

## Queens Healthcare Profile

The New York State Department of Health (DoH) prepared this overview of the current and projected healthcare environment in Queens County, New York based on utilization patterns, projected population trends, and the potential impact of recent hospital closings. The borough-wide account and our near-term projections provide relevant background information to consider the role of Article 28 facilities in shaping the future of acute care and outpatient primary and specialty care in light of recent health system changes.

### Population Characteristics

The current and projected population of Queens has an obvious bearing on the borough's healthcare needs. The Census Bureau's latest county estimates set the 2008 population of Queens at about 2,293,000 or 27% of New York City<sup>1</sup>. The latest estimates by age (2007) show a smaller percentage of Queens residents under age 20 and a larger percentage over age 50, compared to New York City at large (24% vs. 26% and 31% vs. 29%, respectively). The same source shows that Asians are a much larger proportion of Queens than they are of the city at large (21% vs. 12%) and that non-Hispanic Whites and African-Americans are smaller proportions of Queens than they are of the city at large (31% vs. 35% and 19% vs. 24%, respectively).

*Its 2.3 million residents are older, more Asian, more foreign-born, but less poor than NYC.*

Results from the Census Bureau's recent American Community Survey (2005-2007) highlight the fact that Queens residents are more likely to be foreign-born and more likely to speak a language other than English, compared to New York City, New York State, or the nation. The same source shows the poverty rates for persons and for families are about one-third lower in Queens than they are in the city at large, roughly equaling statewide rates.

When mapped by ZIP code, the estimated Queens population density is greatest in the northwestern communities of Elmhurst and Astoria, and extending east toward Flushing and southeast toward Jamaica. Hispanic population density is focused around Elmhurst; Asian population density is also focused there and in Flushing; and the African-American population is concentrated in the southeastern third of the borough.

### Projected Population Growth

The Census Bureau estimates that the Queens population grew by 2.8% (about 64,000 people) between 2000 and 2008, while New York City overall grew by 4.3% and New York State increased by 2.6%. The growth represents the net effect of births, deaths, foreign migration and migration within the US. The net percentage gain from foreign migration (11% of the

*Foreign and domestic migration are shaping the Queens population.*

<sup>1</sup> In the text, numbers over 100,000 are rounded to the nearest thousand; those under 100,000 and more than 1,000, to the nearest hundred. Percentages in the text have been rounded to the nearest whole number, unless doing so exaggerates a comparison (for example, by rounding 2.4% to 2% and 2.6% to 3%).

2000 population) and the net loss from domestic migration (18%) were larger in Queens than they were in the city at large or in the state.

The Queens population is expected to increase over the next decade, although the magnitude of the projected change differs between the two principal estimates. The New York State Data Center (NYSDC) projects an 8% increase in the Queens population between 2005 and 2015, while the New York City Department of City Planning (NYCDCP) foresees a 4% increase over that period. NYSDC projects a population of about 2,440,000 by 2015, while the NYCDCP projects about 2,337,000.

<i>Projections of the 2015 Queens population differ by 4% and diverge for the very elderly.</i>	NYSDC		NYCDCP	
	2005	2015	2005	2015
All	2,256,600	2,440,000	2,254,600	2,336,500
Under 50	1,611,300	1,664,200	1,625,900	1,632,700
Age 50 to 79	566,000	694,900	555,700	640,800
Age 80+	79,300	80,900	73,000	63,000

Although the two projections differ by only 4% overall, they diverge notably for the elderly. The NYSDC projects a 23% increase in the 50-to-79 age group, while the NYCDCP projects a 15% increase – resulting in a projected difference of about 54,100 in that age group. The difference is more striking for those age 80 and older, where the NYCDCP foresees a 14% decline – resulting in a projection that is about one-fourth lower than the NYSDC projection.

Using both sets of projections provides some boundaries for the likely trends in Queens healthcare needs, especially on age-sensitive issues like preventable hospitalizations.

### Inpatient Characteristics

In 2007, there were about 228,700 inpatient discharges from hospitals located in Queens. Excluding healthy newborns, about 206,200 discharges with an average length of stay of

*Queens hospitals saw 228,700 inpatients in '07. Excluding newborns, the ADC was 3,388 or 76% of licensed beds.*

6 days created an average daily census of 3,388 patients, occupying 76% of the 4,433 licensed beds in the borough. About 62% of all inpatient discharges at Queens hospitals (including the newborns) involved medical-surgical cases, and 12.5% were obstetrical. Psychiatric and chemical dependency patients accounted for 8% of discharges, while pediatric, high-risk neonates, and healthy newborns accounted for the remainder. In 2007, there were 193 licensed beds per 100,000 people in Queens (compared to 251 per 100,000 in Brooklyn).

	<u>Discharges</u>	<u>% of All</u>	<u>ALOS</u>	<u>ADC</u>	<u>Lic Beds</u>	<u>Occ Rate</u>
Medical/Surgical	141,381	61.8%	5.9	2,273	3,090	73.6%
Pediatric	14,924	6.5%	3.3	134	220	60.9%
Obstetric	28,643	12.5%	3.0	236	261	90.4%
General Psychiatric	10,805	4.7%	18.5	549	619	88.7%
Chemical Dependency	7,755	3.4%	4.7	99	98	101.0%
High Risk Neonates	2,659	1.2%	13.3	97	145	66.9%
<b>Subtotal:</b>	<b>206,167</b>	<b>90.1%</b>	<b>6.0</b>	<b>3,388</b>	<b>4,433</b>	<b>76.4%</b>
Healthy Newborns	22,566	9.9%	2.6	163	---	---
<b>All:</b>	<b>228,733</b>	<b>100.0%</b>	<b>5.7</b>	<b>3,551</b>	<b>---</b>	<b>---</b>

Based on information reported to SPARCS, the Medicare and Medicaid programs were the payors for most of the inpatients at the Queens hospitals in 2007. Medicaid (FFS and HMO's) covered 33% of discharges and Medicare (including Medicare HMO's) covered 31%. Commercial coverage accounted for 30% of discharges, and 10% were identified as self-pay, often regarded as a measure of the uninsured. A reported 71% of these patients were discharged to home, with 10% discharged to a nursing home or other long-term care facility and 8.5% discharged to home care.

Of course, the hospitals located in Queens serve residents of other locales and some of the Queens population is served by hospitals outside of the borough. In 2007, Queens residents accounted for 86% of the medical-surgical discharges at hospitals located in

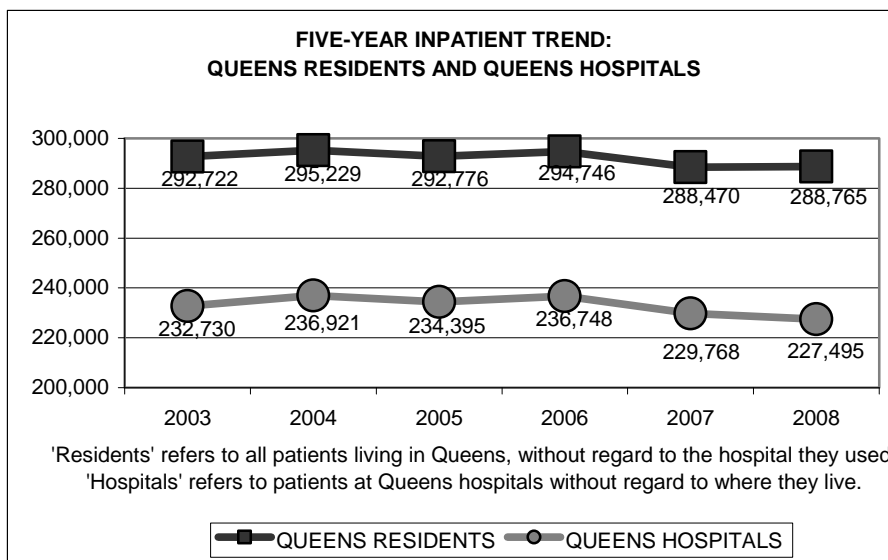
*86% of medical-surgical patients seen at Queens hospitals were borough residents, but 36% of med-surg patients from Queens went to hospitals outside the borough.*

Queens. The remaining 14% included 7% from Nassau or Suffolk counties and 4% from Brooklyn. On the other hand, only 64% of Queens residents who were medical-surgical inpatients in 2007 were admitted to a hospital in Queens. About one-fourth of the other 36% were admitted to two hospitals just outside of the borough (North Shore and Wyckoff Heights). The remaining 25% out-of-county admission rate (beyond the two border hospitals) is similar to that found in Brooklyn(22% out-of-county). Similarly, 31% of obstetrical

patients, 48% of pediatric patients and 29% of psychiatric patients living in Queens were admitted to hospitals outside of the borough in 2007.

### Projected Inpatient Growth

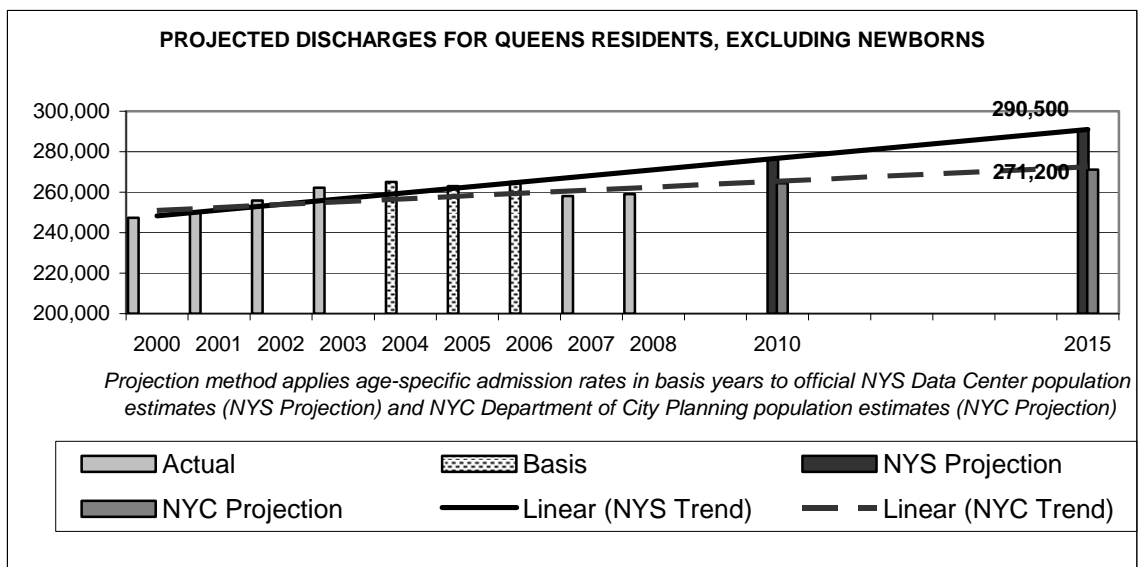
Whether measured by hospitals located in Queens or by hospitalized Queens residents, there has been little change in total inpatient discharges reported to SPARCS over the five-year period from 2003 through 2008. A portion of the reported decline in 2007 and 2008 is attributable to reductions at three hospitals that closed in 2008 and 2009, but the data may also reflect reporting discrepancies at a few hospitals.



The five-year trend in admissions at Queens hospitals varied somewhat by age, but the patterns tended to offset across age groups (for example, the decrease among 20-to-44-year-olds was offset by a similar increase among 45-to-64-year-olds). The trend in average daily census at Queens hospitals varied somewhat by service category, as declines were registered after 2006 for medical-surgical, pediatric, and “other” patients, while the census of psychiatric and obstetrical patients remained steady or increased slightly after 2006.

To forecast trends and estimate bed need over the next decade or so, DoH created a “baseline” projection of admissions among Queens residents through 2015, using age-specific admission rates in 2005 (based on SPARCS data for 2004-2006). Applying those age-specific rates in the base period to the population projections described above yields an estimate of about 270,000 to 290,000 inpatient admissions for Queens residents in 2015 (excluding newborns). That is an increase of between 2.6% and 9.9% of the annual admissions in the base period 2004-2006. If the average length of stay remained around 6 days, the 2015 projection would be an average daily census of 4,400 to 4,800 inpatients who are Queens residents.

*Applying age-specific '04-'06 admission rates DoH estimates that the number of inpatient admissions by Queens residents would increase 3% to 10% by 2015.*

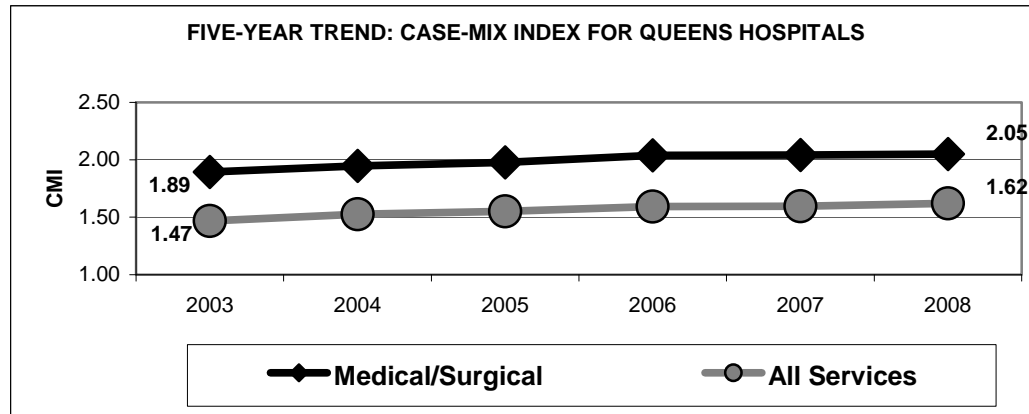


In 2007, the total number of discharges at hospitals in Queens was about 80% of the number of statewide discharges involving Queens residents. Thus, the above projected daily census for Queens *residents* suggests a projected daily census of 3,500 to 3,800 at Queens *hospitals* in 2015. To accommodate that inpatient volume, we estimate the hospitals would need between 4,300 and 4,600 beds.<sup>2</sup>

<sup>2</sup> To estimate bed need, we divide the daily census (3,500 to 3,800) by an occupancy rate. Planning occupancy rates vary by service, from 70% to 90%. Using an 80% standard across services, bed need ranges from 4,400 to 4,800; using an 85% standard, bed need ranges from 4,100 to 4,500. Our estimated 2015 bed need of 4,300 to 4,600 reflects the mid-points of those two ranges.

That would require about 535 to 835 beds more than those available after the recent closings. However, two factors are likely to divert this “baseline” projection and possibly reduce the 2015 bed need. The first is the prospect for continued decline in average length of stay at Queens hospitals, and the second is the potential reduction in preventable hospitalizations in the borough. Their potential effects are examined below, but a contrary trend, the increasing “acuity” or case mix of the borough’s inpatients, may complicate projections, as it is linked to length of stay and preventable hospitalizations.

*Absent other changes, Queens hospitals would need about 535 to 835 additional beds in 2015.*



### Reducing Inpatient Bed Need by Targeting ALOS

Using a regression analysis of length of stay, DoH modeled the average length of stay (ALOS) *predicted* at each Queens hospital if it performed like other hospitals of its type (academic, large public, etc.) after taking account of patient characteristics, payor, case mix, the source of admission (emergency department, transfer, etc.), urgency and other factors. DoH then determined a hospital’s “excess” patient days (if any) by multiplying the difference between its observed and predicted average length of stay by its discharges in 2006. An alternative measure of excess days was derived as the difference between the hospital’s average length of stay and the median for hospitals of the same type.

*Using a regression model to predict patient length-of-stay, DoH estimates that 7 Queens hospitals had an 8% ‘excess’ in patient days.*

Among about 148,600 discharges at the ten “continuing” hospitals (that is, excluding the closed facilities), the average length of stay was 4.97 days, or about 5% greater than the 4.73 days predicted by the model. The observed value was below the predicted value at two hospitals and equal to it at another<sup>3</sup>, leaving seven as candidates for potential reduction. Among them, the average length of stay was 5.08, about 8% higher than the 4.69 predicted by the model.

Applied to the 111,900 discharges at those hospitals, this difference translates into 43,900 patient days or an average daily census of 120. The alternative “savings” if each of the

<sup>3</sup> The observed ALOS at Jamaica Hospital equaled the predicted value; at Queens Hospital, it was 2% below the prediction; and, at Mt. Sinai Queens, it was 12% below the predicted ALOS.

seven hospitals reduced its ALOS to the median observed for its peer group was 41,100 patient days or 113 beds.

**"EXCESS" DAYS AT THE 7 QUEENS HOSPITALS THAT EXCEEDED  
PREDICTED LENGTH OF STAY, UNDER TWO TARGETS**

TARGET = PREDICTED		TARGET = PEER GROUP	
[If hospital ALOS were reduced to that predicted for similar patients]		[If hospital ALOS were reduced to median predicted for similar hospitals]	
Excess Days	Hospital Beds	Excess Days	Hospital Beds
43,892	120	41,115	113

These historical results can be applied to the above 2015 projections as follows. The seven hospitals that exceeded their predicted ALOS handled 75% of discharges at the ten Queens hospitals that will continue to serve patients. If they achieve the 8% reduction in ALOS to reach their predicted values and the others remain where they are, the net effect would be an overall 6% reduction in ADC borough-wide. Applying that 6% reduction to the above projected 2015 need for 4,300 to 4,600 inpatient beds at Queens hospitals means a “savings” of about 265 beds.

*If these seven hospitals eliminated the ‘excess’, the system would save the equivalent of about 265 beds in 2015.*

### **Reducing Inpatient Bed Need by Targeting PQI’s**

Another way to lower projected bed need is by reducing preventable hospitalizations. There were 28,200 preventable hospitalizations among Queens residents in 2006, using the federal Prevention Quality Indicators (PQI’s) to define such events. Taking account of the age structure in Queens, that number is somewhat less than the number expected if Queens residents were hospitalized at the same rate as the state at large.

*Overall, preventable hospitalizations are less likely in Queens, but diabetes-related and a few other hospitalizations offer opportunities to conserve hospital beds.*

Queens residents are slightly *more* likely than NYS residents overall to experience a preventable hospitalization for a condition related to diabetes. Hospitalizations for uncontrolled diabetes and short-term complications of diabetes are well above statewide norms. As is true elsewhere, hospitalizations for congestive heart failure, bacterial pneumonia, and urinary tract infections account for just over half of the preventable hospitalizations in Queens.

Cluster:	Number of PQI Events	Ratio to Expected	Selected PQI's	Number of PQI Events	Ratio to Expected
ALL	28,191	90%	Congestive Heart Failure	6,019	80%
			Bacterial Pneumonia	5,198	83%
Diabetes	5,017	103%	Urinary Tract Infection	3,027	103%
Circulatory	8,278	87%	Diab: Short-Term Complic.	2,854	106%
Acute	9,794	88%	Uncontrolled Diabetes	833	125%
Respiratory	5,102	85%	Hypertension	1,407	129%

A strategy to reduce PQI hospitalizations could rely on well-tested interventions addressing the underlying conditions (like diabetes and obesity) or target specific clusters

of patients (as part of discharge planning). Regardless of the selected approach, the PQI's that offer the most opportunity for reducing hospital bed use are probably those that have longer lengths of stay or that affect a larger share of patients. A profile of PQI's at Queens hospitals shows that such conditions would include diabetic amputations (with an ALOS of 17.8 days), long-term complications of diabetes (ALOS of 7.5 days) and COPD (6.4 days), in addition to the three high-volume conditions above.

As the population of Queens ages, the need to address and opportunity to address preventable hospitalizations will increase. To examine the near-term implications of an

*An aging population may mean 2% to 13% more Queens PQI's by 2015.*

aging population on PQI's DoH applied the projected population change for Queens age groups to the number of PQI's in that age group in 2006. Recalling that the projections of NYSDC and NYCCDP differ considerably for the elderly population in Queens, two PQI estimates were derived. Overall, the NYSDC projections lead to an expected 13% increase in PQI's between 2005 and 2015, while the projections of NYCCDP result in an expected 2% increase. Results diverge considerably for some PQI's among over age 80.

Two unresolved questions regarding the potential savings from PQI reduction strategies

*A 20% reduction in six common PQI's could save 60 beds in Queens by 2015.*

are (1) how much change can be effected over (say) a ten-year period, and (2) how much increase in primary care and outpatient specialty care is needed to achieve that. DoH continues to examine those important questions. As an indication of potential savings, if the six PQI's identified in the above table were reduced by 20%, and assuming a projected 20% growth in PQI's under the NYSDC projections, 60 Queens beds could be saved by 2015<sup>4</sup>.

### **Emergency Department Use in Queens**

In 2008, there were about 576,000 visits to Emergency Departments (ED) at the ten hospitals in Queens that are continuing to operate. That level was about 6% higher than in 2006.<sup>5</sup> With 361 ED bays, the 2008 volume corresponds to about 1,596 annual visits per

*ED visits grew by 6%, admissions 14%, and the admission rate 8% from 2006 to 2008.*

bay. Across the ten hospitals, that volume exceeds the planning standard of 1,500 annual visits per bay. Four hospitals in particular pushed the average above 1,500: Queens Hospital (1,701 annual visits per bay), Elmhurst Hospital (2,052 visits), Jamaica Hospital (2,351 visits) and New York Hospital (2,825 visits per bay). Borough-wide, the ten hospitals received 1,575 visits per day in 2008, and admitted 340 of them, a 14% increase in admissions from 2006. Four hospitals drove that increase: New York Hospital (up 43% in two years), Queens Hospital (up 42%), Elmhurst Hospital (36% increase), and Long Island Jewish (24% increase). Admissions per 1,000 ED visits

<sup>4</sup> The six PQI's represent those with the greatest frequency or rates that are most in excess of expectations, which may be most amenable to intervention. They accounted for over 100,000 inpatient days at Queens hospitals in 2006, and saving 20% of them would have freed about 56 beds in 2006. With projected 2% to 13% increases from an aging population, this could be 60 beds by 2015.

<sup>5</sup> We compared 2008 to 2006 because the data for 2007 showed an increase that was largely reversed in the next year.

rose by 8% between 2006 and 2008, from 200 per 1,000 to 216 admissions per 1,000 visits.

	EMERG DEPT VISITS 2008	VISITS PER BAY 2008	VISITS PER DAY 2008	% CHANGE 2006-2008	ED ADMISSIONS PER DAY 2008	% CHANGE 2006-2008	ADMISSIONS PER 1,000 VISITS 2008	% CHANGE 2006-2008
ALL	576,044	1,596	1,574	6.0%	340	14.3%	216	7.9%
ELMHURST	116,939	2,052	320	1.3%	49	36.2%	153	34.6%
FLUSHING	41,467	1,481	113	-3.7%	32	-9.0%	283	-5.8%
FOREST HLS	31,289	1,117	85	5.6%	26	-4.2%	301	-9.9%
JAMAICA	110,486	2,351	302	1.7%	52	-0.8%	171	-2.4%
LI JEWISH	66,063	1,066	181	21.5%	47	23.6%	262	2.1%
MT SINAI QUEENS	29,502	1,229	81	84.5%	25	-5.5%	311	-48.5%
NY HOSPITAL	84,750	2,825	232	13.3%	62	43.1%	269	26.5%
PENINSULA	21,851	1,214	60	2.1%	13	-6.9%	212	-8.4%
QUEENS	61,242	1,701	167	-2.6%	33	42.2%	199	45.8%
ST JOHNS EPISC	12,455	402	34	-27.6%	1	-40.8%	41	-18.3%

We applied a procedure developed by John Billings at NYU to classify as “appropriate” or “inappropriate” ED visits that do not involve injuries, mental health, or alcohol and substance abuse. About 62% of ED visits to Queens hospitals in 2007 were codable using this approach. Nearly two-thirds of those (41% of all ED visits) were inappropriate. Roughly half of the inappropriate visits involved non-emergent conditions, and the other half were treatable through primary care providers. The other third of the coded visits (21% of all

*About 41% of ED visits to Queens hospitals in 2007 were not ‘emergencies’.*

Queens ED visits) were considered appropriate because they were both emergent and required ED care. However, about a third of those appropriate visits involved conditions that are preventable or avoidable. Thus, only one in five ED visits that did not involve injuries or implicate mental hygiene were considered to be non-preventable emergencies that required ED-level care.

		ED Visits	%	
INAPPROPRIATE	Non Emergent	110,924	19.4%	
INAPPROPRIATE	Emergent / Primary Care Treatable	121,714	21.5%	<b>40.9%</b>
APPROPRIATE	Emergent / ED Care / Avoidable	45,789	8.3%	
APPROPRIATE	Emergent / ED Care / Unavoidable	68,637	12.5%	<b>20.8%</b>
SPECIAL	Injury	93,659	16.4%	
SPECIAL	Mental Health Related	24,014	4.2%	
SPECIAL	Alcohol Related	10,753	2.0%	
SPECIAL	Drug Related	2,161	0.4%	
SPECIAL	Not Classified	86,043	15.4%	<b>38.3%</b>
TOTAL		563,694	100.0%	100.0%

The ten most frequent diagnostic categories account for 37% of ED visits among patients who were treated and released at Queens hospitals in 2007. About 7.5% involved “other respiratory infections”, 4.7% involved superficial injury or contusion, and 4.5% involved viral infections. Other notable categories were sprains, “other injuries due to external causes”, and abdominal pain (each accounting for 3% to 4%), followed by asthma,



spondylosis, otitis media, and gastroenteritis (each accounting for 2% to 3%). Seven of the top ten are among the top ten diagnoses for all ED visits in the state.

### Other Resources: Clinics and Physicians

There are 75 primary care clinics, 54 pediatric clinics and 6 ambulatory surgical centers located in the borough. Institutional Cost Reports show that Queens hospitals handled

*Hospitals in Queens handled 2.2 million clinic visits in 2007, about 6% fewer than in 2003.*

about 2,217,000 patient visits for clinical services in 2007, about 6% lower than in 2003. Just over 60% were categorized as general clinic visits. Mental health services (including CPEP) accounted for about 16%, followed by referred ambulatory and ambulatory surgery (about 11%), methadone maintenance and alcohol services (3%), renal dialysis (2%), oncology/chemotherapy (under 2%) and HIV clinic (under 1%).

The largest percentage increases in hospital-based clinic services from 2003 to 2007 involved referred ambulatory services, which grew by 49% to about 153,000 procedures, and oncology/chemotherapy, which grew by 40% to about 35,200 visits. The largest percentage declines involved methadone maintenance, which dropped by 46% to about 149,000 visits and renal dialysis, which dropped by 30% to about 42,000 visits.

	<b>General Clinic</b>	<b>Referred Ambulatory</b>	<b>Amb-Surg Procedures</b>	<b>Mental Health</b>	<b>CPEP Visits*</b>
<u>All Queens Hospitals</u>	<u>(60.5%)</u>	<u>(6.9%)</u>	<u>(3.9%)</u>	<u>(15.9%)</u>	<u>(0.5%)</u>
2007	1,340,372	152,781	86,127	353,474	11,859
Change from 2003*	-2.2%	48.8%	3.5%	-9.3%	-3.2%
	<b>Methadone Maintenance</b>	<b>Alcohol Services</b>	<b>Renal Dialysis</b>	<b>Oncology/Chemo</b>	<b>HIV Clinic*</b>
<u>All Queens Hospitals</u>	<u>(6.7%)</u>	<u>(1.2%)</u>	<u>(1.9%)</u>	<u>(1.6%)</u>	<u>(0.8%)</u>
2007	149,065	27,591	42,005	35,159	18,640
Change from 2003*	-45.6%	1.6%	-29.6%	39.8%	6.8%

\* 2004 was used for CPEP and HIV Clinic change because 2003 had low volume.

Institutional Cost reports for free-standing diagnostic and treatment centers (D&TC's) in Queens show they handled about 527,000 patient visits in 2007, about 7% more than the value reported for 2003. About half of them were categorized as primary care visits (266,000), with the majority involving renal dialysis (242,000) and about mental health visits (17,000). The number of primary care visits reported by D&TC's in Queens declined by about 14,000 or 5% between 2003 and 2007.

*Diverting ¼ to ½ of the ED visits identified as inappropriate or avoidable would require 2.5% to 5% more clinic capacity, but reduce costs.*

Combining the above clinical service figures for hospital-based and free-standing facilities, we see that clinics in Queens handled about 2.76 million visits in 2007. In the previous section, we characterized about 280,000 emergency department visits at Queens hospitals either as inappropriate or as appropriate but avoidable. If one-fourth to one-half of those ED visits could be diverted to clinics, the 70,000 to 140,000 additional clinic visits would represent a 2.5% to 5% increase over the 2007 levels. However, we might expect substantial savings

from that diversion, given the differential costs of ED and clinic visits and the different capital costs associated with adding ED capacity and adding clinic capacity.

Other data on 300,000 fee-for-service Medicaid patients show that about two thirds of their 860,000 primary care visits in 2008 involved providers located in the borough.

*With 4,100 FTE physicians in active patient care, Queens has about half as many FTE's per 100,000 people as NYC.*

The Center for Health Workforce Studies estimates there were about 4,600 active patient-care physicians practicing in Queens in 2007, representing about 4,100 full-time-equivalent (FTE) physicians, or 181 FTE's per 100,000 population. That figure is roughly half of the value for the city at large, where there were 332 FTE's per 100,000 people and less than Brooklyn (234 per 100,000). The FTE's per 100,000 grew by 4% in Queens from 2003 to 2007, comparable to the 5% increase for the city at large. In terms of FTE's per 100,000, the Queens physician supply grew 12% for internal medicine specialties and 11% for psychiatry, from 2003 to 2007. FTE's per 100,000 remained the same for surgical specialties, declined by 5% for general surgery, and declined by 4% for obstetrics/gynecology in that four-year period.

Of course, the borough or citywide supply of physicians (as FTE's per 100,000 people) can obscure important differences in their geographic distribution and the resulting availability to residents. Earlier work by the Center shows that Queens has the *smallest* percentage of people living in a federally designated Primary Care Health Professional Shortage Area: 16%, compared to 39% for the city at large and 47% in the neighboring borough of Brooklyn.

Earlier (2006) estimates from the Center documented considerable geographic variation in physician supply across neighborhoods within Queens. Using neighborhoods defined by the United Hospital Fund, the number of FTE primary care physicians ranged from 48 FTE's per 100,000 population in Southeast Queens to 132 FTE's per 100,000 population in the Flushing/Clearview area. For all active patient-care physicians, the range was from 90 per 100,000 in the former location to 306 FTE's per 100,000 in the latter. Thus, some areas within the borough are close to or above the citywide values for physician supply, which were 118 FTE's per 100,000 for primary care and 332 for all active patient-care physicians.

The same analysis shows that Queens is second to Staten Island among the boroughs in the percentage of active patient-care physicians who practice in private settings, as opposed to hospitals, clinics, etc.: 66%, compared to 57% citywide. Within the borough, that percentage ranges from 40% of physicians in Jamaica to 90% of physicians in the Fresh Meadows neighborhood.

### **Implication of Recent Hospital Closings**

In late-2008 and early-2009, Parkway Hospital, Mary Immaculate Hospital, and St. John's Hospital ceased operations. These closures require a restructuring of the Queens healthcare system to accommodate the patients who would have used these facilities. In 2007 about 8% of medical-surgical patients living in Queens went to one of these hospitals: about 14,000 patients. The other 10% of medical-surgical admissions to these three hospitals (about 1,600) involved patients living outside of Queens, with 947 coming

*The three recently closed hospitals served about 8% of Queens medical-surgical patients in 2007.*

from Brooklyn. Similar results are observed for other service categories. About 3% of obstetrical patients living in Queens, 6% of Queens pediatric patients, and 3% of Queens psychiatric patients were seen at these three hospitals in 2007. Correspondingly, 15% of the obstetrical patients seen at these hospitals, 10% of their pediatric patients, and 29% of their psychiatric patients came from outside of the borough.

In 2007, these three hospitals accounted for about 8,000 ED visits, and about half of them resulted in an admission. (Preliminary data for 2008 suggest higher overall numbers and a higher admission rate in that year.) Among those patients treated and released in 2007, about 90% were residents of Queens.

### **Projected Resource Needs**

The above overview of current and projected utilization of the borough's Article 28 facilities leads to the following projected needs. Productively addressing these needs will require a balance of inpatient and outpatient resources whose development must support ongoing efforts to avoid preventable hospitalizations, improve chronic disease management, and reduce length-of-stay.

Our analysis suggests a need for 535 to 835 inpatient beds in Queens by 2015 beyond those remaining after the recent closings. That projected need could be reduced to a range of 210 to 510 beds if the above goals for reducing the average length of stay and reducing preventable hospitalizations were realized. With 160 beds in previously planned expansions, we project a need for about 50 to 350 additional inpatient beds to meet the 2015 requirements. Hospitals exceeding the planning standard of an 85% occupancy rate are clear candidates for relief.

We found that the 576,000 ED visits to Queens hospitals in 2008 exceeded the planning standard of 1,500 visits per ED bay. In the two years from 2006 to 2008, ED visits grew by 6% and ED admissions grew even faster: 14% over two years. Our analysis projects that several hospitals in Queens will experience ED volume in excess of the planning standard even after taking account of planned additional capacity. On the other hand, almost half of all ED visits (and about 80% of those that do not involve injury or mental hygiene conditions) may be either inappropriate or avoidable. Their reduction could offset any additional ED needs, but that might require additional clinic capacity equal to about 2% to 5% of current clinic visits.

We estimated the borough's overall need for additional primary care (clinic) capacity in two ways that yielded similar conclusions. Overall, we project that a 20% to 24% increase in primary care capacity would allow the borough to reduce by half the number of residents who are without a primary care provider. In New York City's annual health survey, an estimated 410,000 adults in Queens reported they did not have a regular health care provider. That number is 31% of the number who report having such a provider. Thus, halving the residents without a primary care provider would require a 15.5% increase in primary care resources borough-wide. Combined with population growth of

4% to 8% by 2015, we project that the borough would need to increase primary care capacity by about 20% to 24% in order to reach such an improvement.

We obtained a similar estimate of primary care needs based on population-to-physician ratios. The Center for Health Workforce Studies reports 75 active, full-time-equivalent primary care physicians per 100,000 of population in Queens. To bring that ratio up to its statewide value of 90 per 100,000 would require a 20% increase in primary care physicians. Combined with population growth, that suggests a need for 25% to 30% more primary care physicians in Queens by 2015.

Both estimates reflect borough-wide aggregate need, a significant portion of which can be met by increasing the capacity of Article 28 facilities. Our aggregate approach does not include the additional clinic capacity (both primary care and outpatient specialty care) that would be required to realize reductions in preventable hospitalizations and to conduct an effective program of chronic disease management. In addressing those and other concerns, increasing the capacity of Article 28 facilities for primary care and outpatient specialty care is an important component.