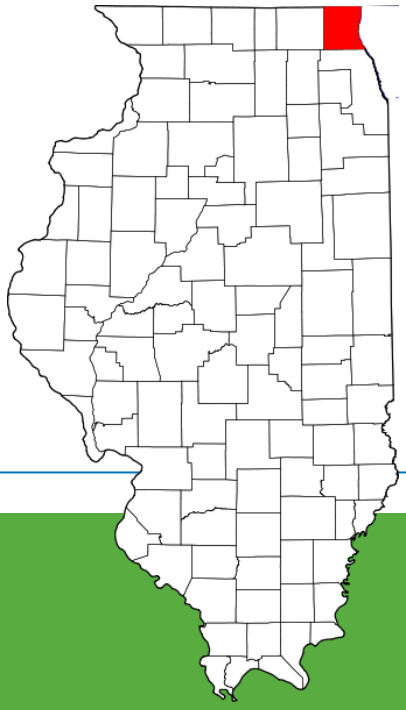
LakeCounty
Health Department and
Community Health Center

Executive Director, Tony Beltran, MBA



Lake County Resident Senior Falls 2009-2012

Prepared December 2013 by the Lake County Health Department Assessment Team

For more information on the Lake County Health Department, the services it offers, or additional data questions, please refer to our website at health.lakecountyil.gov, call 847.984.5014, or email at HealthAssessment@lakecountyil.gov.

Contents

INTRODUCTION 3

ELDERLY DEMOGRAPHIC TRENDS 4

FALLS DATA SOURCES 5

LAKE COUNTY SENIOR FALLS DATA 6

FALLS BY COMMUNITY/LOCATION 12

SUMMARY 17

THE LAKE COUNTY FALLS PREVENTION TASK FORCE 18

INTRODUCTION

In 2006 the Lake County Health Department/Community Health Center (LCHD/CHC) published a Community Health Improvement Plan as part of the IPLAN process for certification by the State of Illinois as a local public health agency. One of the improvement goals identified in that plan was to reduce mortality (deaths) due to a fall among Lake County residents age 65+ to 3.0 deaths per 1,000 population. The baseline calculation for the measurement of that goal was 3.97 deaths per 1,000 population age 65+ based on elderly fall mortality from 2000-2003. A subsequent calculation for the 2003-2007 time period indicated a slight decline to 3.4/1,000. The most recent estimation of elderly mortality due to a fall, using 2010 census data for Lake County is a mortality rate due to a fall of 2.2/1,000 population age 65 and older, indicating there was been an substantial decrease in mortality.

Publication of the 2006 Community Health Improvement Plan resulted in a meeting between the LCHD/CHC and the trauma coordinators from the five hospitals that serve Lake County. Trauma coordinators are charged with assessing the trauma data from their facilities and identifying opportunities to improve community health. Emergency service visits due to falling was also identified by those facilities as an opportunity to improve community health.

The collaboration between the LCHD/CHC, the trauma services of Advocate Condell Medical Center, Advocate Good Shepherd Hospital Vista Medical Center, Northwestern Lake Forest Hospital, Highland Park Hospital, and the Senior Services Coalition of Lake County lead to the formation of the Lake County Falls Prevention Task Force. Participation in that Task Force expanded to include Rosalind Franklin University, fire departments/fire districts, long term care facilities, skilled home care nursing services, and personal care service providers.

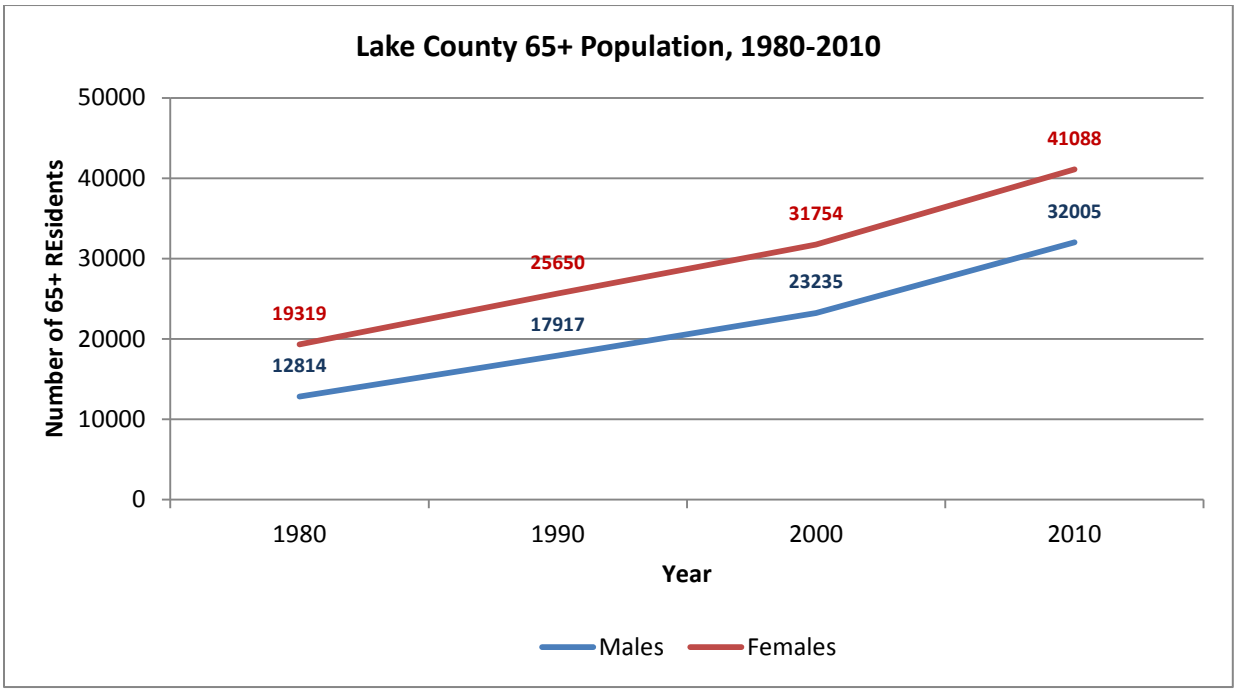
The initial work of the Task Force was to collect and analyze available data regarding the frequency, scope, and impact of falls on Lake County seniors. Simultaneously, the Task Force reviewed literature and studies on the evidence base of falls prevention and reduction interventions, particularly early prevention among community-dwelling adults.

Elderly Demographic Trends

In the last 4 decennial censuses, the fastest growing age group in Lake County (measured by percent increase) was the 65+ age population, particularly those people age 85 and older. The percent of females age 85+ was the fastest growing segment of this population.

Females							
	1980	**1990**	**% Change**	**2000**	**% Change**	**2010**	**% Change**
65-74	11,330	14,300	26.2%	16,457	15.1%	21,307	29.5%
75-84	5,932	8,325	40.3%	10,983	31.9%	13,174	19.9%
85+	2,057	3,025	47.1%	4,314	42.6%	6,607	53.2%
Total 65+	**19,319**	**25,650**	**32.8%**	**31,754**	**23.8%**	**41,088**	**29.4%**
Males							
	1980	**1990**	**% Change**	**2000**	**% Change**	**2010**	**% Change**
65-74	8,613	12,052	39.9%	14,168	17.6%	19,129	35.0%
75-84	3,367	4,783	42.1%	7,340	53.5%	9,588	30.6%
85+	834	1,082	29.7%	1,727	59.6%	3,288	90.4%
Total 65+	**12,814**	**17,917**	**39.8%**	**23,235**	**29.7%**	**32,005**	**37.7%**

Between the 2000 and the 2010 census the age composition of the 65 and older age population in Lake County began to change. The percent of males surviving past age 80 is increasing at a faster rate than females. The demographic bulge created by the baby boom generation is beginning to enter the younger end of the senior age continuum, and will continue to accelerate the growth of the senior population.



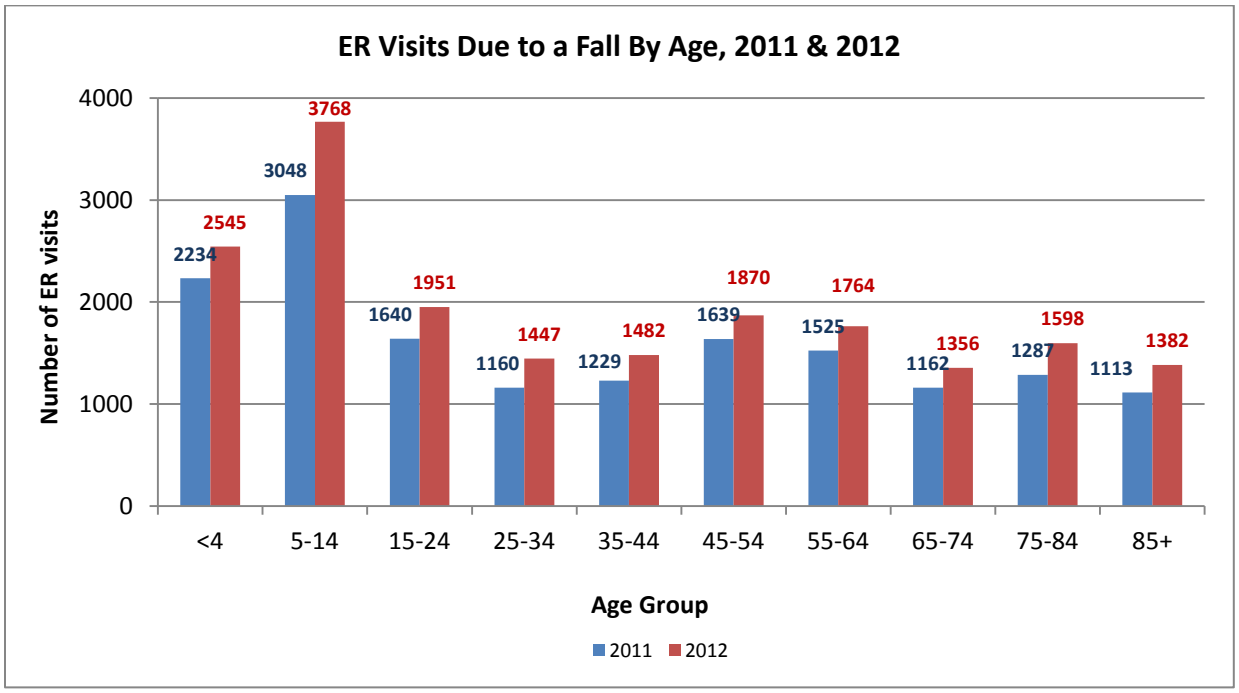
Falls Data Sources

Prior to 2009, the county specific data available was death certificate data and hospital admission data. Since 2009, Illinois has collected data on hospital emergency service visits; a significant expansion of the ability to analyze the scope and seriousness of falls and to examine the impact of falls on various segments of the senior population.

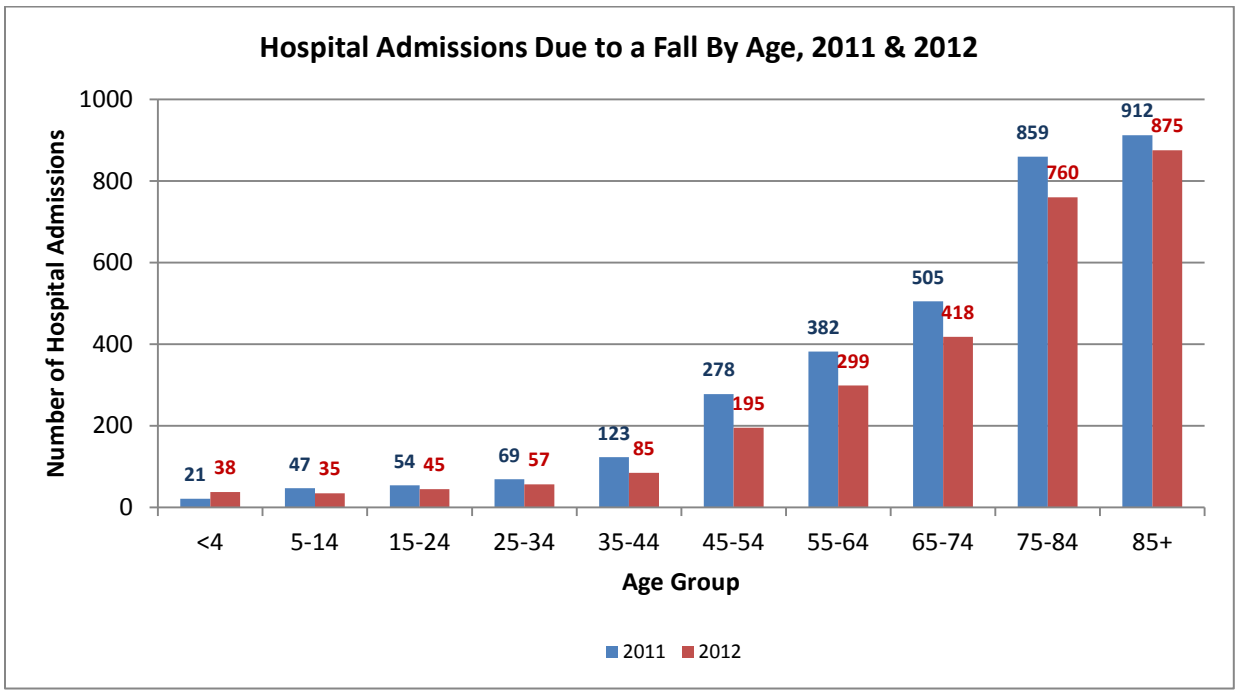
Data from the CDC's National Center for Injury Prevention and Control indicate that, except for people age 10 to 24, unintentional falls is the number one cause of non-fatal injuries that were treated in hospital emergency departments in 2010. Lake County residents age 5-14 had the most number of ER visits compared to other age groups in 2011 and 2012. Although Lake County residents age 80 and older only represented 2.9% of the total population (20,237/703,462), this age group has the highest use rates of health and medical services and is the most vulnerable to serious injury and death due to a fall.

The hospital data presented in this report is collected from the Illinois Survey of Hospital Discharges. Injuries due to a fall are based on the E codes for "Accidental Falls." Those codes are in the range of E 880-E 888. The data is also able to distinguish the type of admission to the hospital: those where the patient is treated in the emergency room (ER) and those where the patient is admitted to the hospital. The seriousness of the injury due to a fall is indicated by the need to admit the patient to the hospital.

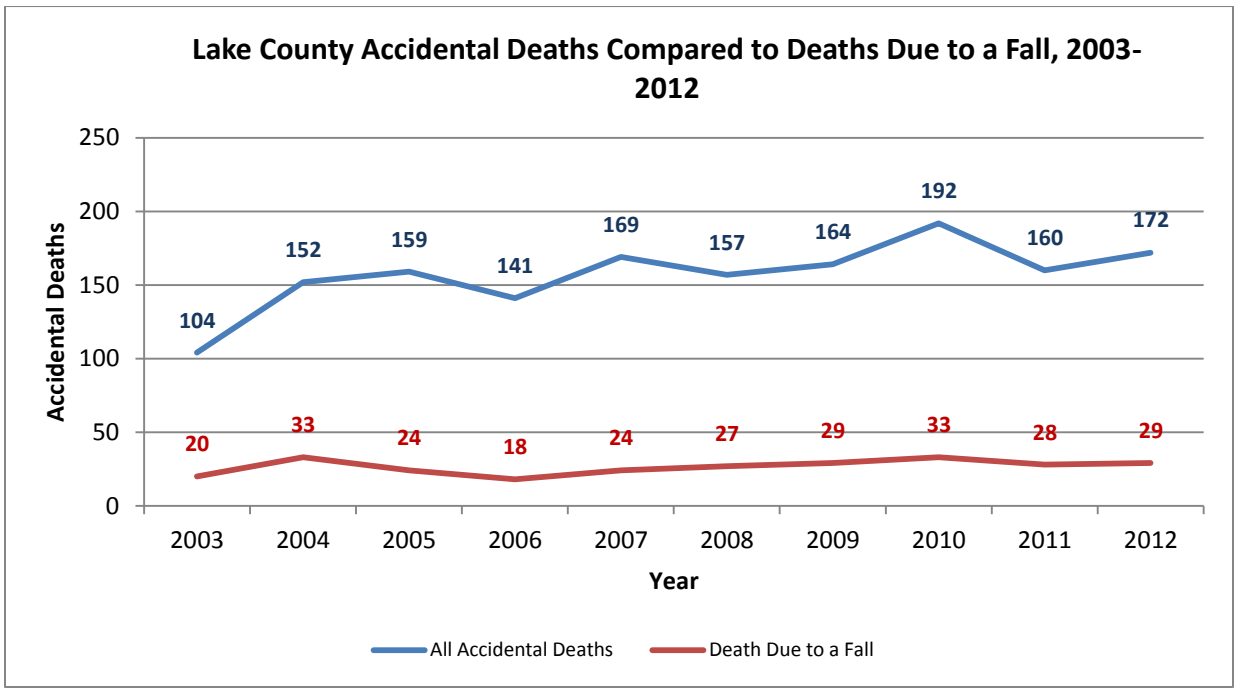
Lake County Senior Falls Data



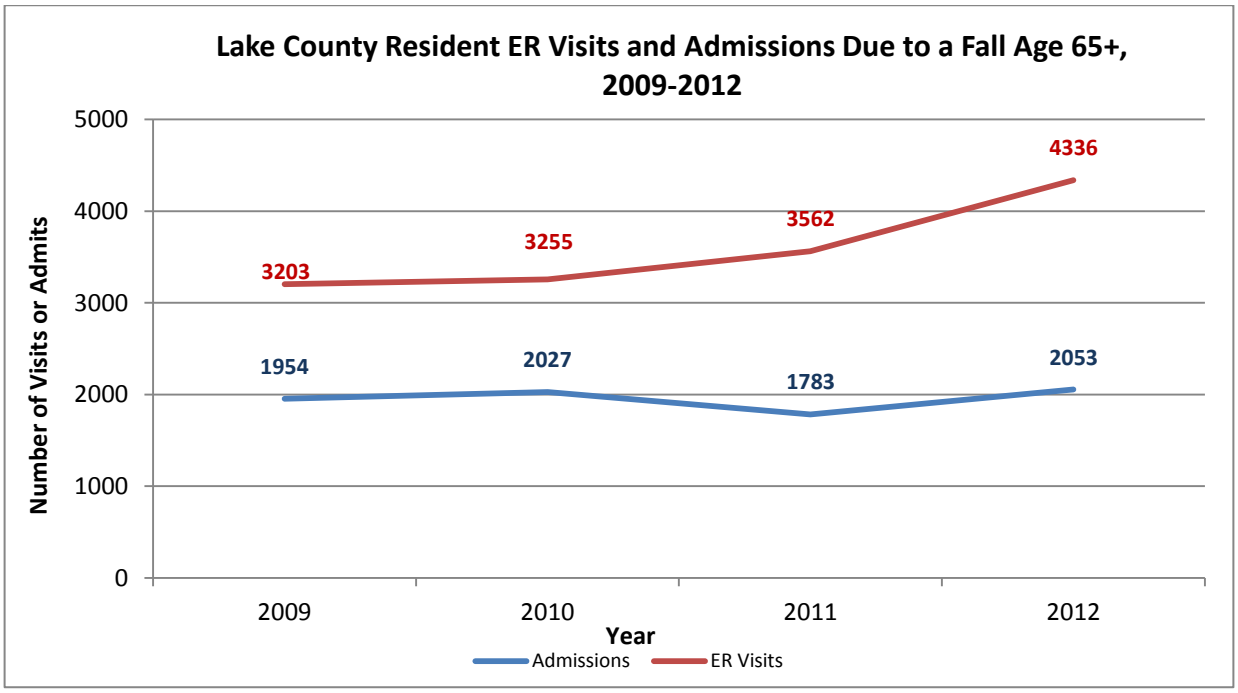
The impact of falling primarily affects seniors 65 and older.



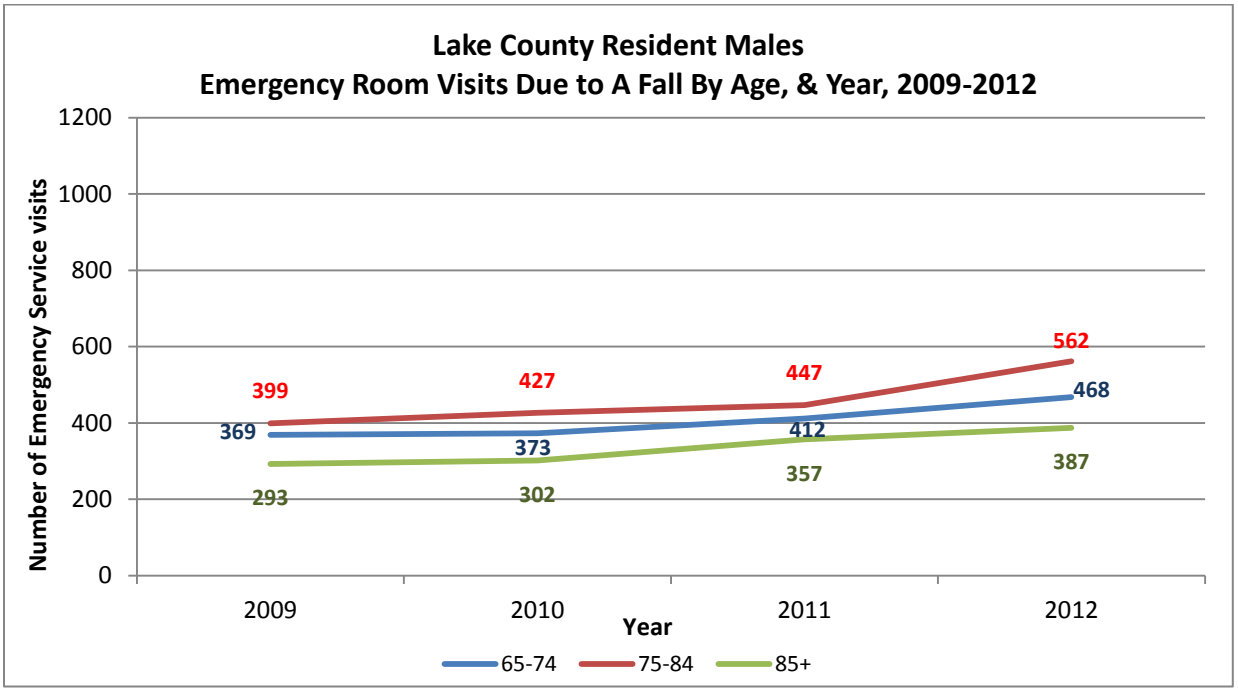
The National Center for Injury Prevention and Control reports that death due to unintentional falls is the number one cause of unintentional injury deaths for people age 65 and older in 2010. According to the Lake County Coroner, death due to falling represented 17% of all unintentional injury deaths for Lake County residents of all ages from 2003 to 2012.



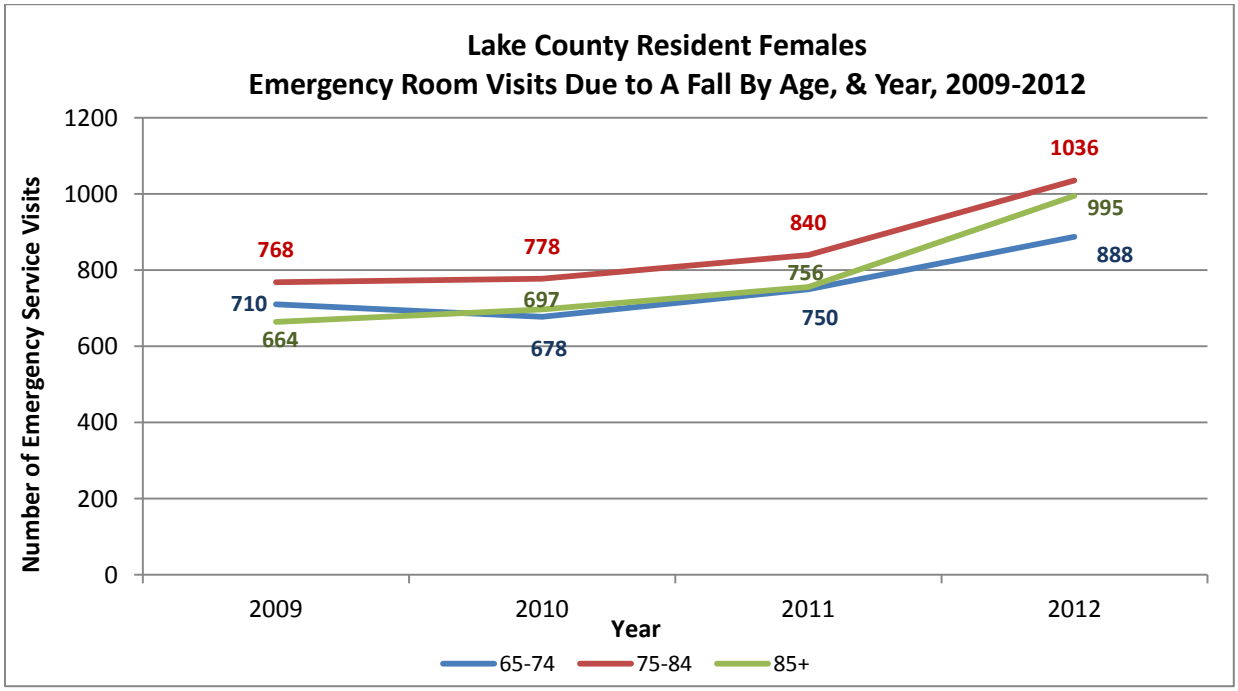
There was a slight decrease in admissions to the hospital due to a fall in 2011, but the number of patients admitted has remained consistent from 2009 to 2012. Visits to the ER by Lake County seniors have risen each year since 2009 for a 35.4% increase from 2009 to 2012.



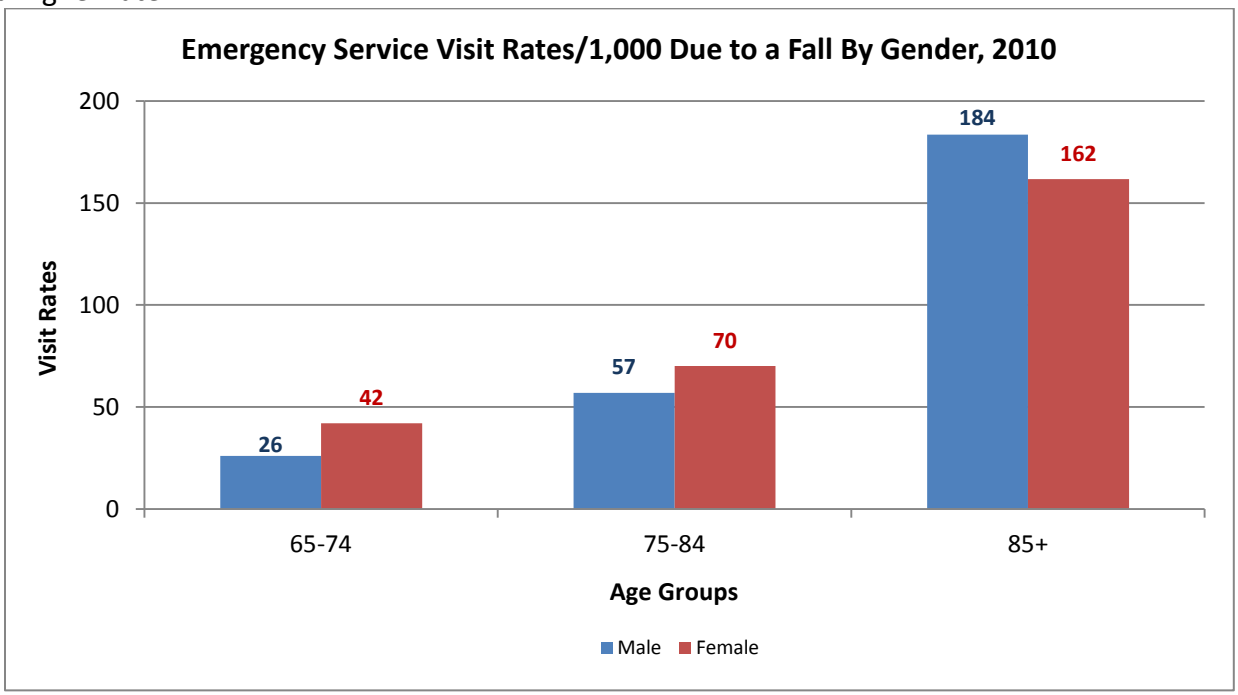
The number of ER visits by males increased from 1,061 in 2009 to 1,417 in 2012 (33.6%) with the greatest increase in the age 75-84 years old, (40.9%).



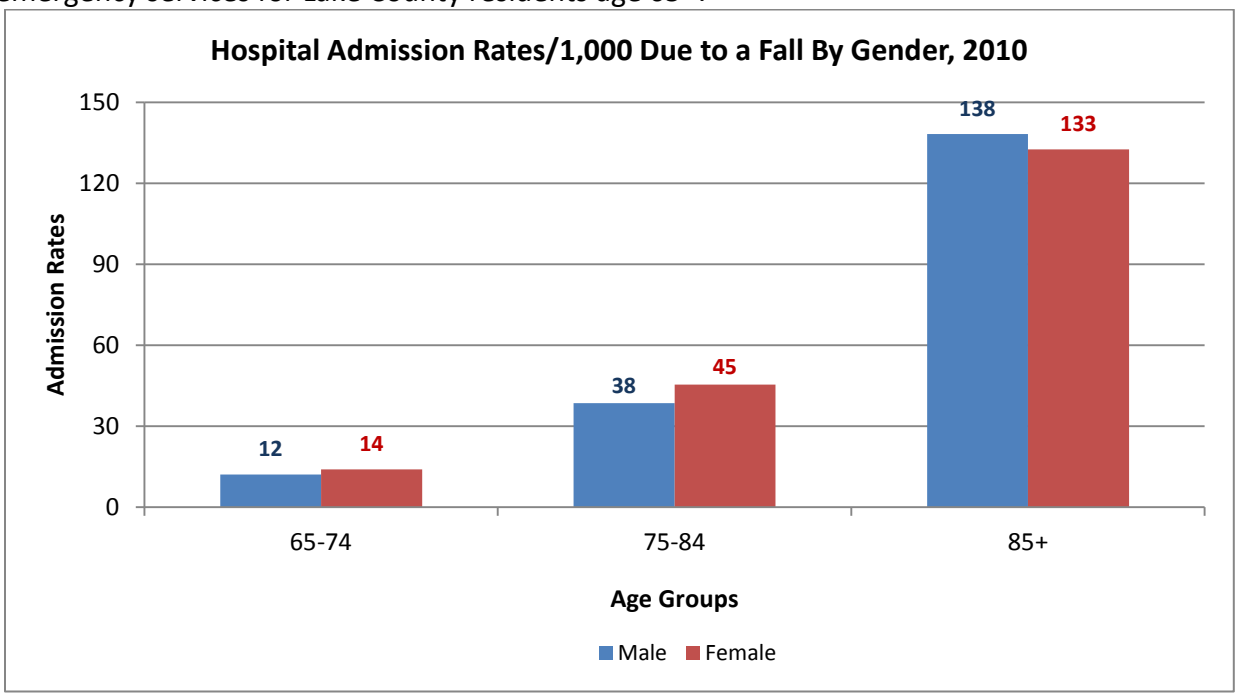
The number of ER visits by females increased from 2142 in 2009 to 2919 in 2012 (a 36.3% increase) with the greatest increase in the age 85+ years old (40.1%).



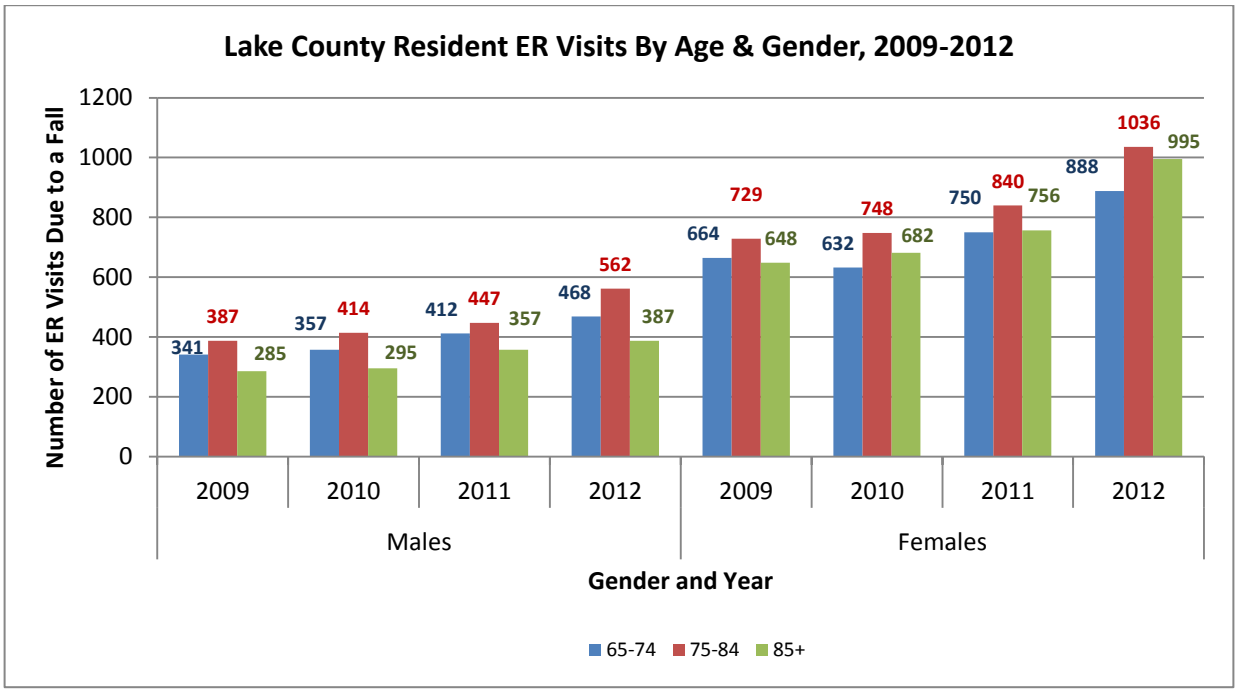
The actual number of visits or admissions due to a fall is a reflection of the size of the elderly population and is useful in estimating potential demand when promoting services or programs. Calculating ER visit or hospital admission rates by age group or by community can reveal different levels of risk between populations. The rates at which senior Lake County residents require emergency care due to a fall is higher for females age 65 to 85. At age 85+ males have a higher rate.



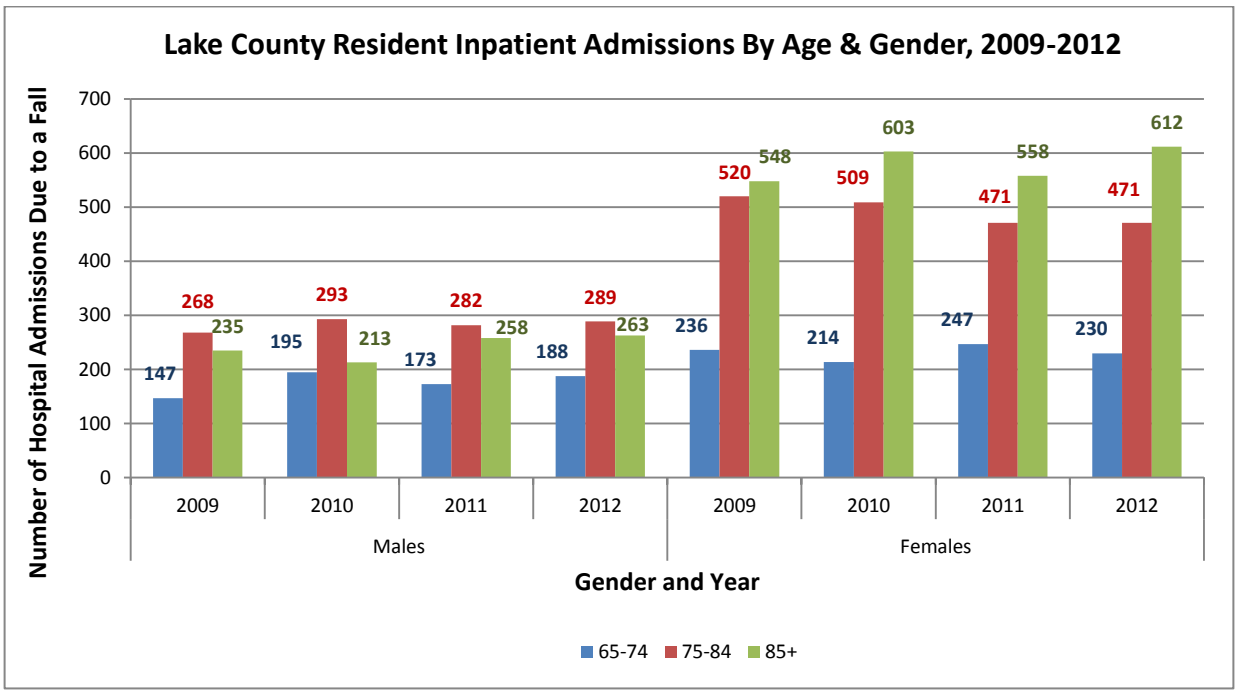
The trend in rates by sex for hospital admissions due to a fall is similar to the rates of use of emergency services for Lake County residents age 65+.



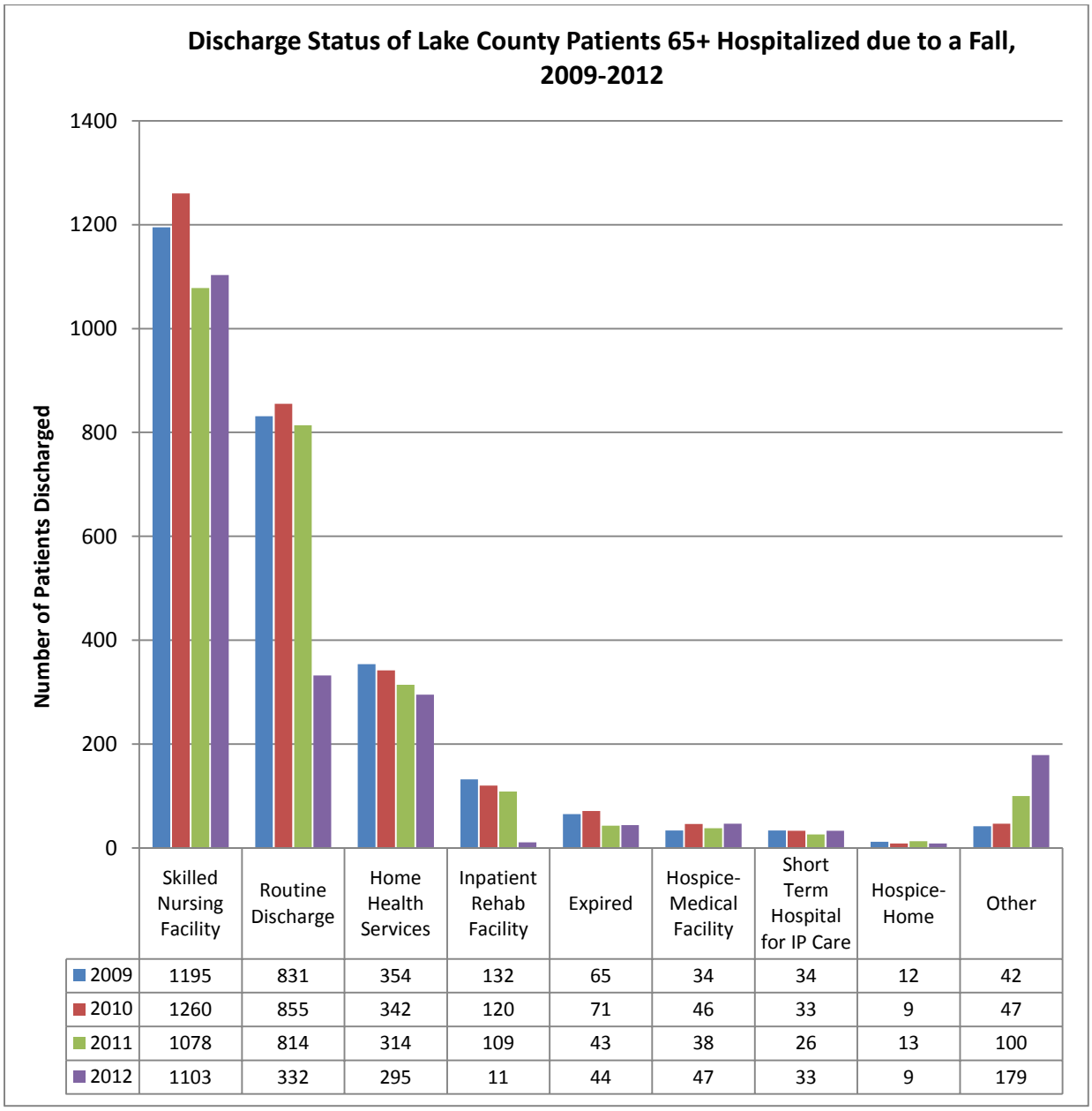
The 75-84 age group has the most ER visits due to a fall. Females consistently have almost twice as many ER visits as males for all three age groups from 2009 to 2012.



Females are hospitalized due to a fall more frequently than men, although more disproportionately than ER visits.



Although 60-70% of seniors fall in their home, many (50-55%) are discharged from the hospital to a skilled nursing or rehab facility and not back to their home.



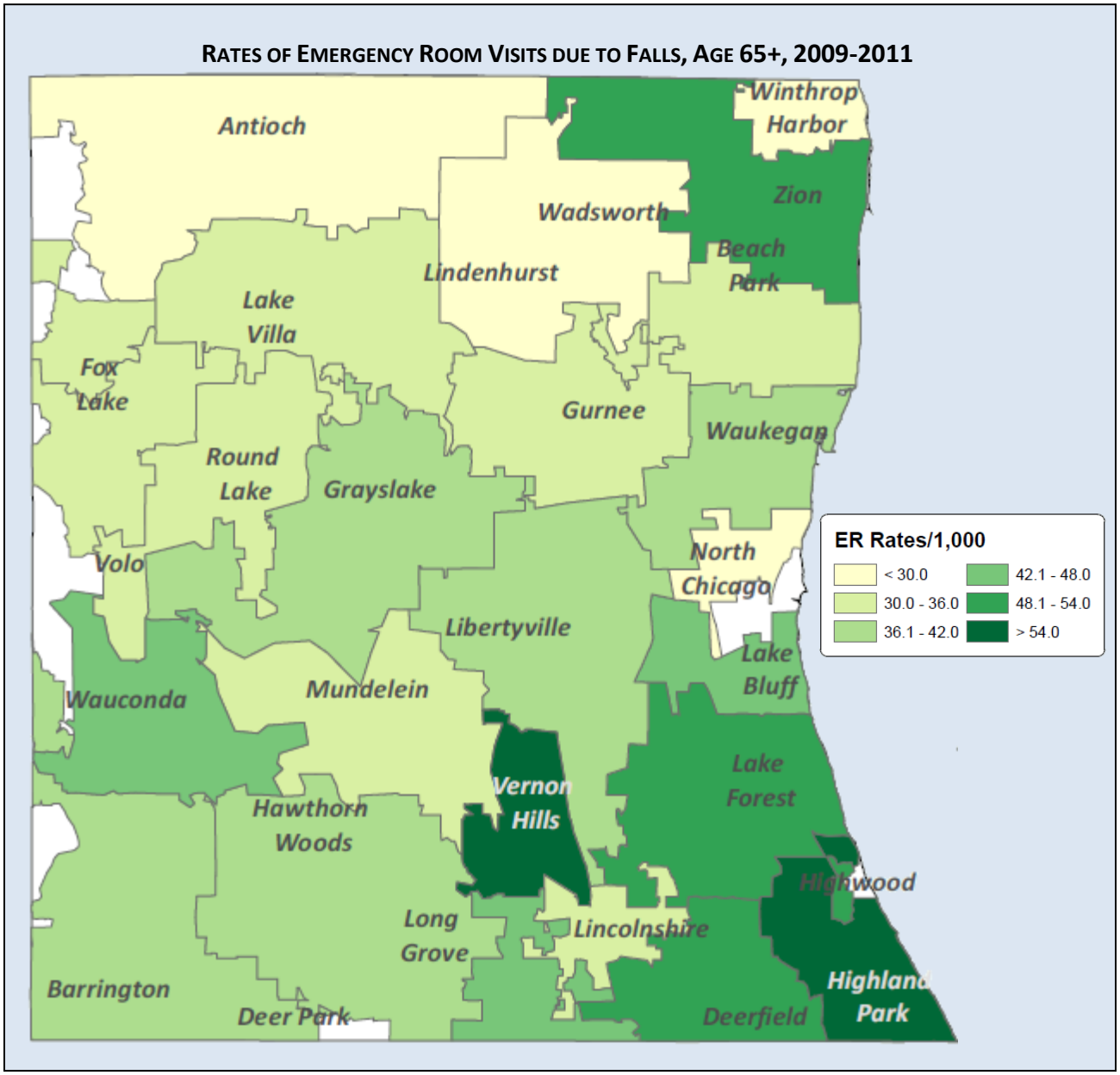
	Skilled Nursing Facility	Routine Discharge	Home Health Services	Inpatient Rehab Facility	Expired	Hospice-Medical Facility	Short Term Hospital for IP Care	Hospice-Home	Other
2009	1195	831	354	132	65	34	34	12	42
2010	1260	855	342	120	71	46	33	9	47
2011	1078	814	314	109	43	38	26	13	100
2012	1103	332	295	11	44	47	33	9	179

In 2012 the median charge for a Lake County senior ER visit was just under $4,000 while the median charge for a hospital admission due to a fall was about $36,000.

Visit Type	Median	Total
ER Visits	$3,943	$23,044,902
Hospital Admission	$36,200	$98,464,858
Total		**$121,509,760**

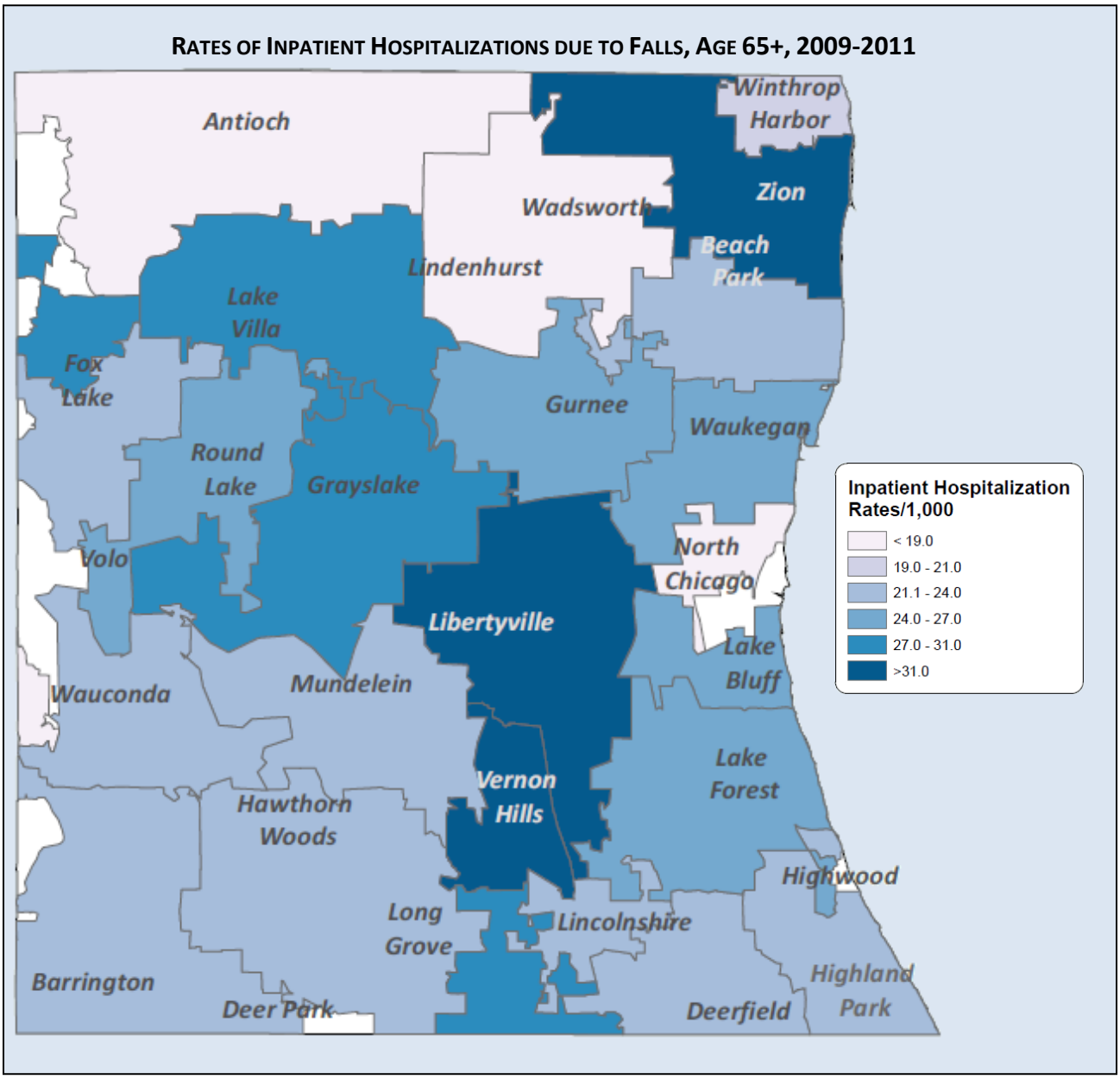
Falls by Community/Location

When looking at those communities that have the highest rate of falls per 1,000 and communities with the most number of ER visits and hospital admissions. From 2009-2011, Vernon Hills had the highest rate of emergency room visits due to a fall.

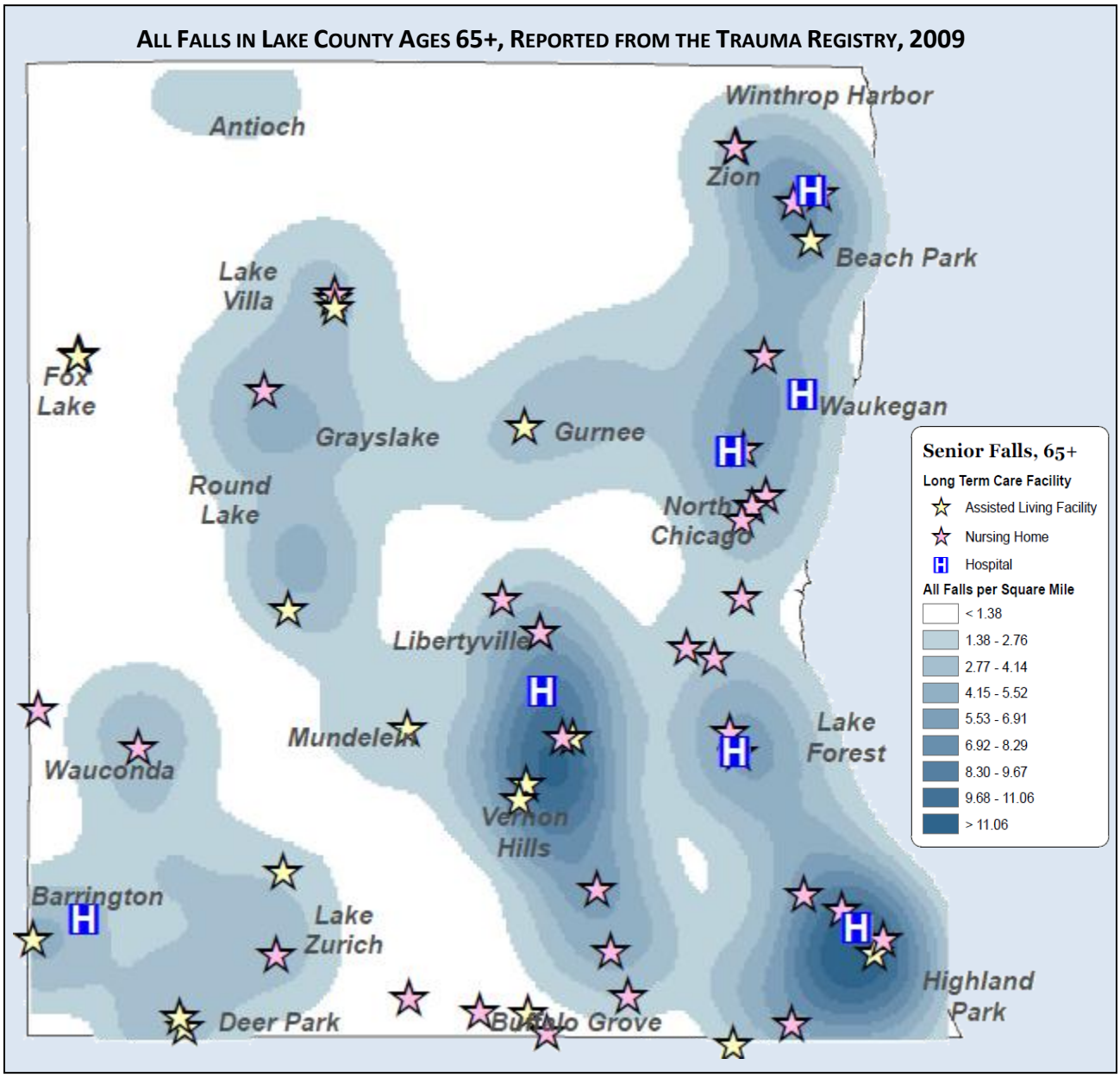


Vernon Hills and Highland Park are communities with the highest rates of Emergency Room visits due to a fall by people age 65 and older. Zion, Lake Forest, and Deerfield have the next highest rates of ER visits due to a fall.

Vernon Hills has the highest rates of seniors admitted to the hospital due to a fall. Libertyville and Zion are also communities with high rates of admission to a hospital due to a fall, followed by Lincolnshire, Grayslake, Lake Villa, and Fox Lake.



In 2009 the Trauma Coordinators from all five medical centers in Lake County pooled their trauma data to map the locations of people who came to their facilities due to a fall.



Senior ER Visits Due to a Fall by Zip Code , 2009-2012				
City	Zip	Frequency	Percent	Rate/1,000
Waukegan	60085 & 60087	9,678	15.3%	25.0
Round Lake	60073	5,108	8.1%	32.6
Barrington	60010	3,494	5.5%	41.3
Mundelein	60060	3,300	5.2%	35.5
Highland Park	60035	3,280	5.2%	57.6
Grayslake	60030	3,224	5.1%	40.2
Zion	60099	3,175	5.0%	49.0
Lake Zurich	60047	2,975	4.7%	40.0
Lake Villa	60046	2,891	4.6%	34.0
Gurnee	60031	2,731	4.3%	33.1
Buffalo Grove	60089	2,692	4.3%	42.0
Libertyville	60048	2,648	4.2%	41.3
Deerfield	60015	2,286	3.6%	49.7
Vernon Hills	60061	2,279	3.6%	68.8
Lake Forest	60045	2,082	3.3%	48.9
Antioch	60002	2,063	3.3%	23.6
North Chicago	60064	1,682	2.7%	28.5
Wauconda	60084	1,554	2.5%	43.9
Fox Lake	60020	1,069	1.7%	35.5
Ingleside	60041	927	1.5%	33.0
Lake Bluff	60044	899	1.4%	47.9
Island Lake	60042	813	1.3%	37.1
Lincolnshire	60069	757	1.2%	33.1
Wadsworth	60083	545	0.9%	27.3
Highwood	60040	544	0.9%	48.3
Winthrop Harbor	60096	434	0.7%	26.3
Total		63,130	100.0%	41.4

Senior Hospital Admissions Due to a Fall by Zip Code, 2009-2012				
City	Zip	Frequency	Percent	Rate/1,000
Waukegan	60085 & 60087	1,079	10.5%	39.1
Barrington	60010	732	7.1%	21.3
Grayslake	60030	632	6.1%	27.2
Buffalo Grove	60089	622	6.0%	27.1
Highland Park	60035	604	5.9%	22.6
Libertyville	60048	559	5.4%	31.3
Vernon Hills	60061	550	5.3%	50.8
Round Lake	60073	531	5.2%	25.5
Lake Villa	60046	492	4.8%	30.3
Zion	60099	491	4.8%	31.6
Lake Zurich	60047	486	4.7%	23.7
Gurnee	60031	449	4.4%	24.7
Lake Forest	60045	422	4.1%	26.3
Deerfield	60015	400	3.9%	22.7
Mundelein	60060	390	3.8%	22.1
Antioch	60002	315	3.1%	18.9
Wauconda	60084	255	2.5%	22.8
Lincolnshire	60069	254	2.5%	22.3
Fox Lake	60020	230	2.2%	29.3
Lake Bluff	60044	175	1.7%	24.3
North Chicago	60064	148	1.4%	17.5
Ingleside	60041	127	1.2%	24.0
Wadsworth	60083	108	1.0%	18.2
Island Lake	60042	95	0.9%	18.6
Winthrop Harbor	60096	82	0.8%	20.0
Highwood	60040	72	0.7%	25.0
Total		10,300	100.0%	25.4

Seven communities comprise 5% or more of all ER visits and 8 communities comprise 5% or more of all hospital admissions due to a fall. The five communities that have the most number of ER visits due to a fall are Waukegan, Round Lake, Barrington, Highland Park and Grayslake. The five communities that have the most number of hospital admissions due to a fall are Waukegan, Barrington, Grayslake, Buffalo Grove and Highland Park. Combined, the communities with the most number of falls that result in an emergency room visit or in a hospital admission are Waukegan, Barrington, Grayslake, Highland Park and Round Lake. This may be due to the large population of seniors and is not necessarily indicative of a problem.

The five communities that have the highest rates of ER visits due to a fall are Vernon Hills, Highland Park, Deerfield, Zion and Lake Forest. The five communities with the highest rates of hospital admissions due to a fall are Vernon Hills, Waukegan, Zion, Libertyville and Lake Villa. Combined, the communities with the highest rates of falls that result in an emergency room visit or in a hospital admission are Vernon Hills, Zion, Lake Forest, Libertyville and Highwood. High rates of injury due to a fall may be partially a result of the number of assisted living or skilled nursing facilities in those communities.

SUMMARY

Accidental injury is a leading cause of non-fatal injuries treated in emergency rooms. Patients age 65+ are the age group that most often require admission to the hospital due to a fall.

Mortality due to a fall declined among seniors in Lake County from 3.97/1,000 deaths in the years 2000-2003 to 2.2/1,000 in 2010. Deaths due to falling are still a significant component of deaths due to accidental injury.

Emergency room visits due to falling increased every year from 2009 to 2012 and increased every year for all ages 65 and older and for both males and females. The greatest number of fall related ER visits is for patients age 75-84. ER visits for females occur about twice as frequently as visits by males.

The number of admissions to the hospital due to a fall have not changed significantly from 2009-2012. Patients age 75 and older had the greatest increase in hospital admissions. Nearly twice as many females were admitted compared to males. While 60-70% of people who were admitted due to a fall were injured in their home, they were often not discharged back to their home; 50-55% of patients were discharged to a skilled nursing or rehabilitation facility.

Comparisons between past censuses (1980, 1990 and 2000) demonstrated a large percentage increase in the oldest of the elderly population, particularly females. A comparison of the 2000 census to the 2010 census for Lake County suggests that the growth of the elderly male population is beginning to equal the growth of the female population. A demographic change that is just beginning and will become more pronounced in the future is the entry of the baby boom generation into the 65+ age category. From 2000 to 2010 the 65-69 population increased by a larger percentage than the older age groups for the first time with the number of males growing by 53.4% and the number of females growing by 46.1%.

Females age 65 to 85 have slightly higher rates of requiring emergency services or admission to a hospital due to a fall when compared to males. At age 85+, male use of emergency services and inpatient hospital care due to a fall exceeds females.

A geographic comparison for falls frequency indicates five communities, Waukegan, Round Lake, Barrington, Highland Park, and Grayslake have high frequencies of ER visits due to falling and for admissions to the hospital. Vernon Hills and Zion have high rates of ER visits and hospital admissions due to falling.

In 2012 the median charge to treat an elderly resident of Lake County in the emergency room was $3,943 and the total cost was $23,044,902. The median charge for a patient admitted to the hospital due to a fall was $36,200 and total cost was $98,464,858. These hospital charges do not include the continuing expense of the 50-55% of seniors who require post-discharge care in a skilled nursing or rehabilitation facility.

THE LAKE COUNTY FALLS PREVENTION TASK FORCE

Since the initial meetings between the LCHD/CHC and the five area hospital trauma coordinators, there have been concerted efforts to broaden collaboration by involving a wide representation of organizations and programs that assist Lake County seniors by reducing their risk of falling and helping to prevent falls.

Injury due to falling is the number one source of accidental injury deaths among seniors and the number one cause of accidental injury admissions to a hospital. The Lake County Falls Prevention Task Force collects and analyzes available data regarding the frequency, scope, and impact of falls on Lake County seniors. The Task Force has reviewed literature and studies on the evidence base of fall prevention and reduction interventions. The Task Force promotes falls prevention interventions particularly among community-dwelling adults.

The goals of the Task Force have been to:

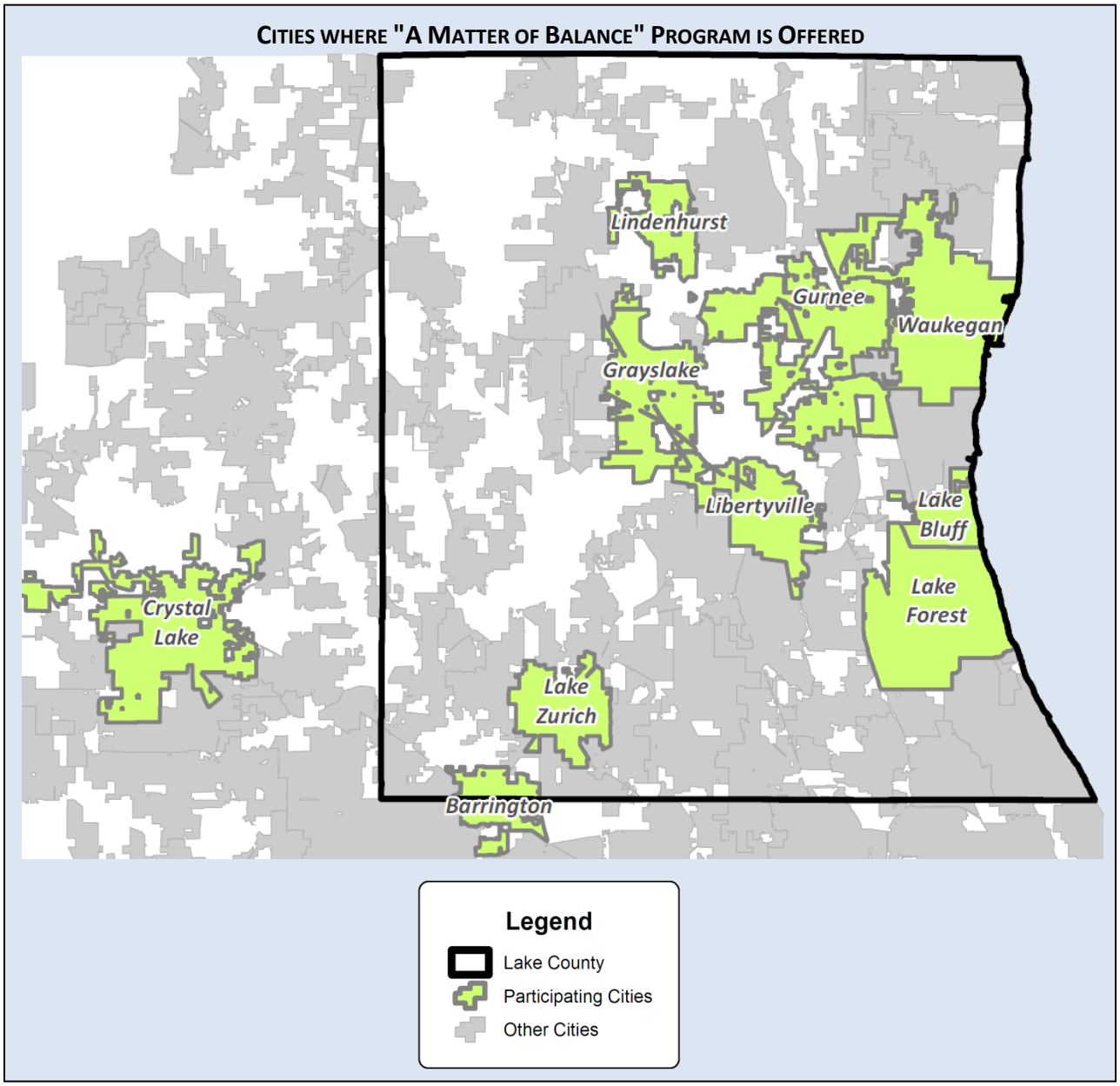
- Evaluate evidence-based interventions that are proven effective in reducing falls;
- Promote the sponsorship of programs and services that have demonstrated effectiveness;
- Document the scope, impact, and trends of injuries due to falls for Lake County senior residents through data collection and publications;
- Encourage collaborative efforts and provide linkages to resources; and
- Provide educational materials regarding reducing the risk of falls to the general public and to specific audiences.

In accomplishing these goals considerable progress has been made through the voluntary contributions from Task Force members and participating organizations. Among the accomplishments are:

- A Matter of Balance (AMOB) programs have been offered regularly throughout the year in several communities: Waukegan, Lindenhurst, Gurnee, Lake Forest, Grayslake, Libertyville, and Barrington;
- Training of facilitators for the A Matter of Balance program has been sponsored by Northwestern Lake Forest Hospital and Advocate Good Shepherd Hospital. Advocate Good Shepherd Hospital is training facilitators for the lay-lead model of AMOB;
- Educational presentations have been made to groups in communities throughout the county and to organizations such as the Senior Services Coalition;
- Falls prevention training materials were developed at the request of non-medical, in-home care provider agencies for the continuing education requirements of their staff;
- Representatives of the Task Force made a presentation at the 6th annual Advocate Injury Institute Symposium;
- Falls awareness articles have appeared in local newspapers and the Chicago Tribune;

- A falls prevention page was added to the Lake County Health Department homepage featuring educational brochures that can be downloaded, falls data for Lake County hospital admissions and ER visits due to a fall; and
- Students at Rosalind Franklin University developed evidence-based modules on falls prevention topics that can be used to increase capacity to provide falls prevention information.

Sponsorship of the "A Matter of Balance" programs, both clinical and lay-lead, are regularly presented in communities throughout the county, and in Crystal Lake.



An evaluation was conducted with participants in AMOB programs in 2013 to determine if the program was having the desired impact of reducing fear of falling, increasing participants' ability to avoid falling, reduce self-imposed activity restrictions as a way of avoiding falls, and increase physical activity. The evaluation results will continue to be compiled, but the results of the initial summary of data were:

A Matter of Balance Evaluation Results			
QUESTION	**Pre**	**Post**	**% Change**
Percent who answered "Sure" or "Very Sure"			
I can find a way to get up if I fall	50.0%	81.0%	31.0%
I can find a way to reduce falls	60.8%	90.4%	29.6%
I can protect myself if I fall	42.9%	66.7%	23.8%
I can increase my physical strength	72.6%	90.5%	17.9%
I can become more steady on my feet	63.1%	84.6%	21.5%
Percent who said that fear of falling had interfered with their activities "Extremely" or "Quite a Bit"	14.3%	10.7%	-3.6%
Percent who say they do moderate exercise ≥ 3 Times/week	45.2%	60.7%	15.5%

N=84

These preliminary results indicate that the AMOB program helps people avoid reducing their normal activities as a means of reducing risk of falling. The results also indicate that the program does help them increase their steadiness, their physical strength, and the amount of time they exercise.

There are still communities that have high frequency and/or high rates of injury due to falls that would benefit from sponsorship of programs such as A Matter of Balance. Efforts to reduce falls in communities such as Vernon Hills, Highland Park, Deerfield, and Round Lake could have substantial benefits for reducing the trend of increasing ER visits due to falls, and to prepare our communities for the demographic challenges of an increased number of residents age 75 and older. Partnerships and local sponsorships of specific falls reduction topics developed by the students and faculty at Rosalind Franklin University will offer residents information on ways to reduce risk of falling without committing to an 8 session A Matter of Balance program.

The combined experience of Task Force members who have sponsored and taught falls prevention programs is also an available resource to any organization needing technical assistance or advice to expand and improve falls reduction resources in their own communities.