590	1578	1377	6069	98.8%
Used	15	19	16	22	72	1.2%
TOTALS:	1539	1609	1594	1399	6141	100%

During Year 4, only 1.2% of callers required interpretive services. Most interpretive services utilized were for Spanish-speaking callers, although TBH also utilized translators for Arabic-, Chinese-, and Vietnamese-speaking callers.

(7) Caller Location

Region	Total Calls	Percent
Davidson	1187	23.2%
Mid-Cumberland	1023	20.0%
Shelby	996	19.4%
Knox	338	6.6%
South Central	299	5.8%
East	239	4.7%
Hamilton	238	4.6%
Upper Cumberland	168	3.3%
Northeast	138	2.7%
West	132	2.6%
Northwest	114	2.2%
Southeast	103	2.0%
Sullivan	91	1.8%
Madison	59	1.2%
TOTALS:	5125	100%

Table 7. Number and Proportion of Calls, by TN Department of Health Regions (N=5125)

Missing n=66

Note: Percent total may not sum to 100 due to rounding.

The table above depicts call volume by the Tennessee Department of Health regions during Year 4. There were a total of 5,191 (84.5%) calls from Tennessee residents. Of the Tennessee residents for whom a county was reported, approximately 62% of Tennessee resident calls to the TBH were from the Davidson, Mid-Cumberland, and Shelby regions.

Figure 3. Call Volume, by Caller's County of Residence, Year 4

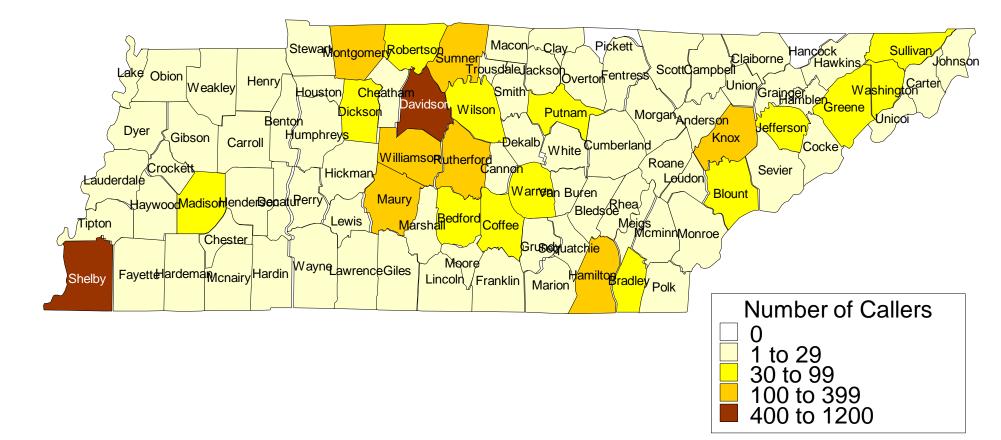




Figure 4. Call Volume, by Caller's State of Residence, Year 4

Overall, TBH received calls from 417 unique counties across all 50 states, Puerto Rico, and the Canadian provinces of Alberta, Nova Scotia, Ontario, and Quebec.

(8) Caller's Relationship to Mother

Relationship to Mother	1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter	Year 4 Totals	Year 4 Percent
Self	1384	1451	1452	1273	5560	94.8%
Spouse or partner	42	59	37	43	181	3.1%
Family or household member	27	21	22	15	85	1.4%
Healthcare provider	10	9	12	8	39	0.7%
TOTALS:	1463	1540	1523	1339	5865	100%

Table 8. Number and Proportion of Calls, by Caller's Relationship to Mother (N=5865)

Not applicable n=421

Note: Percent total may not sum to 100 due to rounding.

During Year 4, the majority (94.8%) of callers to the TBH were the mothers.

(9) Maternal Age, Race, and Ethnicity

Table 9A. Number and Proportion of Calls, by Maternal Age (N=3742)

Motornal Are	1 st	2 nd	3 rd	4 th	Year 4	Year 4
Maternal Age	Quarter	Quarter	Quarter	Quarter	Totals	Percent
< 15	0	0	0	0	0	0.0%
15 - 17	3	2	4	8	17	0.5%
18 - 20	38	31	36	25	130	3.5%
21 - 25	182	179	165	129	655	17.5%
26 - 30	427	395	387	417	1626	43.5%
31 - 35	269	267	259	252	1047	28.0%
36 - 40	68	48	61	55	232	6.2%
41 - 45	10	7	7	9	33	0.9%
<u>></u> 46	1	0	1	0	2	0.1%
TOTALS:	998	929	920	895	3742	100%

Missing or Not applicable n=2399

Note: Percent total may not sum to 100 due to rounding.

During Year 4, call volume was highest (43.5%) among mothers between 26 and 30 years.

Maternal Race	1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter	Year 4 Totals	Year 4 Percent
White	752	731	737	670	2890	76.4%
Black	190	162	152	160	664	17.6%
Multiple Races	36	33	26	45	140	3.7%
Asian	25	19	19	16	79	2.1%
Native Hawaiian/Pacific Islander	3	0	3	3	9	0.2%
American Indian/Alaskan Native	1	0	0	0	1	0.0%
TOTALS:	1007	945	937	894	3783	100%

Table 9B. Number and Proportion of Calls, by Maternal Race (N=3783)

Missing or Not applicable n=2358

TBH callers were asked to report maternal race during the initial call. Of those who reported race, 76.4% were white, followed by black (17.6%).

Table 9C. Number and Proportion of Calls, by Maternal Ethnicity (N=4526)

Ethnicitu	1 st	2 nd	3 rd	4 th	Year 4	Year 4
Ethnicity	Quarter	Quarter	Quarter	Quarter	Totals	Percent
Not Hispanic	1138	1082	1109	989	4318	95.4%
Hispanic	55	49	50	54	208	4.6%
TOTALS:	1193	1131	1159	1043	4526	100%

Not applicable n=1615

Of those with ethnicity documented, 4.6% of callers identified as Hispanic/Latina.

(10) Mother's Pregnancy History

Number of Prior	1 st	2 nd	3rd	4 th	Year 4	Year 4
Pregnancies	Quarter	Quarter	Quarter	Quarter	Totals	Percent
1	202	282	234	227	945	59.7%
2	115	100	118	104	437	27.6%
3	34	36	32	29	131	8.3%
4	10	14	8	9	41	2.6%
5	1	4	7	5	17	1.1%
6	2	2	3	1	8	0.5%
7	0	1	2	0	3	0.2%
8	1	0	1	0	2	0.1%
9	0	1	0	0	1	0.1%
10 +	0	0	0	0	0	0.0%
TOTALS	365	440	405	375	1585	100%

Table 10A. Number and Proportion of Calls, by Caller's Pregnancy History (N=1585)

Missing n=4556

Note: Percent total may not sum to 100 due to rounding.

Of those responding, 59.6% women reported one prior pregnancy.

Table 10B. Number and Proportion of Calls, by Prior Live Births (N=2718)

Number of Prior Live Births	1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter	Year 4 Totals	Year 4 Percent
1	419	493	419	377	1708	62.8%
2	192	175	182	161	710	26.1%
3	67	64	41	46	218	8.0%
4	17	13	12	9	51	1.9%
5	1	2	10	3	16	0.6%
6	5	5	2	0	12	0.4%
7	1	0	0	0	1	0.0%
8	0	0	0	0	0	0.0%
9	0	1	0	0	1	0.0%
10 +	1	0	0	0	1	0.0%
TOTALS:	703	753	666	596	2718	100%

Missing n=3423

Note: Percent total may not sum to 100 due to rounding. There were three TBH callers who reported 7 or more prior live births, 0.1% of callers. Due to rounding, it appears as 0%.

Table 10B shows the number and proportion of calls by prior live births of the caller. During Year 4, about 63% of women had only one previous live birth.

Gestational Age	1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter	Year 4 Totals	Year 4 Percent
< 37 weeks (pre-term)	57	52	45	36	190	5.2%
37 to <39 weeks (early						
term)	165	147	138	151	601	16.3%
39 to <41 weeks (full term)	696	681	663	693	2733	74.1%
41 to <42 weeks (late term)	50	38	43	29	160	4.3%
> 42 weeks (post term)	2	1	1	1	5	0.1%
TOTALS:	970	919	890	910	3689	100%

Table 10C. Number and Proportion of Calls, by Infant's Gestational Age* at Birth (N=3689)

*Recommended classifications from American College of Obstetricians and Gynecologists

Missing n=2452

Note: Percent total may not sum to 100 due to rounding.

Most (74.1%) mothers reported delivering at full-term. Only 5.2% reported delivering prematurely.

(11) Baby's Birth Information

Table 11A. Number and Proportion of Calls, by Infant's Age during Initial Call (N=4386)

Age of Infant	1 st	2 nd	3rd	4 th	Year 4	Year 4
Age of Infant	Quarter	Quarter	Quarter	Quarter	Totals	Percent
< 1 week	265	287	232	196	980	22.3%
1 week - < 1 month	261	300	269	267	1097	25.0%
1 - < 3 months	252	267	213	220	952	21.7%
3 - < 6 months	139	172	198	154	663	15.1%
6 - < 9 months	73	81	91	81	326	7.4%
9 - < 12 months	35	54	49	44	182	4.1%
12 - 18 months	24	41	36	28	129	2.9%
19 - 24 months	13	9	12	23	57	1.3%
TOTALS:	1062	1211	1100	1013	4386	100%

Missing n=1755

Note: Percent total may not sum to 100 due to rounding.

Callers were asked to indicate the age of infant during initial call to the TBH. Almost half (47.3%) of calls were made when the baby was less than 1 month old.

Delivery Method	1 st	2 nd	3 rd	4 th	Year 4	Year 4
Delivery Method	Quarter	Quarter	Quarter	Quarter	Totals	Percent
Vaginal	325	347	272	219	1163	77.7%
Cesarean	97	97	85	55	334	22.3%
TOTALS:	422	444	357	274	1497	100%

Table 11B. Number and Proportion of Calls, by Delivery Method (N=1497)

Missing n=4644

Table 11B shows the number and proportion of calls by delivery method during Year 4. Around 78% of women indicated that they had a vaginal delivery. Additionally, there were 20 women who called who were pregnant at time of the call (delivery method recorded as 'not yet born'). These instances were documented but were excluded with regard to the table above.

(12) Feeding Information

Table 12A. Number and Proportion of Calls, by Breastfeeding Status (N=2275)

Breastfeeding Status	1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter	Year 4 Totals	Year 4 Percent
Breastfeeding exclusively	285	363	261	215	1124	48.2%
Both breastfeeding and pumping	121	136	166	126	549	24.1%
Breastfeeding with supplemental nutrition	139	124	113	89	465	20.4%
Pumping exclusively	28	40	37	32	137	6.0%
TOTALS:	573	663	577	462	2275	100%

Missing n=3866

TBH collected information about the breastfeeding status of mothers during initial call. Of the mothers who disclosed their breastfeeding status, just under half (48.2%) were breastfeeding exclusively.

Breastfeeding within 24 Hours?	1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter	Year 4 Totals	Year 4 Percent
Yes	389	512	404	333	1638	96.7%
No	19	15	13	9	56	3.3%
TOTALS:	408	527	417	342	1694	100%

Table 12B. Number and Proportion of Callers Breastfeeding within 24 Hours of Delivery (N=1694)

Missing n=4447

Table 12B shows number and proportion of callers who indicated breastfeeding within 24 hours of delivery. Of the callers who responded, 96.7% of mothers had begun breastfeeding their baby within 24 hours of birth.

(13) Reasons for Calling

Table 13A. Number and Proportion of Calls, by Primary Reason for Call (N=5535)

Dessens for Colling	1 st	2 nd	3 rd	4 th	Year 4	Year 4
Reasons for Calling	Quarter	Quarter	Quarter	Quarter	Totals	Percent
Breast-Related Problems	278	309	287	252	1126	20.3%
Maternal Health Behaviors	206	275	243	216	940	17.0%
Lactation or Milk Concerns	219	221	166	155	761	13.7%
Breastfeeding Management	167	113	118	116	514	9.3%
Infant Health Concerns	112	113	138	129	492	8.9%
Milk Expression	117	111	127	93	448	8.1%
Breastfeeding Technique	98	82	116	102	398	7.2%
Infant Health Behaviors	65	69	78	65	277	5.0%
Breastfeeding Support	62	37	66	74	239	4.3%
Maternal Health Concerns	30	35	39	33	137	2.5%
Medical Condition (Infant)	29	26	28	25	108	2.0%
Supplemental Nutrition	17	25	34	19	95	1.7%
TOTALS:	1400	1416	1440	1279	5535	100%

Missing n=606

Callers were asked to indicate their primary reason for calling the TBH, which TBH categorized into the reasons above (please see Appendix A for classification of individual reasons). During Year 4, 20.3% of calls were regarding breast-related problems (e.g. breast or nipple pain, breast engorgement, or sore nipples) followed by maternal health behaviors (17%). The top five individual reasons for calling the TBH in Year 4 were: medications and breastfeeding, not making enough milk, breast/nipple pain, breast engorgement, and baby feeding too much/too little.

Ton Additional Descena for Colling	1 st	2 nd	3 rd	4 th	Year 4
Top Additional Reasons for Calling	Quarter	Quarter	Quarter	Quarter	Totals
Pumping	21	20	27	15	83
Breast engorgement	19	17	9	11	56
Not making enough milk	10	16	12	13	51
Appropriate feeding by age/weight	12	12	15	10	49
Breast or nipple pain	7	11	20	9	47
Medications and breastfeeding	3	9	13	9	34
Sore nipples	15	7	8	4	34
Supplemental feeding	6	5	6	10	27
Weaning	5	7	9	5	26
Working and breastfeeding	7	3	8	8	26
TOTALS:	105	107	127	94	433

Table 13B. Number and Proportion of Calls: Top 10 Additional Reasons for Calling (N=433)

In addition to the primary reason for calling, lactation professionals noted additional questions that were brought up during the course of the call. Many mothers did not bring up additional questions. Top additional concerns were related to pumping and breast engorgement.

(14) Outcomes at Follow-Up

At the end of each initial call to the TBH, the lactation professionals asked the callers if they intended to continue to breastfeed (Results in Table 14A). Continuation of breastfeeding was also asked during the 4-week, 8-week, and 12-week follow up calls (Table 14B).

Also, the lactation professionals asked the caller if they felt more comfortable and/or confident with breastfeeding by the end of the initial call (pg. 23, Table 14D). Similar to the question regarding the continuation of breastfeeding, caller confidence and comfort was also assessed by TBH staff at 4-week, 8-week, and 12-week follow-up calls (pg. 24, Table 14E).

Intention to Continue Breastfeeding	1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter	Year 4 Totals	Year 4 Percent
Yes	1307	1351	1327	1165	5150	98.4%
No	26	28	18	11	83	1.6%
TOTALS:	1333	1379	1345	1176	5233	100%

Table 14A. Number and Proportion of Calls, by Intention to Continue Breastfeeding (N=5233)

Not applicable n =908

When asked about the intention to continue breastfeeding, 98.4% of callers intended to continue breastfeeding at the end of the initial call.

Follow-Up Period	Calls Attempted	Not Reached	Reached N (%)	Answered Question	Still Breastfeeding N (%)
4 week	2473	1766	707 (28.6%)	648	529 (81.6%)
8 week	1990	1464	526 (26.4%)	493	378 (76.7%)
12 week	1714	1292	422 (24.6%)	396	312 (78.8%)

Notes: Reached = # of callers reached out of # of calls attempted

Still breastfeeding = # of callers still breastfeeding out of # of callers who answered the question

During Year 4, TBH attempted a total of 6,177 calls to clients to follow-up about breastfeeding status, a 26.8% response rate for follow up calls.

At the 4-week follow-up, 81.6% of callers were still breastfeeding. This proportion drops for callers during the 8-week follow-up. Reasons reported by the mothers who ceased breastfeeding during the weeks in between the initial call and the follow up included lack of support, mother returning to work, weaning, illnesses (for both mother and baby), medication, and not making enough milk.

Follow-Up Period	Number Still Breastfeeding (from Table 14B)	Answered Question	Supplemented N (%)	Exclusive N (%)
4 week	529	461	100 (21.7%)	361 (78.3%)
8 week	378	324	71 (21.9%)	253 (78.1%)
12 week	312	277	66 (23.8%)	211 (76.2%)

Table 14C. Breastfeeding: Exclusive or Supplemental, by Follow-Up Period

Callers who indicated that they were still breastfeeding during the follow-up call (Table 14B) were then asked if they were breastfeeding exclusively or with supplemental nutrition.

Of the callers who indicated that they were still breastfeeding, more mothers were exclusively breastfeeding their infants during each follow-up period, though supplemented feedings did rise during each follow up period.

Table 14D. Number and Proportion of Callers Confident or Comfortable Breastfeeding at End of Initial Call (N=5183)						
Comfort with	1 st	2 nd	3 rd	4 th	Year 4	Year 4
Breastfeeding	Quarter	Quarter	Quarter	Quarter	Totals	Percent
Yes	1301	1346	1324	1165	5136	99.1%
No	10	13	13	11	47	0.9%
TOTALS:	1311	1359	1337	1176	5183	100%

Not applicable n=958

TBH staff reported that almost all (99.1%) callers had increased comfort and confidence with breastfeeding by the end of their interaction.

Follow-Up Period	Calls Attempted	Not Reached	Reached N (%)	Answered Question	Improved N (%)	Did Not Improve N (%)
4 week	2473	1766	707 (28.6%)	261	257 (98.5%)	4 (0.5%)
8 week	1990	1464	526 (26.4%)	211	211 (100%)	0 (0.0%)
12 week	1714	1292	422 (24.6%)	177	177 (100%)	0 (0.0%)

Table 14E. Caller's Confidence and Comfort with Breastfeeding, by Follow-Up Period

Notes: Reached = # of callers reached out of # of calls attempted;

Improved= # of callers with improved confidence or confidence breastfeeding out of # of callers who answered the question

At the 4-week follow-up, 98.5% of callers reported increased confidence and comfort with breastfeeding. At the 8- and 12-week follow-up, this number rose to 100%.

(15) Client Satisfaction with Services

Clients rated TBH services at different intervals: 4 weeks, 8 weeks, and 12 weeks after services had been rendered. Callers were asked to rate their overall satisfaction with hotline services and indicate their likelihood to recommend TBH services to another person.

				Satisfaction with TBH		Recommend TBH	
Follow-Up Period	Calls Attempted	Not Reached	Reached N (%)	Answered Question	Satisfied N (%)	Answered Question	Likely to Recommend N (%)
4 week	2473	1766	707 (28.6%)	440	439 (99.8%)	436	434 (99.5%)
8 week	1990	1464	526 (26.4%)	358	356 (99.4%)	357	356 (99.7%)
12 week	1714	1292	422 (24.6%)	295	290 (98.3%)	294	294 (100%)

Notes: Reached = # of callers reached out of # of calls attempted;

Satisfied = # of callers satisfied or very satisfied with TBH services out of # of callers who answered the question

Likely to Recommend = # of callers likely or very likely to recommend TBH services out of # of callers who answered the question.

Callers were asked to rate their level of satisfaction of TBH from 1 (very dissatisfied) to 5 (very satisfied). Overall, clients were satisfied with TBH services during each follow-up period (range: 98.3% -99.8%). During each follow-up, callers were also asked to indicate their likelihood to recommend the TBH to others (1 - very unlikely to 5 - very likely). Overall, callers were likely to recommend TBH services to another person (range: 99.5% - 100%).

(16) Texting Follow-Up

If callers cannot be reached by telephone for follow up, TBH staff send an automated text message prompting the caller to take a brief 4 question survey and reminding them to call the TBH if they have any additional questions. Unlike the telephone follow-ups, the texts cannot be separated.

Table 16A. Texting Follow-Up: Caller's Breastfeeding Status (N=237)

Follow-Up Method	Texts	Yes	No
	Received	N (%)	N (%)
Text	237	206 (86.9%)	31 (13.1%)

During Year 4, TBH received 237 follow-up texts regarding breastfeeding status. Of those reached, 86.9% responded that they were still breastfeeding.

Table 16B. Caller's Satisfaction with TN Breastfeeding Hotline (N=237)

Follow-Up Method	Texts Received	Satisfied N (%)
Text	237	220 (92.8%)

Note: Satisfied = # of callers satisfied or very satisfied with TBH services

TBH received 237 responses regarding caller's satisfaction with services provided. Of those responding, 92.8% were satisfied with services received.

Table 16C. Caller's Likelihood to Recommend TN Breastfeeding Hotline (N=232)

Follow-Up Method	Texts Received	Likely to Recommend N (%)
Text	232	220 (94.8%)

Note: Likely to Recommend = # of callers likely or very likely to recommend TBH services

TBH received 232 responses with regard to caller's likelihood to recommend the TBH to others. 94.8% indicated that they were likely or very likely to recommend the TBH to another person.

Table 16D. Caller's Increase in Confidence/Comfort with Breastfeeding (N=217)

Follow-Up Method	Texts	Yes	No
	Received	N (%)	N (%)
Text	217	195 (89.9%)	22 (10.1%)

TBH received 217 responses with regard to caller's increase in confidence and comfort with breastfeeding. 89.9% indicated that they were more comfortable and confident breastfeeding.

Our Team

Meri Armour – President, Le Bonheur Children's Hospital Meri provides oversight over the entire hospital.

Jennilyn Utkov – Senior Director of Community Development Jennilyn provides oversight to the LCHWB division.

August Marshall, M.A. – Evaluation Coordinator August updates iCarol survey questions as needed, provides general iCarol support to the TBH staff, analyzes hotline data, and helps write and submit quarterly and annual reports.

Cathy Marcinko, M.A. -- Grant Development Coordinator Cathy assists division departments in researching, developing and submitting funding proposals, and with other assignments, as needed. She has a Masters' Degrees in Community Planning and in Teaching, and has a BA in Art History.

Christina M. Underhill, Ph.D. -- Program Evaluation Manager for the LCHWB Division Christina coordinated the creation of the TBH quarterly report format and assisted with the development of the TBH quality improvement plan. She advises on the collection of outcome measures and ensures proper data management.

Gary R. Cook, LCSW -- Director of LCHWB Grant Administration Department Gary co-authored the TN Breastfeeding Hotline Proposal. He provides contract related and fiscal oversight of the project.

Nicole Gottier, M.A. -- Grant Reimbursement Supervisor Nicole tracks monthly expenses for the program for correctness, as well as alignment with budget projections, and creates and submits monthly invoices to the State.

Sandra Madubuonwu MSN, RN, CLC – Director, Maternal Child Department. Sandra was involved in the proposal process for the TN Breastfeeding Hotline and played an instrumental role in implementing the program. She provides administrative oversight to all the programs within the Maternal Child Department, including the TBH.

Helen Scott, RN/IBCLC/RLC -- Project Coordinator of the Tennessee Breastfeeding Hotline Helen coordinates the staff and ensures that the Hotline is working to meet identified purposes and goals.

Medical Lactation Consultant

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APPENDIX A. Categorization of the Primary Reason for Calling the Tennessee Breastfeeding Hotline

CATEGORIES	REASONS / ISSUES
Supplemental Nutrition: Issues related to complementing breastfeeding with expressed human milk or some other fluid or food	Vitamin D supplementationSupplemental feeding
Milk Expression: Issues related to taking breastmilk from the mother's breast without the baby needing to suckle.	Breast pumps and rentalsExclusive pumpingMilk storage
Breast-Related Problems: Issues or problems mother can experience that are commonly associated with breastfeeding	 Breast mass Breast engorgement Sore nipples Breast or nipple pain Nipple abnormality
Breastfeeding Management: Issues related to the process of maintaining or integrating breastfeeding within a mother's routine or circumstances	 Tandem nursing Breastfeeding while pregnant Working and breastfeeding Managing multiple breastfeeding babies Weaning Bottle feeding Returning to work/school Baby feeding to much / too little Breastfeeding device/equipment (e.g. nipple shields)
Breastfeeding Support: Resources, guidance, or laws that can assist with breastfeeding	 Public breastfeeding Donor milk TN breastfeeding laws Seeking resources Pre-birth information / counseling
Breastfeeding Technique: Issues related to mother's breastfeeding skill	 Inability to latch Breastfeeding technique Clicking / Noisy nursing
Medical Condition (Infant): Issues related to an infant's disease, disorder, illness, or complication diagnosed by a health care provider that can impact mother's ability to breastfeed	 Feeding baby with hypotonia Feeding baby with Down Syndrome Feeding baby with cleft lip / palate Jaundice Late preterm newborn Managing premature infant breastfeeding Tongue-tie Allergies Baby spitting up (reflux)
Infant Health Behaviors: Issues related to infant's	 Baby biting breast

actions that can impact mother's ability to breastfeed	 Baby refusing to nurse Distraction during breastfeeding Sleepiness
Maternal Health Behaviors: Issues related to the practices (choices), of the mother that can impact her overall health and ability to breastfeed	 Alcohol use Substance abuse / Illicit drug use Smoking / Smoking cessation Exercise and breastfeeding Diet Medications and breastfeeding
Lactation or Milk Concerns: Issues related to mother's anxiety or worry about milk production or quality	 Overactive letdown / too much milk Not making enough milk Re-lactation Adoption Color change in milk
Infant Health Concerns: Issues related to mother's anxiety or worry about infant's health state or condition	 Fussiness / Colic Gassiness Appropriate feeding by age / weight Abnormal stools / voids Lethargy Weight concerns Sick baby Constipation
Maternal Health Concerns: Issues related to mother's anxiety or worry about her own health state or condition	 Maternal postpartum vaginal bleeding Menstruation / Return of menstrual cycle Maternal sickness Maternal postpartum depression
Other: An issue indicated by mother that is other than what is currently listed	Specify