2000

The Health Care Workforce in New York City

Trends in the Supply of and Demand for Health Workers in New York City

CHWS
Center for Health Workforce Studies
School of Public Health
University at Albany, State University of New York

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PREFACE

In 1998, the Center for Health Workforce Studies (the Center) began the development of the New York City Health Workforce Tracking System in response to the need for a better understanding of trends in the supply and demand for health workers in NYC. The Tracking System collects and analyzes data to help health workforce planners and policy makers. In 1999, with continued principal support from the 1199 Hospital League Health Care Industry Planning and Placement Fund, Inc., the Center continued to develop and enhance the NYC Health Workforce Tracking System. The Fund is a joint labor management fund responsible for the education and training of health workers in hospitals, nursing homes and other settings. The Center also receives support from the Bureau of Health Professions, Health Resources and Services Administration, for its analysis of health workforce data and trends.

Thus far, over 20 different data bases have been identified and reviewed as potential contributing sources to the Tracking System. Data from most of these sources have been collected, and substantial analyses have been conducted on the core data sets. These include the Department of Labor's *Covered Employment and Wages* data (also known as the *ES-202* data) and the Department of Health's *Institutional Cost Reports.* Gaps and deficiencies in these and the other data sources have been identified. The *First Annual Report* summarized the initial efforts at integrating these data sets and provided some recommendations for future integration efforts, and made proposals for additional original data collection to help the Tracking System fulfill its potential. This report updates the Tracking System's progress in pursuit of these endeavors.

The Center for Health Workforce Studies is located at the School of Public Health, University at Albany, State University of New York. The Center is a not-for-profit research organization dedicated to health workforce data collection and analysis. Several staff from the Center for Health Workforce Studies contributed to this study, including Michael Dill, Gil Marzan, Edward Salsberg, and Haven Battles. Several staff from the Local 1199 Job Security Fund and Training Program have contributed to the Hospital Information Systems study, including the Field Director, Rosa Mejias, and the Field Staff.

The views expressed in this report are those of the Center for Health Workforce Studies, and do not necessarily reflect the positions and policies of the School of Public Health, the

University at Albany, the 1199 Hospital League Health Care Industry Planning and Placement Fund, Inc., or the Bureau of Health Professions.

Notes on terminology:

1) Data presentation and analyses in this report sometimes refer to the public and private sectors. The public sector consists of those institutions which are operated by the government, such as the Health and Hospitals Corporation hospitals. The private sector includes both not-for-profit (or "voluntary") and for-profit (proprietary) institutions which are not operated by the government.

2) Data in this report are presented by *setting* and by *occupation*.

a) In general, the settings are the Standard Industrial Classification (SIC) health care industries: hospitals; nursing and personal care facilities; home health services; medical and dental laboratories; offices and clinics; and other health and allied services not elsewhere classified [See Section V.C. regarding the change from SIC to NAICS]. These classification schemes have been used to provide some standardization among the data sets presented, but they have some limitations worth noting. For instance, by limiting the analyses to the SIC health services industries, health care workers in hospital ambulatory care sites may be included in hospital employment counts, and health care workers in industries outside these settings (schools, insurance firms, etc.) may be excluded. An estimated 12% of health care workers are employed outside the standard health care settings.

b) Occupations are usually grouped by Bureau of Labor Statistics (BLS) Occupational Employment Statistics categories. The occupational categories are also limited. For example, Registered Nursing (RN) makes no distinction between RN managers and critical care RNs and the standard "nursing aides, orderlies and attendants" occupational category includes multiple job titles, and levels of training and certification status. There are also some job titles that overlap with occupational classifications, and this may cause some problems in reporting. For example, confusion may result from the difference between defining a home health aide as any individual providing services in the home and one who has completed the certification requirements.

3) A few different geographic groupings are used throughout this report, depending largely on the detail available in the data:

New York City:	The five counties/boroughs.
Greater New York City:	New York City plus Long Island and Westchester County.
New York City PMSA:	(Primary Metropolitan Statistical Area) New York City plus Putnam, Westchester and Rockland counties.
NY-NJ-CT-PA CMSA:	(Consolidated Metropolitan Statistical Area) 30 counties in four states (1996 definition), including New York, New Jersey, Connecticut and Pennsylvania.

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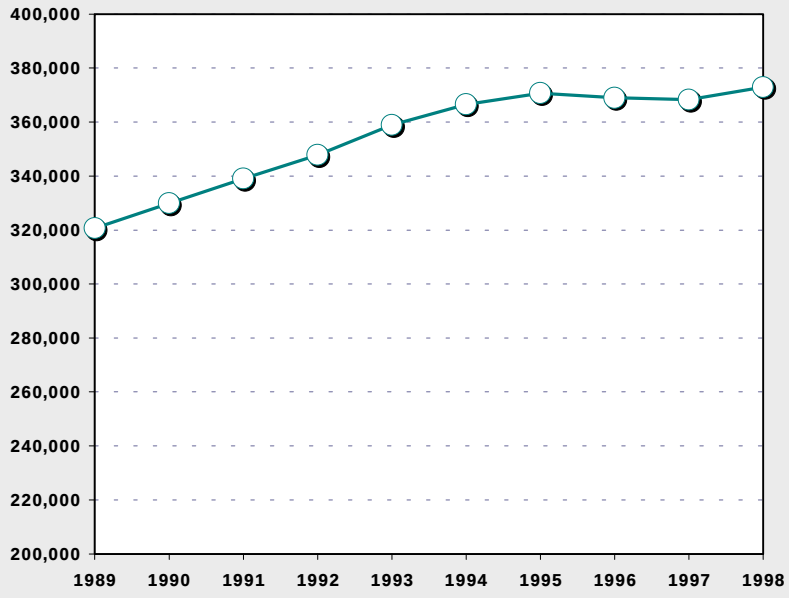
EXECUTIVE SUMMARY

Much of the New York City Health Workforce Tracking System analyses in this report are built upon data from the New York State Departments of Labor and Health. One of the primary functions of the Tracking System has been to augment this foundation by incorporating as many other data sources as possible into one comprehensive document on trends in the supply and demand for health workers in New York City.

In so doing, the Tracking System finds that: overall health services employment has begun to rise again after a two year decline; private sector health services employment has continued to grow, while public sector health services employment continues its gradual decline; hospitals still account for more than half of New York City's health sector employment; offices/clinics[1] and nursing homes remain the only two constant growth settings in New York City, following a leveling off of employment in home health care; private sector hospital employment rose again after a two-year decrease, although the overall trend has been rather flat since 1993; public sector hospital employment in New York City continues to decrease.

- Overall NYC health services employment grew 16% between 1989 and 1998, and although employment in this field actually declined slightly in both 1996 and 1997, *it began to rise again in 1998*.

TOTAL HEALTH SERVICES EMPLOYMENT, NEW YORK CITY, 1989-1998



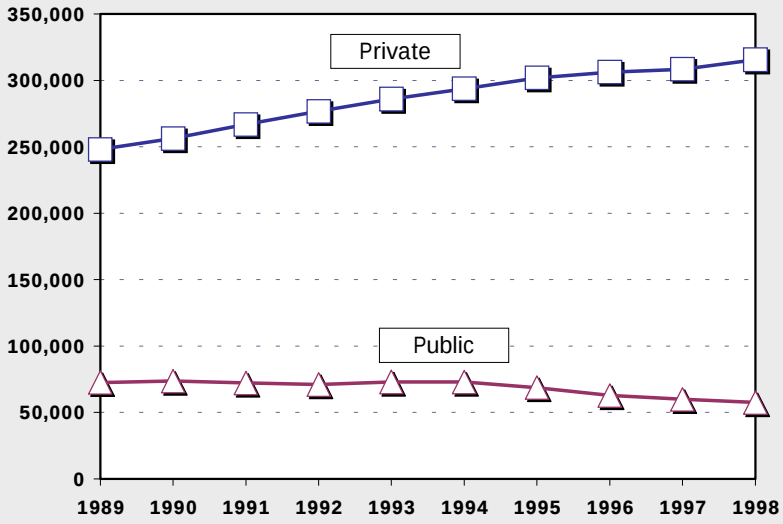
Source: DOL (ES-202).

[1] This setting corresponds to DOL category 'offices and clinics' and is references as 'office and clinics' throughout the remainder of this document.

- The health care industry is one of New York City's largest employers, accounting for 11.8% of New York City employment in 1998. This is significantly higher than the country-wide percentage. Nationally, the health care industry accounts for 8.6% of total employment.

- Health services employment trends differ markedly between the private and public sectors in NYC. Private sector health services employment grew steadily from 1989 to 1998, though the rate of growth slowed during this time. Public sector health services employment in NYC has been declining since about 1993, largely due to Health and Hospitals Corporation budget reductions and the introduction of Medicaid Managed Care.

TOTAL PRIVATE & PUBLIC SECTOR HEALTH SERVICES EMPLOYMENT, NEW YORK CITY, 1989-1998

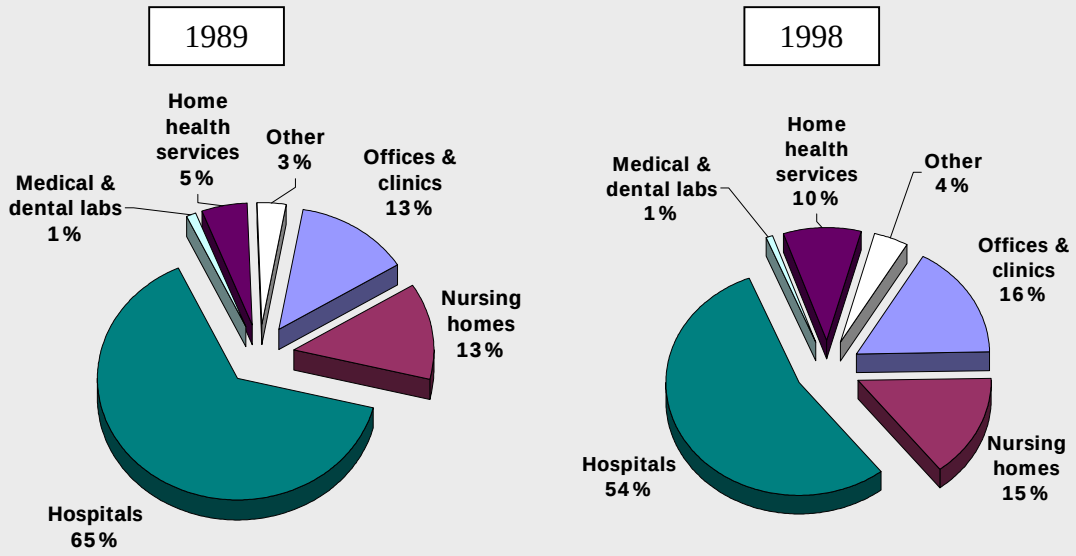


Source: DOL (ES-202).

- In 1998, hospitals were still the largest health care employment setting in NYC, accounting for 54% of health services employment. Offices and clinics represented another 16% of health services employment, followed by nursing homes (15%), home health services (10%), 'other' (4%), and medical and dental laboratories (1%).

- A decade earlier, in 1989, hospitals accounted for almost two-thirds of NYC health services employment (65%), while the percentage in home health was only half (5%) what it had grown to by 1998. The percentage of health services employment in each of the other major settings has remained relatively stable, with some growth in the percentage of NYC health sector employment in offices and clinics and nursing homes.

PERCENTAGE OF HEALTH SERVICES EMPLOYMENT BY SETTING, NEW YORK CITY, 1989 & 1998



Source: DOL (ES-202).

- The average annual percentage change in employment over the nine year period from 1989 to 1998 has varied markedly across settings, with offices and clinics, nursing homes and home health services the largest growth settings. In contrast, hospitals and laboratories have, on average, decreased in employment over the same time frame.

- The two constant-growth settings between 1989 and 1998 were offices and clinics and nursing homes. While home health care rose more rapidly from at least 1992 through 1997, it experienced a reversal between 1997 and 1998. Laboratory employment has fluctuated over the 9-year period, but has remained relatively unchanged overall

PERCENT CHANGE IN EMPLOYMENT BY SETTING, NYC, 1997-98 & AVERAGE ANNUAL PERCENTAGE CHANGE IN EMPLOYMENT BY SETTING, NYC, 1989-98

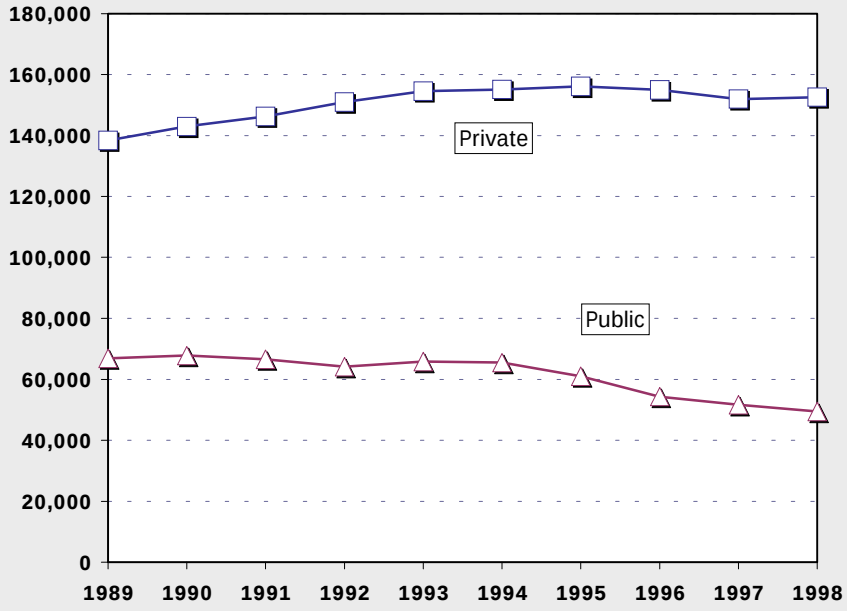
	Avg. Ann Pct Chng. 1989-98	Pct Chng. 1997-98
Offices & clinics	+ 4.1%	+ 6.0%
Nursing homes	+ 3.5%	+ 5.9%
Hospitals	- 0.1%	- 0.6%
Medical & dental labs	- 1.3%	+ 5.9%
Home health services	+ 8.7%	- 0.3%
Health services NEC*	+ 4.5%	- 4.2%
Total health services	+ 1.7%	+ 1.3%

Source: DOL (ES-202).
* NEC indicates "Not Elsewhere Classified".

- The pattern in short and long term employment trends across settings in NYC reflects a confluence of multiple macro level influences, including overall economic growth during the time period considered, particularly the rise in lower wage service jobs (hospital wages are generally higher than those for other health care settings), managed care (cost pressures and the shift to outpatient care), and public policy initiatives such as Medicaid managed care and the Balanced Budget Act of 1997 (the recent change in the home health employment trend, for example, which appears to be particularly sensitive to reimbursement rates).

- Private sector hospital employment in NYC peaked in 1995, decreased for 2 years, then *grew again slightly* between 1997 and 1998. Public sector hospital employment in NYC has been shrinking since at least 1993 (a 25% decline between 1993 and 1998).

TOTAL PRIVATE & PUBLIC SECTOR HOSPITAL EMPLOYMENT, NEW YORK CITY, 1989-1998

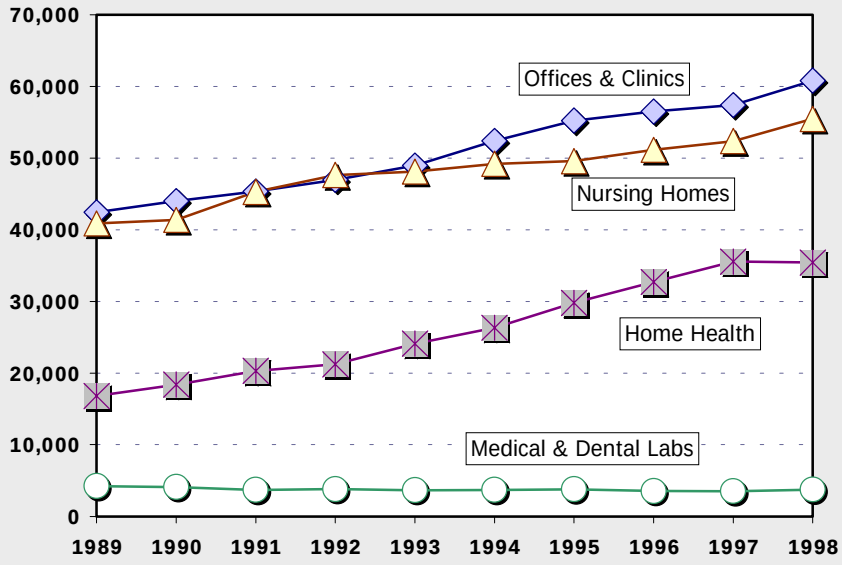


Source: DOL (ES-202).

- Historically, public hospitals in NYC have served a disproportionate share of the City's poor, uninsured and underinsured. This employment trend follows both budget cuts and the implementation of Medicaid managed care, which may be enabling some of the historical consumers of public hospital services to opt for private sector care.

- Total non-hospital health services employment in NYC has increased more than 4 times as much as in private sector hospitals since 1993. According to DOL data, employment in NYC nursing homes, offices and clinics, and home health care services increased consistently from 1989 to 1997. Medical and dental laboratory employment declined slightly over this same period. Between 1997 and 1998, employment in offices and clinics and nursing homes continued to grow, but *home health services employment declined*.

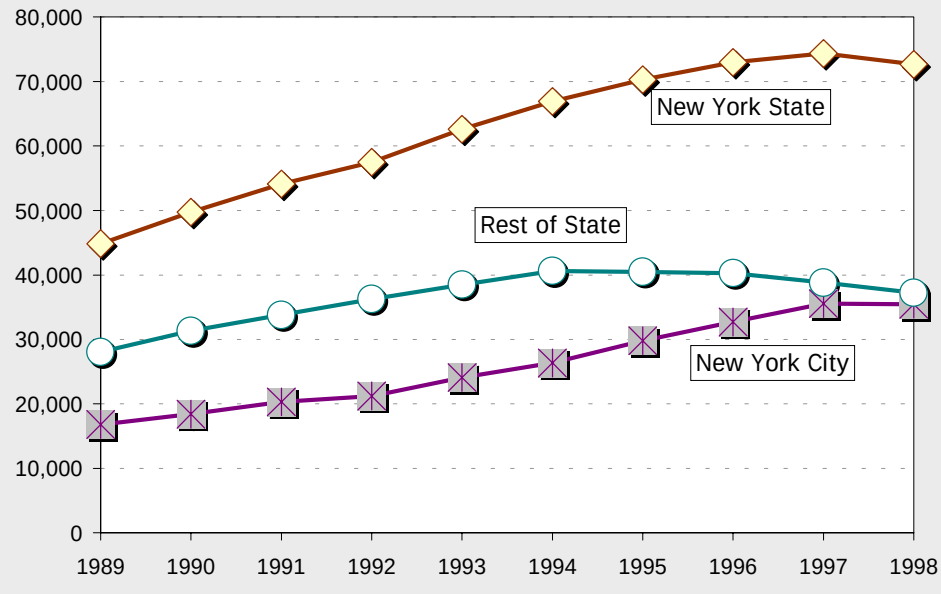
EMPLOYMENT IN OFFICES & CLINICS, NURSING HOMES, HOME HEALTH SERVICES, AND MEDICAL & DENTAL LABORATORIES, NEW YORK CITY, 1989-1998



Source: DOL (ES-202).

- While 1997-98 was the first year during the past decade when home health services employment did not grow significantly in NYC, a very different pattern existed for the non-NYC counties of the state. Outside NYC, home health employment remained unchanged between 1994 and 1996 (while it continued to grow in NYC), and then began to drop after 1996. The shift from rapid growth to decline, when home health services was projected to be one of the largest growth industries, probably reflects changes in government reimbursement policies which could not be foreseen at the time projections were produced. Moreover, while there was a scheduled 15% reduction in Medicare reimbursement for home health care slotted for October, 2000, which could have continued downward pressures on employment in this setting, the Balanced Budget Refinement Act of 1999 contains a provision postponing the reduction until one year after implementation of the Prospective Payment System. The workforce implications of this are unclear. Even if financing improves in the short run, shortages of home health workers could prevent a return to the employment growth rate of preceding years is unlikely in the near future.

TOTAL HOME HEALTH SERVICES EMPLOYMENT, NEW YORK STATE, NEW YORK CITY & REST OF STATE (NEW YORK STATE LESS NEW YORK CITY), 1989-1998



Source: DOL (ES-202).

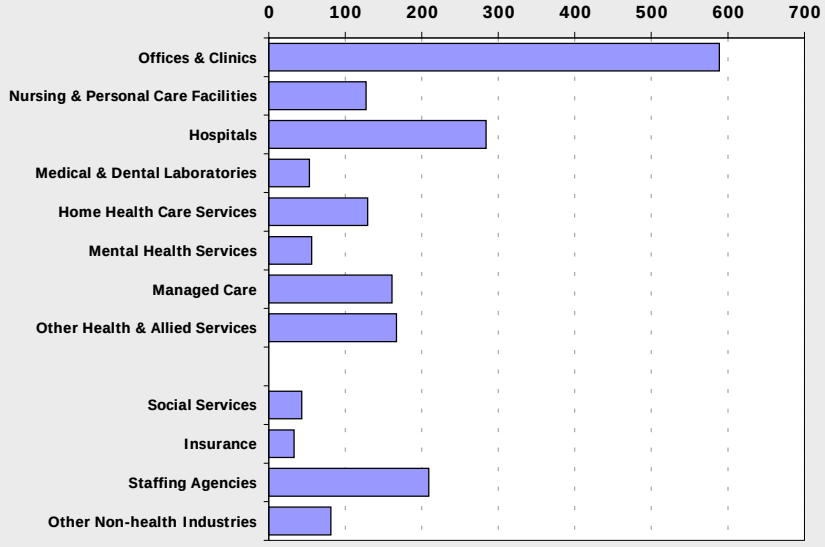
- While data are not yet available for 1999 and 2000, based on discussions with health providers and experimental quantitative models developed for the Tracking System, the Center believes: total NYC health services employment increased between 1998 and 1999, and that while there may be a flattening out between 1999 and 2000, with the potential for even a slight decrease, overall health services employment in NYC will be higher in 2000 than it was in 1998; there was little change in total NYC hospital employment between 1998 and 1999; there is likely to be a slight decline in total NYC hospital employment this year (from 1999 to 2000).

- While the NY-NJ-CT-PA Consolidated Metropolitan Statistical Area (CMSA - includes 30 counties mostly in NY and NJ) and NYC are not strictly comparable geographic areas, it is worth noting that for the period 1989-1998, the percentage increase in the Medical Care CPI for the CMSA was 63.7%, approximately 4 times the increase in NYC health services employment (16.3%). Thus, during the 9-year period from 1989 to 1998, the cost of medical care for consumers in the CMSA rose 4 times faster than the number of workers employed in health care in NYC. This may reflect an increase in health care employment outside of NYC but within the larger CMSA, although such an increase still would not account for the magnitude of the increase in the Medical Care CPI.

Tracking of New York Times Classified Advertisements

- Analysis of *New York Times* health care and related positions listed on-line at the beginning of each month reveals extensive advertising for offices and clinics (31% of all ads), followed by hospitals (15%) and staffing agencies (11%). Interestingly, 'non-health' settings accounted for close to one-fifth (19%) of the advertisements during this period.

NEW YORK TIMES EMPLOYMENT CLASSIFIED ADVERTISEMENTS BY EMPLOYMENT SETTING, MARCH-JULY, 1999



Source: *New York Times*.

- This represents further evidence of the expansion of ambulatory care, where most of the jobs available in offices and clinics were for administrative support positions.

- Overall, more ads were placed for RNs than any other occupation, and more of those by staffing agencies than by hospitals or any other traditional health care employer. This reinforces the Greater New York Hospital Association's finding that one of the strategies hospitals are using to deal with current RN recruitment difficulties is an increased reliance on temporary and *per diem* RNs.

New York State Department of Health Certificate of Need Tracking

In 1999, the Tracking System began to monitor New York State DOH Certificate of Need (CON) approvals for New York City. Any major expansion in service by an organized provider of services, such as a hospital, nursing home or health center, must get prior approval from DOH. In addition, if a hospital wants to decrease their bed complement, they must first obtain state approval to decertify the beds. (Physicians' offices are not covered by the CON process.)

Although CON approval to start or expand a service does not guarantee that the expansion will occur, it is a necessary precondition for the service. As such, tracking approvals provides a good snap shot of potential growth in the health industry. During 1998, there was significant CON activity in the area of ambulatory care and while there were many approvals related to hospitals, most of these would have a limited impact on employment. As a new addition to the Tracking System, the value of this component should improve with continued development, as more years' data are added and analyzed in conjunction with information from other sources.

Hospital Information Systems Impact Study

Preliminary observations from the Hospital Information Systems Impact Study, a second year addition to the Tracking System that focuses specifically on front line administrative support, information systems and medical records personnel, include:

- Overall, computerization seems to have little or no downward pressure on staffing levels in the three occupational areas that are the focus of the study.

- The level of information systems (IS) integration has a enormous impact on staff training needs. Multiple information systems (one for clinical, one for medical records, etc.) require multiple hardware and software interfaces. Staff must then be familiar with a variety of systems in order to look up and/or enter information, access records, etc. One result is an increased need for training, since each system generally requires extra knowledge and system-specific skills. Greater system complexity also tends to require more technical staff.

- IS related technical training needs are continual for both hardware and software. New systems, upgrades, new policies and new coverage regulations all require additional training. However, each hospital has developed its own unique information systems configuration over time, such that the specific training needs vary from hospital to hospital.

- To date, most computer training for front line administrative support and medical records personnel has been limited to task specific knowledge. Greater contextual training, i.e., understanding of the larger computer systems in which they operate, perhaps as the basis for future cross-training, could benefit both hospitals and workers.

- Greater basic PC and keyboarding skills, as well as improved communication skills, would benefit both current and potential workers, especially regarding front line administrative support personnel. Medicaid managed care regulations are creating an

additional large and ongoing set of training needs for front line administrative support staff.

- Higher end IS staff, especially programmers, are difficult to find and retain. This is especially true because of the NYC job market, in which internet companies and other private sector businesses are actively competing for these personnel.

- Lower end IS staff are also hard to retain, as their on the job experience becomes marketable quickly.

- Demand for medical transcriptionists may run high for the next few years, although long term prospects for this occupation are uncertain due to potential changes in transcription technologies.

- There is currently an inadequate supply of qualified medical records coders. However, this may represent a high demand for *experienced* coders rather than a general shortage.

I. INTRODUCTION

A. BACKGROUND

The New York City health services system is one of the largest in the nation with more than 70 hospitals, almost 200 nursing homes, and thousands of other facilities and sites of health care service provision. Accounting for approximately one person in eight in the New York City labor force, the health services industry is also among the City's predominant sources of employment.

Although a considerable quantity of data concerning the health care system and the health workforce is collected by public and private agencies, the lack of standard categories and definitions for both settings and occupations creates problems in both integration and interpretation. Moreover, despite the great locality-dependent variations in health care delivery system structures, as well as in general demographic and workforce trends, there are few publications, reports or public repositories of easily accessible data or other information on the composition of the health workforce at other than the state or national level.

The time lapse between data collection and release is another serious issue. With the level of health services employment in New York City changing an average of about 2%, or almost 6,000 workers, per year over the past decade, the almost constant introduction of new technologies, shifts in public policy and mounting cost pressures, the prevailing one to two or even three year lag between data collection and release creates a serious obstacle for policy makers concerned with making well-informed decisions regarding the health workforce.

To begin addressing these issues and to meet the needs of health workforce policy makers and planners, the Center for Health Workforce Studies (the Center) continues to develop a data collection and analysis system to provide information on the supply, demand, and use of health workers across all major health care settings in New York City. This effort recognizes that the current job market for health professionals is inefficient, plagued by periodic shortages and surpluses of workers that can contribute to reduced quality of care, higher costs, and inappropriate investments in the education and training of health care workers. The rapidly changing health care system, including the rapid rise in ambulatory care and the expansion of managed care, compounds the need for an effective workforce tracking system.

B. GOALS AND OBJECTIVES

The current goals for the New York City Health Workforce Tracking System are:

- To determine which health care settings are most likely to increase or decrease their employment;

- To identify the professions and occupations that are likely to experience significant increases or decreases in New York City;

- To help planners and policy makers to target health professions education and job training and retraining funds;

- To help guide public and private health workforce policies, including decisions about the size of health professions education programs;

- To inform current and prospective students about health care employment prospects and opportunities; and

- To suggest improvements in workforce data collection to reduce duplication and to inform public policy debates and individual decisions.

II. INITIAL ANALYSES

A. FINDINGS

1. Workforce Status

TABLE 1. PERCENTAGE OF U.S. WORKFORCE IN HEALTH CARE, MARCH, 1999

		Health services occupation		
		Not in health occupation	In health occupation	**Total**
Health services industry	Not in health industry	125,262,205	1,609,851	**126,872,056**
	In health industry	3,946,671	7,920,834	**11,867,505**
	Total	**129,208,876**	**9,530,685**	**138,739,561**

Total U.S. health workforce defined: All members of civilian labor force working in a health service industry as their primary or secondary industry or both *plus* all members of the civilian labor force working in a health services occupation as their primary or secondary occupation or both.

Total U.S. health workforce =	**13,477,356**	**9.7%**
Total U.S. workforce (all industries & occupations)=	138,739,561	100.0%

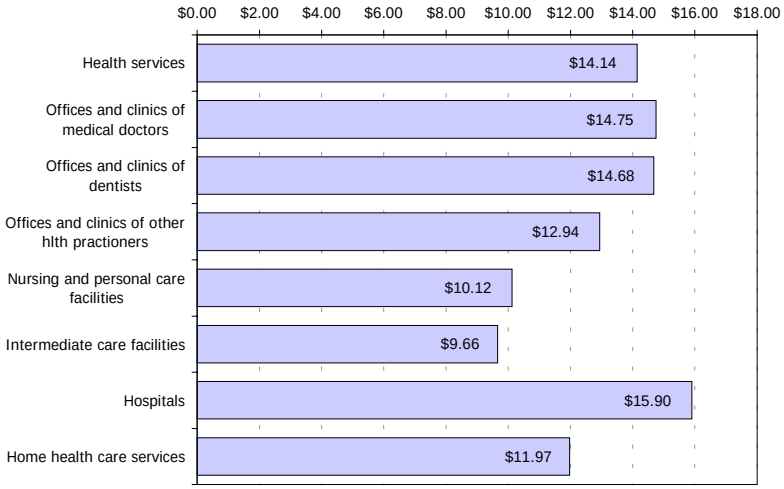
Source: Census Bureau/BLS (CPS); CHWS.

Nationally, almost 1 out of every 9 new jobs created in the U.S. between 1986 and 1996 was in the health occupations[2]. In fact, health care now accounts for 9.7% of the total U.S. workforce, or almost one out of every ten members of the civilian workforce. Of these, 11.9% (1.6 million workers) are employed outside the standard health services settings. [Table 1.] Moreover, 8.9% of the U.S. health workforce hold multiple jobs, whereas only 6.0% of the entire workforce do so.

Across the U.S., hospitals offer the highest overall average hourly wage rate, followed by the offices and clinics of medical doctors and dentists. The lowest hourly wages are found in nursing homes and intermediate care facilities. [Figure 1.] How these relative wage levels relate to occupational mixes across settings is a key question yet to be answered.

[2] BLS: *Occupational Outlook Quarterly*, Spring 1999.

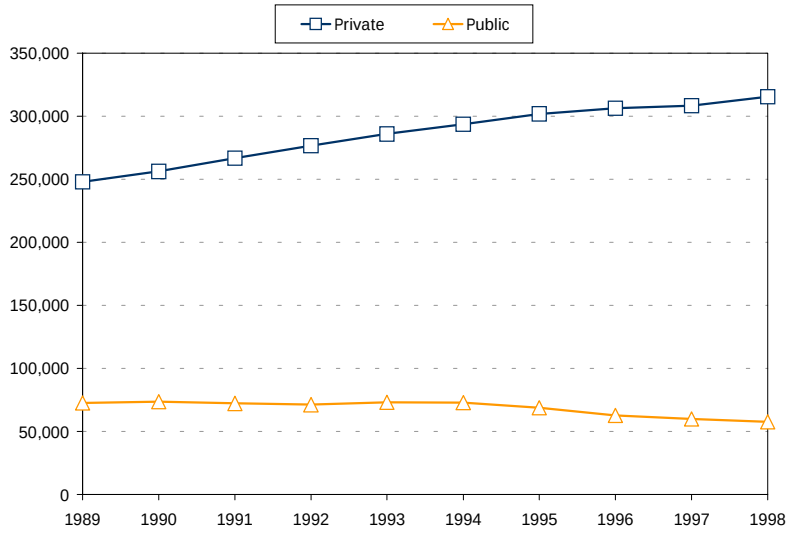
FIGURE 1. AVERAGE HOURLY WAGE BY HEALTH SERVICES SETTING, U.S., JUNE, 1999



Source: BLS (CES).

2. *Employment Settings*

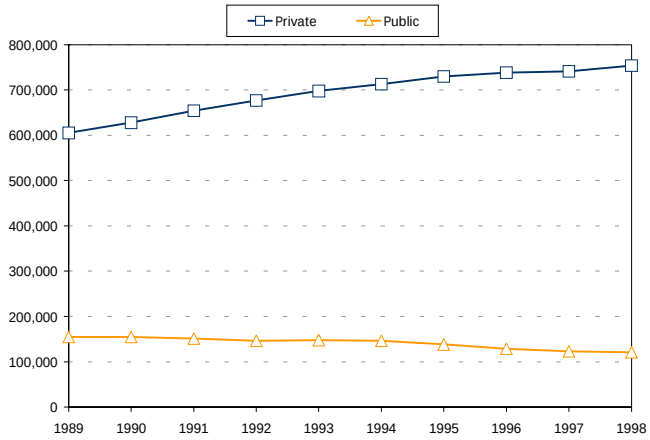
FIGURE 2. TOTAL HEALTH SERVICES EMPLOYMENT BY AUSPICE, NYC, 1989-1998



Source: DOL (ES-202).

The trend in total health services employment described in the *First Annual Report*, which contained data through 1997, continued into 1998. In fact, the rate of increase in NYC private sector health services employment grew (+ 0.7% 1996-97; + 2.3% 1997-98). Public sector health services employment continued to decline (- 4.6% 1996-97; - 3.9% 1997-98). [Figure 2.]

FIGURE 3. TOTAL HEALTH SERVICES EMPLOYMENT BY AUSPICE, NEW YORK STATE, 1989-1998



Source: DOL (ES-202).

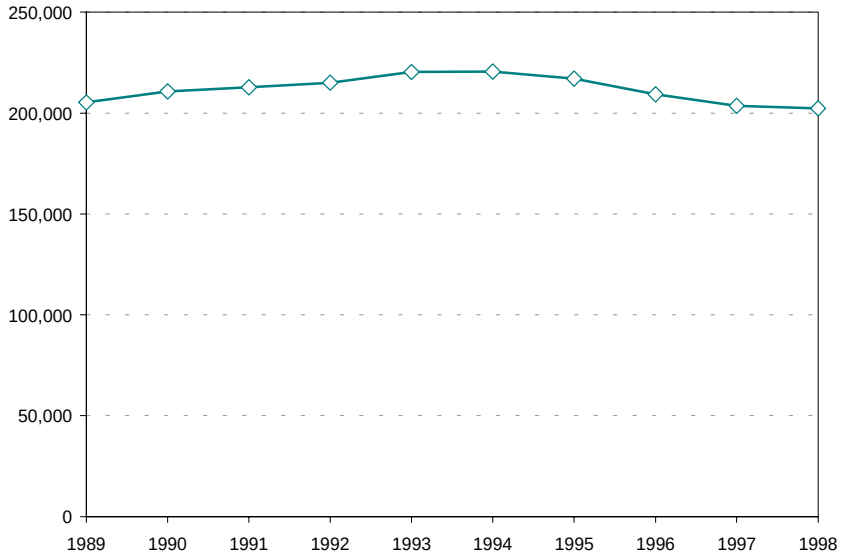
NYC represents over 40% of NYS health services employment, and the statewide trends are similar to those for the City. [Figure 3.] Private sector employment continued to rise (+ 0.4% 1996-97; + 1.7% 1997-98) and the public sector remained in decline (- 4.2% 1996-97; - 1.7% 1997-98), though the latter year's rate of decrease was less than half that for the previous year (This was not the case for NYC.).

FIGURE 4. ANNUAL CHANGE FROM PRIOR YEAR IN TOTAL HEALTH SERVICES EMPLOYMENT BY AUSPICE, NYC, 1989-1998

Source: DOL (ES-202).

The annual change in health services employment represented an increase in the private sector every year between 1989 and 1998, with a slow-down in growth during 1996 and 1997. From 1989 to 1994, the public sector experienced little change, but began to decline substantially beginning in 1995. The combined effect of the slower private sector growth and dropping public sector resulted in a decrease in overall health services employment in 1996 and 1997, but the rise in private sector employment from 1997 to 1998 more than offset the continued public sector decline. [Figure 4.]

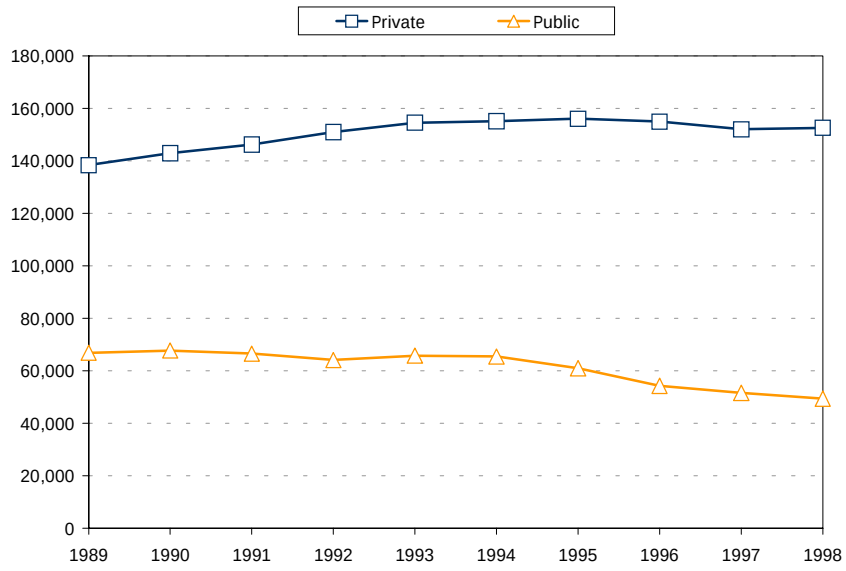
FIGURE 5. TOTAL HOSPITAL EMPLOYMENT, NEW YORK CITY, 1989-1998



Source: DOL (ES-202).

Total hospital employment in NYC decreased between 1997 and 1998 (– 1,200 approximately, or – 0.6%), continuing a decline which began in 1994 (- 8.3% from 1994 to 1998). [Figure 5.] This occurred despite the fact that overall health services employment rose substantially from 1997 to 1998 [Figure 4.] Total hospital employment is now below its 1989 level (due to the decline in public sector hospital employment).

FIGURE 6. TOTAL HOSPITAL EMPLOYMENT BY AUSPICE, NYC, 1989-1998



Source: DOL (ES-202).

In fact, private sector hospital employment increased from 1997 to 1998, after two years of decline. In contrast, public hospital employment in NYC continued to decrease. [Figure 6.]

TABLE 2. HOSPITAL EMPLOYMENT AND PERCENT CHANGE FROM PRIOR YEAR BY AUSPICE, NEW YORK CITY, 1989-1998

Employment

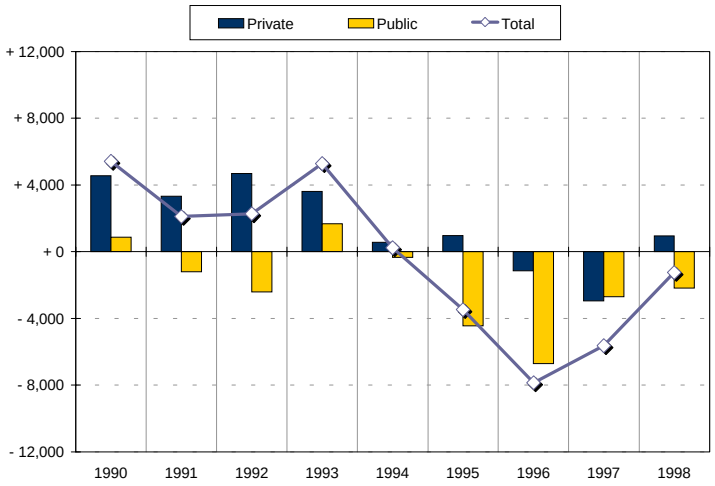
	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Public	66,908	67,774	66,565	64,144	65,811	65,477	61,030	54,323	51,633	49,440
Private	138,380	142,937	146,257	150,945	154,551	155,118	156,086	154,936	151,991	152,936

Percent Change from Prior Year

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Public		1.3%	-1.8%	-3.6%	2.6%	-0.5%	-6.8%	-11.0%	-5.0%	-4.2%
Private		3.3%	2.3%	3.2%	2.4%	0.4%	0.6%	-0.7%	-1.9%	0.6%

Source: DOL (ES-202).

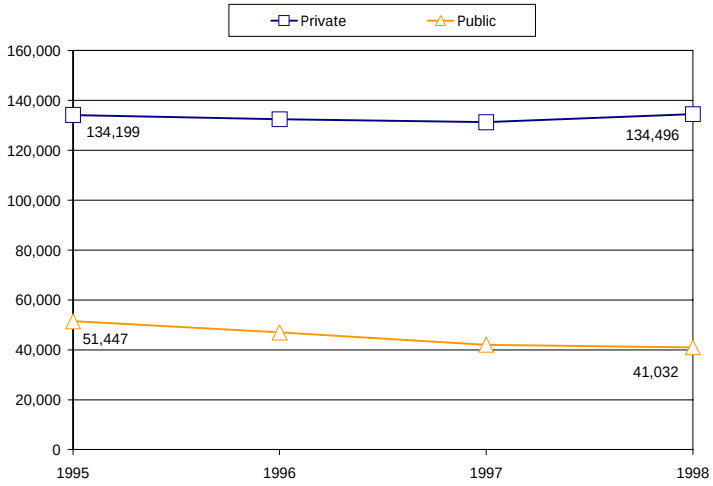
FIGURE 7. ANNUAL CHANGE FROM PRIOR YEAR IN TOTAL HOSPITAL EMPLOYMENT BY AUSPICE, NYC, 1989-1998



Source: DOL (ES-202).

The trend in annual changes in NYC hospital employment shows decreasing employment during recent years, particularly in the public sector. Only two years of decline have been observed in private sector hospital employment, although most of the changes in private sector hospital employment from 1989 to 1998 occurred between 1989 and 1993. [Figure 7.]

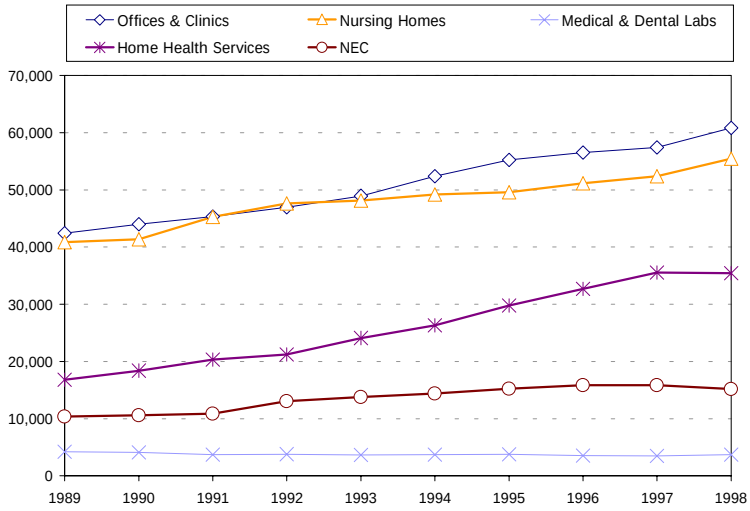
FIGURE 8. TOTAL HOSPITAL FTE EMPLOYEES BY AUSPICE, NYC, 1995-1998



Source: DOH (ICR).

The ICR hospital FTE data for NYC display a similar employment pattern. [Figure 8.] The public and private sector declines from 1995 to 1997 are apparent, as is the turnaround in private sector hospital employment between 1997 and 1998. In fact, the 1997-98 NYC increase in private sector hospital FTEs (2.5%) was greater then the increase in private sector hospital employment (0.6%). Thus, while a shift in NYC hospitals to heavier reliance on a part-time workforce in the private sector seemed apparent when the *First Annual Report* was published, a slight reversal may have occurred.

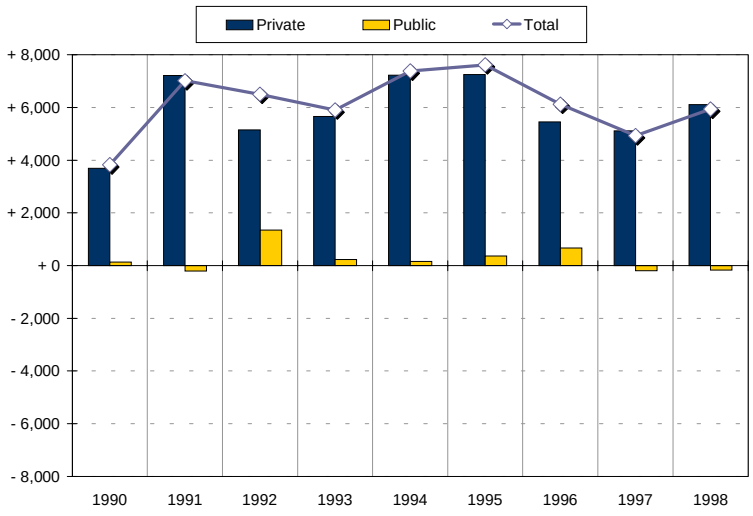
FIGURE 9. TOTAL EMPLOYMENT IN NURSING AND PERSONAL CARE FACILITIES, OFFICES AND CLINICS[3], HOME HEALTH SERVICES, LABORATORIES AND OTHER HEALTH AND ALLIED SERVICES (NEC), NYC, 1989-1998



Source: DOL (ES-202).

The NYC employment trend in other health services settings changed to varying degrees between 1997 and 1998, with employment in offices and clinics and nursing homes increasing even more rapidly from 1997 to 1998 than the immediately preceding years, while *home health services employment decreased* slightly. [Figure 9.]

FIGURE 10. ANNUAL CHANGE FROM PRIOR YEAR IN TOTAL NON-HOSPITAL HEALTH SERVICES EMPLOYMENT BY AUSPICE, NYC, 1989-1998

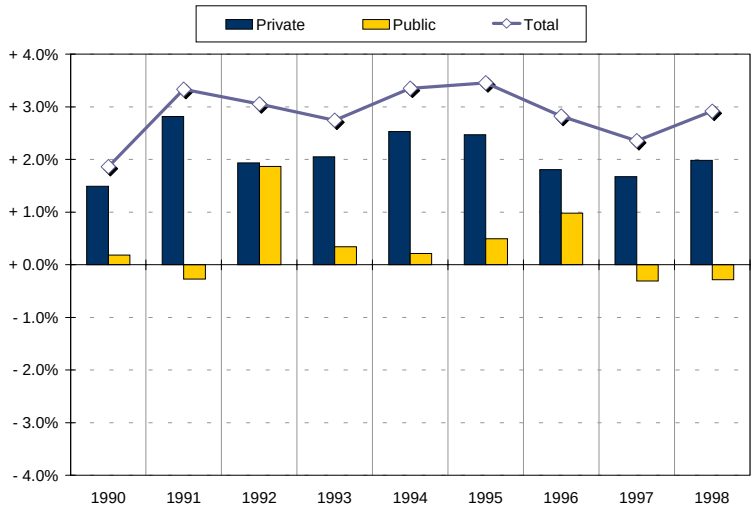


Source: DOL (ES-202)

[3] Includes MD, DO and Other offices and clinics.

Annual changes in employment across all non-hospital settings in NYC reveal a markedly different trend than that observed in hospitals, particularly in the private sector, where absolute increases have exceeded those for hospitals by an average of a factor of 4 since 1993. [Figure 10.] Interestingly, the size of the private sector increases did drop slightly between 1995 and 1997 – the same years during which private sector hospital employment decreased. In the public sector, non-hospital health services employment has been much less dynamic than that in hospitals, although hospitals represent about 86% of public sector health services employment in NYC.

FIGURE 11. ANNUAL PERCENT CHANGE FROM PRIOR YEAR IN TOTAL NON-HOSPITAL HEALTH SERVICES EMPLOYMENT BY AUSPICE, NEW YORK CITY, 1990-98



Source: DOL (ES_202).

Figure 11 shows that while annual changes in NYC hospital employment have been in the 4,000-8,000 range through the 1990's, this represents less than a 4% change during any given year.

TABLE 3. PERCENT CHANGE IN EMPLOYMENT BY SETTING, NYC, 1997-98 & AVERAGE ANNUAL PERCENTAGE CHANGE IN EMPLOYMENT BY SETTING, NYC, 1989-98

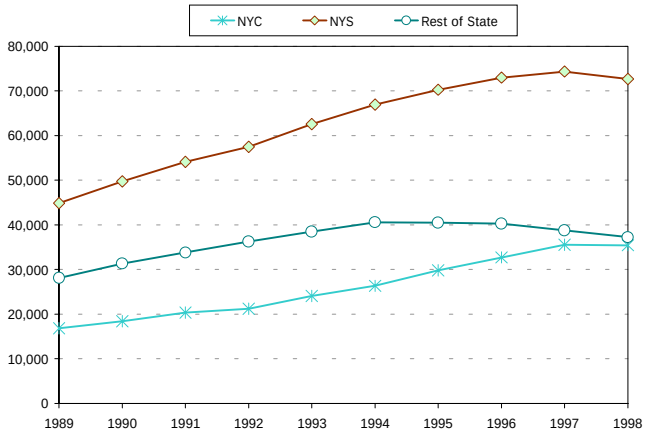
	Pct Chng. 1997-98	Avg. Ann Pct Chng. 1989-98
Offices & clinics	+ 6.0%	+ 4.1%
Nursing homes	+ 5.9%	+ 3.5%
Hospitals	- 0.6%	- 0.1%
Medical & dental labs	+ 5.9%	- 1.3%
Home health services	- 0.3%	+ 8.7%
Health services NEC	- 4.2%	+ 4.5%
Total health services	+ 1.3%	+ 1.7%

Source: DOL (ES-202).

The average annual percentage change in employment over the nine year period from 1989 to 1998 varies notably across settings, with offices and clinics, nursing homes and home health services the largest growth settings. In contrast, hospitals and laboratories have, on average, decreased in employment over the same time frame. [Table 3.]

The two constant-growth settings between 1989 and 1998 were offices and clinics and nursing homes. While home health care rose more rapidly from at least 1992 through 1997, it experienced a reversal between 1997 and 1998 (See below). Laboratory employment fluctuated over the 9-year period, but remained relatively unchanged overall

FIGURE 12. HOME HEALTH SERVICES EMPLOYMENT, NEW YORK STATE, NYC & REST OF STATE (NYS-NYC), 1989-1998



Source: DOL (ES-202).

In a broader context, the decline in NYC home health services employment becomes less of an anomaly. While 1997-98 was the first year of decrease in home health employment statewide since at least 1989, in the non-NYC counties of the state, home health employment remained unchanged between 1994 and 1996 (while it continued to grow in NYC), and then began to drop after 1996. [Figure 12.] This shift from rapid growth to decline, when home health services was projected to be one of the largest growth industries, probably reflects changes in government reimbursement policies which could not be foreseen at the time projections were produced.

TABLE 4. NYC PRIVATE SECTOR HEALTH SERVICES EMPLOYMENT BY SETTING, 1993-1997

	Number of employees					Average Annual Pct change
Setting	**1993**	**1994**	**1995**	**1996**	**1997**	**1993-97**
Offices and clinics of medical doctors	37,602	39,106	43,282	44,637	34,387	-1.3%
Offices and clinics of dentists	12,443	12,203	12,751	13,093	13,676	2.4%
Offices of osteopathic physicians	351	364	365	482	630	16.7%
Offices of other health practitioners						
Offices and clinics of chiropractors	1,333	1,341	1,404	1,307	1,306	-0.4%
Offices and clinics of optometrists	842	736	801	896	836	0.4%
Offices and clinics of podiatrists	1,043	969	1,035	1,226	1,194	3.9%
Offices of health practitioners, n.e.c.	1,974	2,075	2,408	2,521	3,476	15.9%
Subtotal	*5,192*	*5,121*	*5,648*	*5,950*	*6,812*	*7.2%*
Nursing and personal care facilities	46,845	47,650	49,236	48,469	52,364	2.9%
Hospitals[4]	208,178	207,254	204,297	203,251	201,001	-0.9%
Medical and dental laboratories						
Medical laboratories	3,452	3,251	3,469	3,153	4,188	6.1%
Dental laboratories	1,118	662	840	817	906	-1.4%
Subtotal	*4,570*	*3,913*	*4,309*	*3,970*	*5,094*	*4.0%*
Home health care services	66,455	70,216	72,885	75,426	86,197	6.8%
Health and allied services, n.e.c.	11,730	11,803	12,335	12,862	18,089	12.5%
Total Health Services	**393,395**	**398,051**	**405,600**	**408,863**	**418,236**	**1.5%**

Source: Census Bureau (CBP).

The more detailed CBP data show similar trends to those found in the DOL data, with noteworthy exceptions in the offices and clinics of medical doctors. [Table 4.] The drop of over 10,000, or 23.0%, in employment in the offices and clinics of medical doctors in NYC reported in the CBP is inexplicable. The CBP may be limited to private sector health services firms, except for hospitals, but offices are usually private sector, so this difference between the ES-202 (which estimated an increase in employment in the offices and clinics of medical doctors of 2,700 or 7.4% between 1997 and 1998 in NYC) and CBP methodologies does not contribute to an understanding of this anomaly.

Since the CBP data include information on number of firms, these data have been analyzed for 1996 and 1997 in order to assess whether or not the number of firms included in the CBP as offices and clinics of medical doctors might have decreased. In fact, it rose. [Table 5. below]

[4] Hospital data include both public and private sector employees.

TABLE 5. NUMBER OF PRIVATE SECTOR EMPLOYEES & FIRMS BY SETTING, NYC, 1996-1997

Setting	Number of employees			Number of Firms		
	1996	1997	Pct Chng	1996	1997	Pct Chng
Offices and clinics of medical doctors	44,637	34,387	-23%	6296	6368	1%
Offices and clinics of dentists	13,093	13,676	4%	3209	3248	1%
Offices of osteopathic physicians	482	630	31%	103	105	2%
Offices of other health practitioners						
Offices and clinics of chiropractors	1,307	1,306	0%	467	490	5%
Offices and clinics of optometrists	896	836	-7%	207	209	1%
Offices and clinics of podiatrists	1,226	1,194	-3%	451	447	-1%
Offices of health practitioners, n.e.c.	2,521	3,476	38%	589	674	14%
Subtotal	*5,950*	*6,812*	*14%*	*1714*	*1820*	*6%*
Nursing and personal care facilities	48,469	52,364	8%	377	496	32%
Hospitals[5]	203,251	201,001	-1%	94	100	6%
Medical and dental laboratories						
Medical laboratories	3,153	4,188	33%	230	310	35%
Dental laboratories	817	906	11%	173	168	-3%
Subtotal	*3,970*	*5,094*	*28%*	*403*	*478*	*19%*
Home health care services	75,426	86,197	14%	273	326	19%
Health and allied services, n.e.c.	12,862	18,089	41%	450	470	4%
Total Health Services	**408,863**	**418,236**	**2%**	**12919**	**13411**	**4%**

Source: Census Bureau (CBP).

The greatest relative 1996-97 increases in numbers of NYC firms included in the CBP were for nursing and personal care facilities, home health care services, and offices of health care practitioners n.e.c. [Table 5.] Since the number of firms categorized as offices and clinics of medical doctors by the CBP did not decline between 1996 and 1997, this fails to explain the reported drop in employment in that settings.

[5] Hospital data include both public and private sector employees and firms.

TABLE 6. EMPLOYMENT IN HEALTH CARE & SOCIAL ASSISTANCE INDUSTRIES, NYC PMSA[6], 1997

Health care & social assistance	**589,374**
Ambulatory health care services	**195,330**
Offices of physicians	*44,264*
Offices of physicians (except mental health specialists)	43,074
Offices of physicians, mental health specialists	1,190
Offices of dentists	*17,405*
Offices of other health practitioners	*8,530*
Offices of chiropractors	1,842
Offices of optometrists	1,079
Offices of mental health practitioners (except physicians)	1,121
Offices of physical, occup, & speech therapists & audiologists	2,185
Speech therapists & audiologists	288
Physical & occupational therapists	1,897
Offices of all other health practitioners	2,303
Offices of podiatrists	1,575
Offices of all other miscellaneous health practitioners	728
Outpatient care centers	*22,534*
Family planning centers	1,077
Outpatient mental health & substance abuse centers	5,849
Other outpatient care centers	15,608
HMO medical centers	1,000 - 2,499[7]
Kidney dialysis centers	1,564 - 1,813
Freestanding ambulatory surgical & emergency centers	262
All other outpatient care centers	12,486
Medical & diagnostic laboratories	*4,895*
Medical laboratories	2,144
Diagnostic imaging centers	2,751
Home health care services	*93,558*
Other ambulatory health care services	*4,144*
Ambulance services	2,562
All other ambulatory health care services	1,383 - 2,882
Blood & organ banks	1,000 - 2,499
All other miscellaneous ambulatory health care services	250 - 499
Hospital	**229,155**
General medical & surgical hospitals	200,752 - 203,251
General medical & surgical hospitals, government	55,629
General medical & surgical hospitals (except government)	145,123 - 147,622
Psychiatric & substance abuse hospitals	14,066 - 15,565
Psychiatric & substance abuse hospitals, government	10,245
Psychiatric & substance abuse hospitals (except government)	3,821 - 5,320
Nursing & residential care facilities	**79,600**
Nursing care facilities	52,206
Residential mental retardation/health & substance abuse facility	13,675
Residential mental retardation facilities	9,108
Residential mental health & substance abuse facilities	4,567
Community care facilities for the elderly	6,579
Continuing care retirement communities	1,885
Homes for the elderly	4,694
Other residential care facilities	7,140
Social Assistance	**85,289**

Source: Census Bureau (Economic Census).

[6] NYC PMSA includes the five boroughs, Putnam County, Westchester County and Rockland County.
[7] Some cells in the published tables of the 1997 Economic Census contain codes representing ranges rather than specific counts.

The level of industry classification detail available from the Economic Census is apparent in Table 6. According to the Census definition of ambulatory care, almost half of NYC PMSA employment in ambulatory care is comprised of home health care (47.9%), while physician offices account for almost one quarter (22.7%) and outpatient care centers constitute 11.5% of ambulatory care employment.

In 1999, the Tracking System began to monitor Certificate of Need (CON) approvals by New York State for New York City. Any major expansion in service by an organized provider of services, such as a hospital, nursing home or health center, must get prior approval from the State Health Department. In addition, if a hospital wants to decrease their bed complement, they must first obtain state approval to decertify the beds. (Physicians' offices are not covered by the CON process.)

Although CON approval to start or expand a service does not guarantee that the expansion will occur, it is a necessary precondition for the service. As such, tracking approvals provides a good snap shot of potential growth in the health industry. As can be seen in Table 7, there was significant CON activity in the area of ambulatory care and while there were many approvals related to hospitals, most of these would have a limited impact on employment.

TABLE 7. DOH CERTIFICATE OF NEED APPROVALS, NYC, 1998

Ambulatory services (120)

8 new D&TCs
9 new ambulatory surgery services
55 extension clinic certifications
5 part-time clinic certifications
26 primary care extension clinic certifications
3 primary care/MMTP/drug rehab extension clinic certifications
1 primary care, physical therapy & pediatric extension clinic certification
1 primary care, physical therapy & diagnostic radiology extension clinic certification
1 primary care & MMTP service certification
1 OB/GYN extension clinic certification
1 MMTP extension clinic certification
1 outpatient psychology service certification
1 CT scan, diag. rad., ultrasound, psych., clinical lab. & pharm. services extension clinic certification
2 chest clinic renovations & expansions
1 comprehensive epilepsy center service certification
1 psychiatric, psychological & social work services extension clinic certification
1 outpatient chemotherapy extension clinic certification
1 extension clinic renovation & expansion
1 health center expansion

Nursing & personal care facilities (9)

2 new RHCFs (total cap. + 440)
1 new pediatric HIV/AIDS RHCF (total cap. + 21)
1 RHCF expansion (total cap. + 3)
1 behavioral intervention services RHCF expansion (total cap. + 72)
4 ventilator dependent services certifications (total cap. + 39)

Hospital-based services (29)

1 new children's hospital
1 hospital capacity reduction (total cap. - 208)
2 emergency room expansions & renovations
1 pediatric bed certification (total cap. + 9)
1 pediatric bed decertification (total cap. - 27)
1 CCU bed addition (total cap. + 2)
1 maternity bed addition (total cap. + 14)
1 ICU bed addition (total cap. + 8)
2 med/surg bed certifications (total cap. + 49)
1 renovation for private med/surg beds & suites (total cap. + 14)

Source: DOH (CON).

TABLE 7 (CONTINUED). DOH CERTIFICATE OF NEED APPROVALS, NYC, 1998

Hospital-based services (continued)

1 AIDS bed decertification (total cap. - 12)
1 ICU bed certification (total cap. + 12)
1 neonatal bed certification (total cap. + 8)
1 pediatric ICU bed certification (total cap. + 18)
1 med/surg bed conversion to AIDS beds (total cap. + 0)
1 med/surg bed conversion to alcohol detox beds (total cap. - 16)
1 OR addition (total + 5 ORs)
2 OR expansions & renovations
1 post-anesthesia unit expansion & renovation
1 endoscopy recovery room expansion & renovation
1 radiology department renovation & modernization
1 hospital floor renovation (total cap. + 16)
1 labor/delivery area expansion
2 cardiac catheterization lab. certifications
1 cardiac surgery program certification

Home health services (16)

3 LTHHCP certifications (total cap. + 275)
12 LTHHCP expansions (total cap. + 1,099)
1 new OMRDD CHHCA

Dialysis services (11)

2 new dialysis clinic certifications (total stations + 44)
6 new dialysis extension clinic certifications (total stations + 111)
1 new chronic renal dialysis center (total stations + 20)
2 existing dialysis clinic addition certifications (total stations + 18)

Other services (19)

4 lithotripsy service certifications
7 ADHCP certifications (total cap. + 618)
2 AIDS ADHCP certifications (total cap. + 55)
1 ventilator dependent service certification (total cap. + 10)
1 nutritional service certification
1 mobile MRI service certification
1 AIDS scatter bed service certification
1 medical library & education center construction
1 pediatric dental extension clinic certification

Source: DOH (CON).

The year 1998 represents the Tracking System's first analysis of Certificate of Need (CON) approvals. The CON "process governs the establishment and construction of health care facilities in New York State. [The] applications are required for all health care facilities that propose construction, acquisition of major medical equipment, changes in ownership and the addition of services."[8]

[8] <<http://www.health.state.ny.us/nysdoh/cons/about.htm>>

Ambulatory services represent the bulk of the 1998 CON approvals, with 8 new diagnostic and treatments centers (D&TCs) and 9 new ambulatory surgery services approved, as well as 55 extension clinic certifications and 26 primary care extension clinic certifications approved. [Table 7.] In nursing and personal care facilities, new facilities and expansions approved amounted to an approved total increase in residential health care facility (RHCF) capacity of 575. A broad range of hospital-based services were included in 1998 CON approvals, including one new children's hospital and a capacity reduction in one hospital of 208 beds. The capacity expansions approved for home health services amounted to more than 1,300. This stands in contrast to the 1997-98 drop in NYC home health services employment. Dialysis service approvals indicate a substantial planned expansion as well, with almost 200 new stations approved. Among other CON approvals in 1998 were 9 ADCHPs, including 2 AIDS ADCHPs.

3. Occupations

One source of data on licensed health professionals is data from the State Education Department (SED) on the number of individuals holding an active license (that is they have paid their current registration fee). One benefit of licensure data is that it is a prerequisite for practicing in the licensed profession and as such the number licensed is the upper limit on the number of individuals in a state who can practice in the profession. However, there are also some major shortcomings. First, some percent of individuals with a license may not be practicing at all and many may be working less than full time. Second, the address available from the SED on the licensure file is generally a mailing address and *not* a practice address. This is a particular problem in urban areas where many health professionals do not work and live in the same community.

Nevertheless, licensure data can provide some information on major trends in supply in an area. Table 8 presents the number of licensees in selected occupations in 1998 and 1999 that listed New York City or a surrounding county as their address on the licensee file. As indicated in the table, there has been a relatively strong growth in the number of PAs and PTs. This is consistent with data on the recent growth in graduation in these occupations. On the other hand it is interesting to note that the number of licensed nurses and pharmacists actually declined slightly over the 10 month period covered by the data.

TABLE 8. CHANGE IN NUMBER OF LICENSED HEALTH SERVICES PROFESSIONALS, SELECTED OCCUPATIONS, GREATER NEW YORK CITY, DECEMBER, 1998-OCTOBER, 1999

	December '98	October '99	Percent Change
LPN	31,926	32,783	2.7%
Pharmacist	9,230	9,188	-0.5%
RN	102,903	102,128	-0.8%
Opth. Dispensing	1,829	1,878	2.7%
Physical Therapist	5,173	5,634	8.9%
Social Worker	24,189	24,691	2.1%
Physician Assistant	2,347	2,585	10.1%

Source: DOH (SED Licensure data).

The percentage declines in the number of NYS licensed LPNs and pharmacists in NYC between December, 1998, and July, 1999, were almost identical to those observed between December, 1998 and April, 1999 (- 1.2% for LPNs and – 2.1% for pharmacists). [Table 8.] This suggests that there was little change between April and July, and in fact for both occupations the bulk of the change occurred between January and April. Determining whether or not this represents a regular seasonal fluctuation will require a substantially longer time series data set.

TABLE 9. PERCENTAGE OF LICENSED HEALTH SERVICES PROFESSIONALS WITH AN OUT OF STATE MAILING ADDRESS, SELECTED OCCUPATIONS, NEW YORK STATE, DECEMBER, 1998-OCTOBER, 1999

	December '98	October '99
LPN	9.9%	9.0%
Pharmacist	21.5%	20.9%
RN	17.6%	17.5%
Opth. Dispensing	9.3%	9.2%
Physical Therapist	23.6%	24.6%
Social Worker	10.6%	10.4%
Physician Assistant	16.0%	15.6%

Source: DOH (SED Licensure data).

As shown in Table 9., the percentage of professionals licensed in New York State but with an out of state mailing address represents a substantial portion of the total licensed, including more than one-fifth of the pharmacists and physical therapists. As mentioned above, one of the questions this raises is whether those with out of state addresses represent commuters who live in another state and work in New York, professionals practicing in multiple states, or telecommuters such as pharmacists employed by national on-line prescription providers.

TABLE 10. ESTIMATED OCCUPATIONAL EMPLOYMENT AND WAGES, SELECTED OCCUPATIONS, NY PMSA[9], 1997

		Mean Wage	
	Employment	Hourly	Annual
Line and Middle Management Industry Specific Managerial Occupations			
Medicine and Health Services Managers	9,660	$30.41	$63,260
Social Scientists and Other Social, Recreational, and Religious Occupations			
Social Workers, Medical and Psychiatric	8,860	$19.87	$41,320
Health Practitioners, Technologists, Technicians, and Related Health Occupations			
All Other Health Diagnosing and Treating Practitioners	530	$23.33	$48,520
Respiratory Therapists	2,120	$19.73	$41,050
Physical Therapists	3,370	$32.06	$66,680
Corrective and Manual Arts Therapists	70	$17.67	$36,760
Recreational Therapists	1,170	$16.60	$34,530
All Other Therapists	1,070	$17.04	$35,440
Registered Nurses	69,250	$25.93	$53,940
Licensed Practical Nurses	19,490	$15.41	$32,050
Physician Assistants	2,360	$27.29	$56,760
Opticians, Dispensing and Measuring	1,280	$13.66	$28,410
Pharmacists	5,000	$25.44	$52,920
Pharmacy Technicians and Aides	2,720	$10.36	$21,560
Dietitians and Nutritionists	1,950	$18.19	$37,830
Dietetic Technicians	760	$12.46	$25,910
Medical and Clinical Laboratory Technologists	5,660	$19.99	$41,590
Medical and Clinical Laboratory Technicians	4,930	$15.05	$31,310
Dental Hygienists	3,360	$20.11	$41,830
Medical Records Technicians	2,200	$13.42	$27,920
Radiation Therapists	290	$22.12	$46,020
Nuclear Medicine Technologists	330	$21.97	$45,700
Radiologic Technologists	5,320	$22.20	$46,180
Electroneurodiagnostic Technologists	150	$14.75	$30,680
Cardiology Technologists	550	$20.11	$41,830
Electrocardiograph Technicians	620	$16.11	$33,510
Surgical Technologists and Technicians	1,770	$13.36	$27,780
Psychiatric Technicians	1,780	$17.24	$35,860
Veterinary Technicians and Technologists	370	$11.98	$24,920
All Other Health Professionals, Paraprofessionals, and Technicians	18,880	$18.52	$38,520
Secretarial and General Office Occupations			
Medical Secretaries	6,030	$12.18	$25,340
Health Service and Related Occupations			
Dental Assistants	6,880	$11.13	$23,150
Medical Assistants	6,280	$12.44	$25,870
Nursing Aides, Orderlies, and Attendants	55,680	$10.66	$22,160
Home Health Aides	38,480	$7.49	$15,570
Psychiatric Aides	6,650	$12.74	$26,490
Physical and Corrective Therapy Assistants and Aides	1,760	$16.31	$33,920
Occupational Therapy Assistants and Aides	540	$18.93	$39,380
Ambulance Drivers and Attendants, Except Emergency Medical Technicians	1,320	$8.65	$17,990
All Other Health Service Workers	7,830	$11.95	$24,860

Source: DOL (OES).

[9] NY PMSA includes NYC and Westchester, Putnam and Rockland counties.

Since the 1996 and 1997 OES data are not comparable, only the new 1997 figures are presented here. [Table 10.] The highest estimated mean hourly wages for health care occupations in the NYC PMSA in 1997 were for medicine and health services managers, physical therapists, RNs, PAs and pharmacists. Occupations with estimated hourly wages under $15.00 per hour in the NYC PMSA in 1997 included opticians, pharmacy technicians and aides, dietetic technicians, medical records technicians, electroneurodiagnostic technologists, surgical technicians and technologists, veterinary technicians and technologists, medical secretaries and most of the health service and related occupations.

Estimated hourly occupational mean hourly wages for New York State as a whole for 1997 produced a similar pattern to that for the NYC PMSA. With a few exceptions, estimated mean hourly wages were higher in 1997 in the NYC PMSA than statewide. [Table 11. below.] The exceptions include corrective and manual arts therapists, opticians, pharmacists, radiation therapists, home health aides [This may represent a definitional issue. See notes on terminology in Executive Summary.] and psychiatric aides. The largest of the differences where the estimated mean hourly wage for an occupation was higher for New York State than for the NYC PMSA in 1997 was for pharmacists (a difference of $1.43 per hour). [Tables 10. & 13.]

TABLE 11. ESTIMATED OCCUPATIONAL EMPLOYMENT AND WAGES, SELECTED OCCUPATIONS, NYS, 1997

	Employment	Mean Wage Hourly	Mean Wage Annual
Line and Middle Management Industry Specific Managerial Occupations			
Medicine and Health Services Managers	17,140	$28.46	$59,200
Social Scientists and Other Social, Recreational, and Religious Occupations			
Social Workers, Medical and Psychiatric	17,150	$18.11	$37,670
Health Practitioners, Technologists, Technicians, and Related Health Occupations			
Optometrists	2,280	$23.26	$48,370
Veterinarians and Veterinary Inspectors	1,660	$27.55	$57,310
All Other Health Diagnosing and Treating Practitioners	860	$25.58	$53,210
Respiratory Therapists	4,340	$18.65	$38,780
Occupational Therapists	4,490	$26.52	$55,160
Physical Therapists	7,860	$28.73	$59,750
Corrective and Manual Arts Therapists	110	$18.19	$37,820
Speech-Language Pathologists and Audiologists	6,430	$25.31	$52,640
Recreational Therapists	2,460	$15.76	$32,780
All Other Therapists	2,130	$16.10	$33,500
Registered Nurses	151,150	$22.42	$46,640
Licensed Practical Nurses	47,080	$14.05	$29,230
Emergency Medical Technicians	6,670	$11.84	$24,640
Physician Assistants	5,350	$26.56	$55,240
Opticians, Dispensing and Measuring	2,850	$14.66	$30,480
Pharmacists	11,480	$26.87	$55,890
Pharmacy Technicians and Aides	6,780	$9.42	$19,590
Dietitians and Nutritionists	4,440	$17.94	$37,320
Dietetic Technicians	2,320	$11.11	$23,110
Medical and Clinical Laboratory Technologists	10,760	$19.38	$40,310
Medical and Clinical Laboratory Technicians	10,740	$14.59	$30,340
Dental Hygienists	9,420	$19.65	$40,870
Medical Records Technicians	4,590	$11.85	$24,640
Radiation Therapists	520	$22.18	$46,130
Nuclear Medicine Technologists	770	$21.00	$43,690
Radiologic Technologists	12,220	$19.86	$41,300
Electroneurodiagnostic Technologists	340	$14.17	$29,480
Cardiology Technologists	1,080	$19.40	$40,350
Electrocardiograph Technicians	1,080	$14.66	$30,500
Surgical Technologists and Technicians	3,330	$13.31	$27,680
Psychiatric Technicians	3,180	$15.54	$32,320
Veterinary Technicians and Technologists	1,420	$10.69	$22,240
All Other Health Professionals, Paraprofessionals, and Technicians	31,590	$17.67	$36,750
Secretarial and General Office Occupations			
Medical Secretaries	16,240	$11.39	$23,680
Health Service and Related Occupations			
Dental Assistants	15,390	$10.61	$22,060
Medical Assistants	13,460	$11.44	$23,790
Nursing Aides, Orderlies, and Attendants	106,180	$10.06	$20,930
Home Health Aides	60,970	$7.51	$15,610
Psychiatric Aides	20,050	$12.80	$26,630
Physical and Corrective Therapy Assistants and Aides	5,160	$13.79	$28,670
Occupational Therapy Assistants and Aides	1,380	$15.50	$32,240
Ambulance Drivers and Attendants, Except EMTs	2,080	$8.46	$17,610
All Other Health Service Workers	12,880	$11.34	$23,590

Source: DOL (OES).

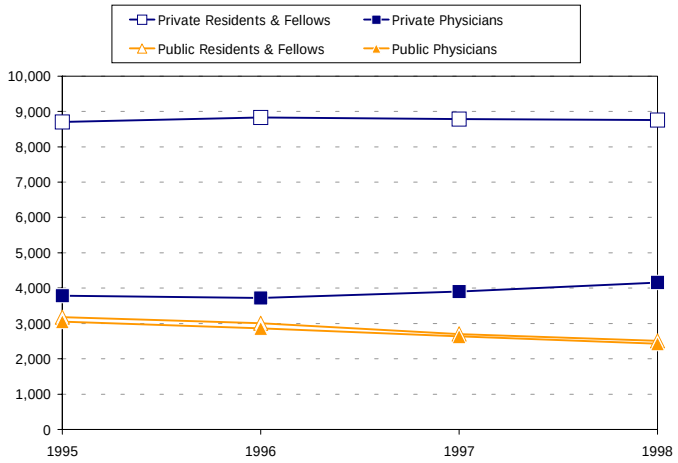
TABLE 12. ESTIMATED MEAN HOURLY WAGE RATES BY OCCUPATION GROUP, NY-NJ-CT-PA CMSA, 1998

	Full-time workers	Part-time workers	Union	Non-union
All occupations	21.44	11.75	19.47	21.46
White collar	25.46	14.77	24.07	24.94
White-collar excluding sales	25.86	18.21	24.85	25.74
Professional specialty and technical	30.22	28.04	31.70	28.76
Professional specialty	31.88	31.45	32.95	30.95
Technical	22.67	16.69	25.87	19.40
Executive administrative and managerial	34.46	22.05	26.79	36.03
Sales	19.95	7.57	12.35	17.80
Administrative support including clerical	15.07	11.37	15.73	14.16
Blue collar	15.00	10.01	16.03	12.60
Precision production craft and repair	20.90	-	21.73	19.20
Machine operators assemblers and inspectors	10.86	9.14	11.56	9.95
Transportation and material moving	15.83	10.42	16.15	13.42
Handlers equipment cleaners helpers and laborers	12.75	7.62	13.93	9.36
Service	14.31	8.09	15.01	9.51

Source: BLS (NCS).

BLS data from 1998 show that hourly wages are higher for full-time than part-time workers across occupations, although they are most similar for professional specialty occupations, which includes physicians, RNs, pharmacists, dieticians, respiratory therapists and social workers, among others. [Table 12.] Also, hourly wages for union workers are higher than those for non-union workers in all but the sales and managerial occupations, particularly the service occupations (includes nurse aide, protective service, food service, cleaning and building service and personal service occupations).

FIGURE 13. TOTAL HOSPITAL RESIDENTS AND FELLOWS AND PHYSICIANS FTES, NYC, 1995-1998



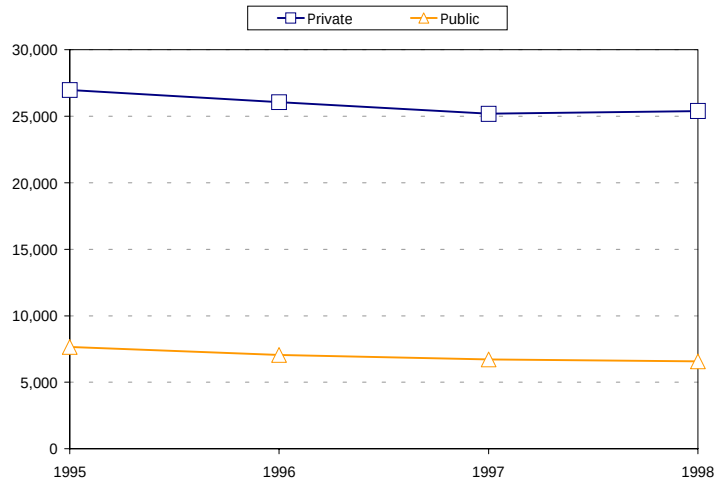
Source: NYS DOH (ICR).

The number of FTE physicians, residents and fellows in public sector NYC hospitals declined steadily between 1995 and 1998[10]. In the private sector, the number of residents and fellows

[10] Now that the Center has four years of DOH hospital ICR data that were released after the restructuring of the occupations included in those reports, an altered occupational coding - more consistent with the new DOH coding - is being used. Hence, the figures and data based on those reports presented here will not match those in the *First Annual Report*.

remained relatively stable over the same period, while the number of FTE physicians began to increase after 1996. [Figure 13.]

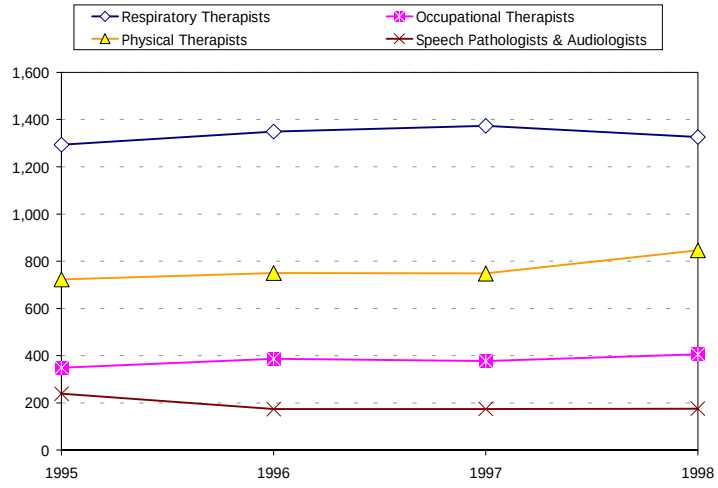
FIGURE 14. TOTAL HOSPITAL REGISTERED NURSE FTES BY AUSPICE, NYC, 1995-1998



Source: NYS DOH (ICR).

The number of FTE RNs in public sector NYC hospitals declined every year between 1995 and 1998 (-14.2% 1995-98), while in the private sector the number of FTE RNs in NYC hospitals dropped between 1995 and 1997 (-6.6%) but increased slightly between 1997 and 1998 (+0.8%, or –5.8% total 1995-98). [Figure 14.]

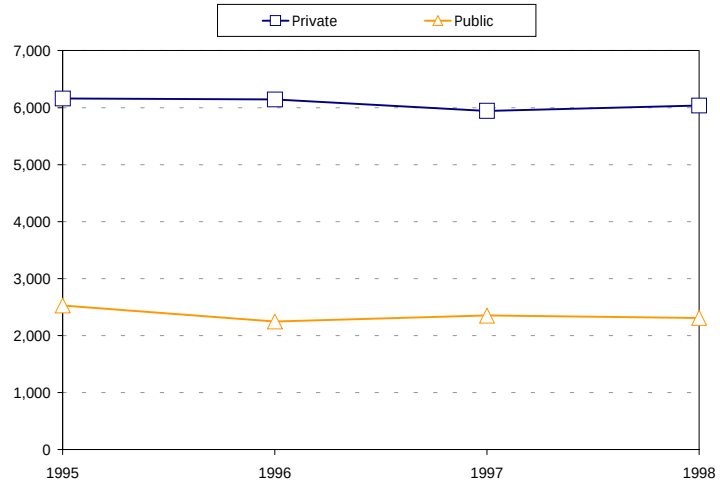
FIGURE15. TOTAL HOSPITAL THERAPIST FTES, NYC, 1995-1998



Source: NYS DOH (ICR).

The number of FTE therapists in NYC hospitals changed little from 1995 to 1998, although the number of FTE respiratory therapists did decline between 1997 and 1998 (-3.4%), while the number of FTE physical therapists and occupational therapists rose during the same year (+13.1% and +7.3%, respectively). [Figure 15.]

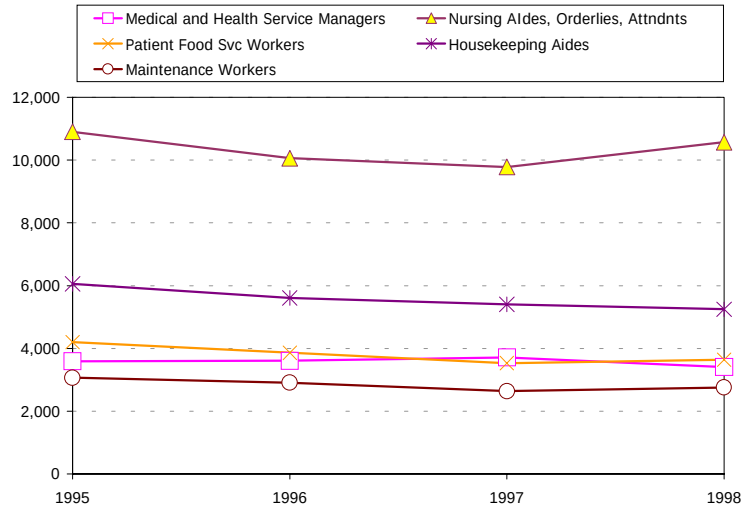
FIGURE 16. TOTAL HOSPITAL MEDICAL AND CLINICAL LABORATORY TECHNICIAN & TECHNOLOGIST FTES, NYC, 1995-1998



Source: NYS DOH (ICR).

The number of FTE laboratory technologists and technicians working in NYC hospitals also experienced little change from 1995 to 1998. Overall, the total 1995-98 change (including private and public) was a decrease of -3.9%. [Figure 16.]

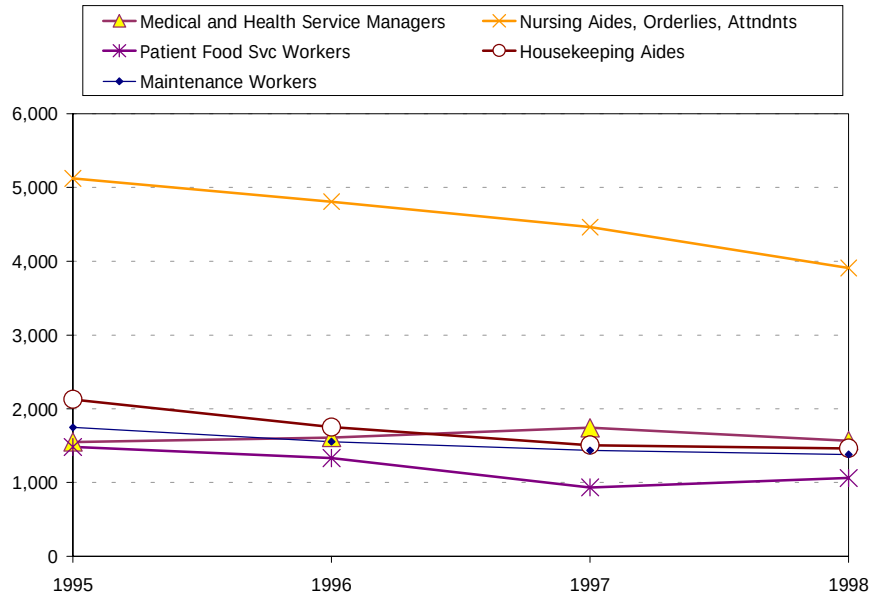
FIGURE 17. TOTAL PRIVATE SECTOR HOSPITAL FTES FOR SELECTED OTHER OCCUPATIONS, NYC, 1995-1998



Source: NYS DOH (ICR).

Regarding the number of private sector hospital FTEs employed in other occupations included in the ICR: medical and health service managers fluctuated but changed little overall (-5%); patient food service workers and maintenance workers declined until 1997 and then rose slightly between 1997 and 1998, though neither back to 1995 levels (-13% and –10% 1995-98, respectively); nursing aides, orderlies and attendants also dropped during the first two years but then rose during the last (+8% 1997-98); and the number of housekeeping aides declined throughout the entire 1995-98 period (-13%). [Figure 17.]

FIGURE 18. TOTAL PUBLIC SECTOR HOSPITAL FTES FOR SELECTED OTHER OCCUPATIONS, NYC, 1995-1998



Source: NYS DOH (ICR).

In the public sector, the trends for managers and food services were similar to those in the private sector. However, in the public sector there was no 1997-98 increase for maintenance and housekeeping workers; and nursing aides, orderlies and attendants dropped even more rapidly from 1997 to 1998 than during the prior two years. [Figure 18.]

TABLE 13. HOSPITAL STAFFING PATTERNS, GNYHA SURVEY (FEB. 1, 1998) & DOH ICR (1998)

	Staff Size for Selected Occupations, GNYC, Feb 1, 98			1998 ICR, NYC	
	# Hospitals reporting	FTEs	Pct.	FTEs	Pct.
Nursing					
Registered Nurse	35	18,701.8	50.0%	31,534	42.4%
Nursing Aide	33	4,045.5	10.8%	14,263	19.2%
Licensed Practical Nurse	35	1,614.0	4.3%	2,901	3.9%
Nurse Practitioner	30	415.1	1.1%	652	0.9%
Nurse Clinician	19	199.9	0.5%		N/A
Nurse Anesthetist	19	104.5	0.3%	128	0.2%
Certified Nurse Midwife	16	70.1	0.2%		N/A
Therapy					
Respiratory Therapist	32	704.2	1.9%	1,284	1.7%
Physical Therapist	28	328.9	0.9%	829	1.1%
Occupational Therapist	24	212.2	0.6%	405	0.5%
Other		343.6	0.9%	1,016	1.4%
Other					
Dietary Aide/Food Worker	34	1,631.0	4.4%	4,592	6.2%
Medical Assistant/Patient Care Technician		1,574.8	4.2%		N/A
Social Worker (MSW)	34	1,159.7	3.1%	2,874	3.9%
Registered Pharmacist	34	719.3	1.9%	1,603	2.2%
Physician Assistant	30	605.0	1.6%	1,250	1.7%
Other		1,273.1	3.4%		N/A
Diagnostic Technology					
General Medical Lab Technologist	34	1,459.3	3.9%	8,269	11.1%
Radiology Technologist	33	805.9	2.2%	2,742	3.7%
General Medical Lab Technician	32	490.2	1.3%		N/A
Other		599.8	1.6%		N/A
Medical Coding					
Medical Coder		325.1	0.9%		N/A
Total	**36**	**37,383.0**	**100.0%**	**74,343**	**100.0%**
				Total (all occs.)	*173,525*

Source: GNYHA; DOH(ICR).

A comparison of the hospital staffing pattern data from the GNYHA *Survey of Hospital Personnel in the Greater New York Area* (1999) reveal a strong resemblance to those derived from the DOH ICR data, suggesting that other data from the GNYHA survey *may* be representative of all NYC hospitals[11]. [Table 131.]

[11] The large difference for general medical lab technologist are most likely a function of occupational definition differences.

TABLE 14. HOSPITAL SALARIES, GNYHA SURVEY (1998) & DOL OES (1997)

1998 GNYHA Survey of Hospital Personnel		GNYC Range		OES, 1997			
	Avg. Ann Starting Salary	Min	Max		U.S. Avg. Annual Salary	NYS	NYC PMSA
Registered Nurse	$47,266	$36,057	$52,000	Registered Nurses	$41,400	$46,640	$53,940
Licensed Practical Nurse	$30,560	$22,786	$40,000	Licensed Practical Nurses	$26,910	$29,230	$32,050
Occupational Therapist	$43,730	$37,995	$53,560	Occupational Therapists	$50,610	$55,160	N/A[12]
Physical Therapist	$44,117	$37,500	$53,560	Physical Therapists	$56,060	$59,750	$66,680
Respiratory Therapist	$38,559	$29,250	$45,000	Respiratory Therapists	$34,110	$38,780	$41,050
Radiation Therapy Technician	$44,722	$30,790	$56,270	Radiation Therapists	$39,630	$46,130	$46,020
Physician Assistant	$54,905	$43,561	$67,000	Physician Assistants	$44,980	$55,240	$56,760
Registered Pharmacist	$51,807	$25,000	$60,972	Pharmacists	$57,990	$55,890	$52,920
Pharmacy Technician/Aide	$25,091	$15,341	$29,232	Pharmacy Technicians and Aides	$18,350	$19,590	$21,560
Registered Dietician	$35,482	$27,760	$40,968	Dietitians and Nutritionists	$34,120	$37,320	$37,830
Dietary Aide/Food Worker	$22,107	$13,397	$26,076	Dietetic Technicians	$20,730	$23,110	$25,910
Emergency Medical Technician	$28,837	$13,700	$32,926	Emergency Medical Technicians	$21,230	$24,640	N/A
General Medical Lab Technologist	$34,350	$29,250	$40,530	Medical and Clinical Laboratory Technologists	$38,350	$40,310	$41,590
General Medical Lab Technician	$30,008	$17,707	$38,497	Medical and Clinical Laboratory Technicians	$26,900	$30,340	$31,310
Radiology Technologist	$37,484	$29,250	$5,000[13]	Radiologic Technologists	$32,840	$41,300	$46,180
Nuclear Medicine Technologist	$37,220	$29,250	$46,490	Nuclear Medicine Technologists	$39,670	$43,690	$45,700
Medical Records Coder	$27,848	$17,328	$33,802	Medical Records Technicians	$21,220	$24,640	$27,920

Source: GNYHA; DOL (OES).

The GNYHA salary data also closely resemble other data, with the greatest exception occurring for physical therapists. [Table 14.] For that occupation, the maximum salary reported to GNYHA falls below the annual averages in the OES for the NYC PMSA, New York State and the U.S. Since the 1997 OES data are not setting specific, one possible conclusion is that in the Greater NYC area physical therapists earn less, on average, working in hospitals than they do in other settings.

[12] Not reported in OES data.
[13] While this $5,000 figure is the reported amount, the Center is currently investigating the possibility of an error in data entry or reporting.

TABLE 15. DIFFICULT TO RECRUIT POSITIONS FOR HOSPITALS, GNYC, 1998

	# Hospitals Reporting	Pct. of Reporting Hospitals[14]
Nurse Practitioner	9	25.0%
Nurse Anesthetist	5	13.9%
Certified Nurse Midwife	5	13.9%
Registered Nurse	5	13.9%
Physical Therapist	13	36.1%
Occupational Therapist	10	27.8%
Ultrasonographer	9	25.0%
Radiation Therapy Technician	6	16.7%
Cytotechnologist	5	13.9%
Medical Records Coder	8	22.2%
Clinical Coding Specialist	5	13.9%
Physician Assistant	7	19.4%
Registered Pharmacist	5	13.9%

Source: GNYHA.

Hospitals reported to GNYHA that a number of positions were hard to recruit. Specifically, one quarter or more of hospitals reporting noted that nurse practitioners, physical therapists, occupational therapists, and ultrasonographers were difficult to recruit. [Table 15.] More hospitals mentioned physical therapists than any other occupation, which may relate to the lower salary they receive in hospitals compared to other settings (*if and only if* the possible conclusion accompanying Table 14 holds). Of the occupations reported as difficult to recruit, RNs represent the single largest number of actual positions.

Also, GNYHA reported that very few surveyed hospitals anticipated an increase or decrease for any given occupation in excess of 5% during the year.

GNYHA also survey its membership regarding RN shortages in the Spring of 1999 (*Survey of Nurse Staffing in the New York City Region: Final Report*; 1999). Key findings include:

- an overall vacancy rate for direct patient care RNs of 5.5%, and even higher vacancy rates for LPN and NP positions (though the number of jobs represented by these latter was relatively small compared to RN position vacancies);

- a significant number of hospital reported difficulties recruiting RNs, especially for certain clinical specialties (medical/surgical, OR, recovery, and ambulatory, emergency and critical care), and most notably for OR, recovery and ambulatory day shifts and critical care night shifts;

- growing concern over the impending shortage of RNs built into the age distribution of the current RN workforce;

[14] Out of a total of 36.

- a variety of “supplemental staffing strategies” are being utilized to overcome recruitment difficulties, including overtime (the most common), per diem, agency, and float pools (the use of per diem and agency nurses is consistent with finding from the New York Times advertisements – see Section II.A.);

- 90% of hospitals responding were not offering financial incentives as a strategy to address recruitment difficulties;

- almost two-thirds of responding hospitals felt that the applicant pool for experienced RNs is decreasing;

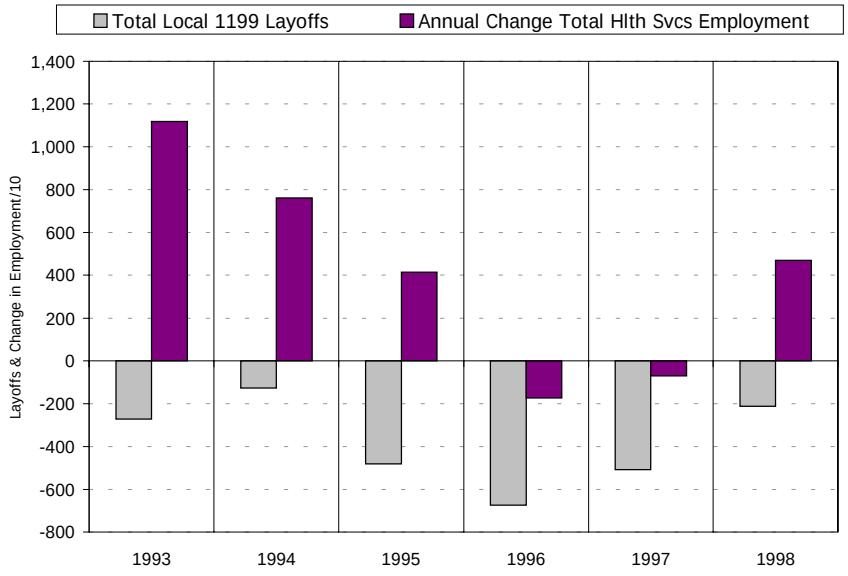
- less than one-quarter of the hospitals offer an externship/internship program, but over 70% are interested in starting one; and

- overall nursing turnover rates among responding hospitals were relatively low (with the exception of LPNs).

5. Integrated Tracking System Datasets

Beyond compiling data from as many sources as could be identified, one of the Tracking System's main tasks has been to begin efforts to integrate these data sources. The results of these efforts have been two-fold. First, a more complete representation of the trends in and current structure of, as well as possible future directions for, the New York City health services workforce has been constructed. Second, the inconsistencies and differences between and among the data sources have become more apparent. The latter topic is examined more fully in section IV. C. This part of the report focuses on the additional insights and understanding that can be gained by combining data from diverse sources.

FIGURE 19. ANNUAL LOCAL 1199 LAYOFFS AND CHANGES IN TOTAL HEALTH SERVICES EMPLOYMENT, 1993-1998

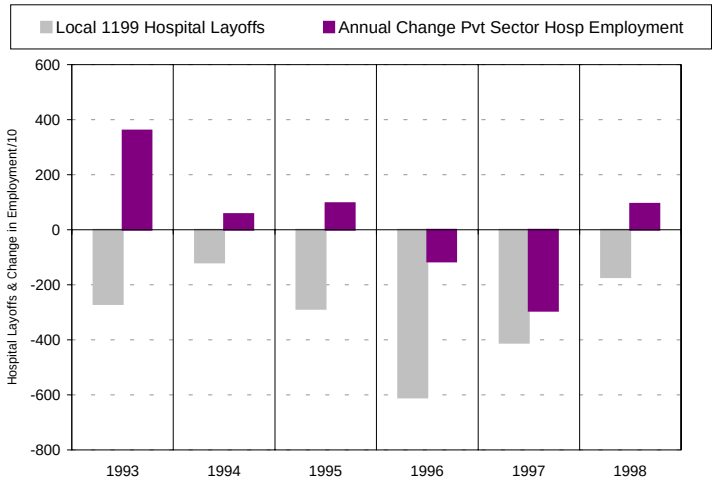


Source: Local 1199; DOL (ES-202).

Figure 19.[15] shows that the trends in Local 1199 layoffs and changes in total NYC health services employment trace very similar lines, with the number of Local 1199 layoffs peaking at the same point that health services employment dropped most (at least for the time period examined here). Moreover, this suggests that the same occupations which form the bulk of 1199's membership *may* be those occupations feeling the greatest impact in fluctuations in the size of the overall NYC health workforce since about 1994. The Center has sought to obtain an 1199 membership profile by job title, but no such profile currently exists. However, this is certainly consistent with trends in the broader economy, insofar as most of the movement is in lower wage service jobs.

[15] Figures 19 & 20 are modified presentations of similar information included in the *First Annual Report*, although ES-202 data were used for 1998 here rather than the SA based estimate employed in the *First Annual Report*.

FIGURE 20. LOCAL 1199 HOSPITAL LAYOFFS AND CHANGES IN PRIVATE SECTOR HOSPITAL EMPLOYMENT, NYC, 1993-1998



Source: Local 1199; DOL (ES-202).

Local 1199 hospital layoffs and changes in private sector hospital employment in NYC also follow similar trend lines, though the number of hospital layoffs hit its highest point a year before the largest drop in hospital employment. [Figure 20.] Still, this also suggests some similarity, within hospitals, between the occupations comprising most of 1199's hospital-based membership and the occupations within hospitals most heavily represented in the changes in overall NYC private sector hospital employment, particularly over the last few years.

This matching trend phenomenon does not seems to hold as well for nursing homes and home health, the other two most prevalent employment settings for 1199 workers. In nursing homes, in particular, the similarity in trends appears to be tenuous. Changes in nursing home employment fluctuated, although always towards an increase, between 1993 and 1998. The only year during this period that saw significant 1199 layoffs was 1995, and 82% of the 1995 layoffs were in one facility. In home health care, no layoffs were reported except in 1998, which was the first year overall NYC home health employment declined since at least 1989. However, the number of home health layoffs was *very* small (2) relative to the estimated number of 1199 members employed in home health (20,985). [See Section V.E.]

TABLE 16. PERCENTAGE OF REPORTED JOB VACANCIES BY SETTING, 1997-1999 (1ST QUARTER ONLY)

	1997	1998	1999 (1st quarter only)
Office/Clinic/D&TC	3.3%	2.6%	2.3%
Nursing Home	14.8%	15.3%	19.3%
Hospital	77.0%	76.1%	73.6%
Lab	0.4%	0.2%	0.2%
Home Health	0.0%	0.0%	0.0%
NEC	4.5%	5.8%	4.6%

Source: Local 1199.

The distribution of job vacancies across settings and occupations changed little from 1997 to 1998, and it appears to be following a similar pattern for 1999. [Tables 16 & 17.] For comparison, just over 50% of 1199 members are employed in hospitals, 22% in nursing homes, 2% in offices and clinics, 19% in home health; 0.3% in labs, and 3.5% in other settings. [See Section V.E.] Thus the distribution of vacancies is disproportionately high in hospitals and low in nursing homes and home care.

TABLE 17. PERCENTAGE OF REPORTED JOB VACANCIES BY OCCUPATIONAL GROUPING, 1997-1999 (1ST QUARTER ONLY)

	1997	1998	1999 (1st quarter only)
Professional, Paraprofessional and Technical	8.9%	10.2%	9.2%
Health Practitioners, Technicians and Related	23.3%	24.7%	31.7%
Clerical and Administrative Support	25.3%	26.1%	21.7%
Service	37.8%	35.1%	33.1%
Production, Operating Maintenance and Material Handling	4.7%	3.9%	4.3%
Total	100.0%	100.0%	100.0%

Source: Local 1199.

Consistent with the national trend of job growth in lower wage occupations, vacancies posted tended to be in such jobs: almost one-third were accounted for by vacancies in the nurse aide, receptionist and housekeeping occupations (compared with LPNs and RNs, which accounted for only 5.5% and 4.5% of the vacancies, respectively).

TABLE 18. PERCENTAGE OF REPORTED VACANCIES FOR TEMPORARY POSITIONS, BY SETTING, 1997-1998

	1997	1998
Office/Clinic/D&TC	16.1%	14.9%
Nursing Home	19.0%	26.6%
Hospital	20.7%	14.5%
Lab	40.7%	29.4%
Home Health	N/A[16]	0.0%
NEC	14.2%	16.2%

Source: Local 1199.

Between 1997 and 1998 the percentage of vacancies reported that were for temporary, rather than permanent, positions remained fairly stable across settings, although in hospitals it dropped from 20.7% to 14.5% and in labs from 4.07% to 29.4%. [Table 18.]

[16] There were no reported vacancies in home health services for 1997.

TABLE 19. PERCENT OF REPORTED VACANCIES FOR PART-TIME POSITIONS, BY SETTING, 1997-1998

	1997	1998
Office/Clinic/D&TC	17.4%	21.2%
Nursing Home	57.7%	72.8%
Hospital	38.9%	42.2%
Lab	48.1%	11.8%
NEC	17.6%	22.4%

Source: Local 1199.

The percentage of reported vacancies that were for part-time positions, versus full-time, increased in all settings between 1997 and 1998, except laboratories. [Table 19.] The increase was most noteworthy in nursing homes, where it went from 57.7% of 1997 vacancies to 72.8% in 1998. For hospitals, this trend does not coincide with the rise in total FTEs (1997 and 1998 FTE data for nursing homes are still being processed).

TABLE 20. PERCENT OF REPORTED VACANCIES FOR TEMPORARY POSITIONS BY OCCUPATIONAL GROUPING, 1997-1998

	1997	1998
Professional, Paraprofessional and Technical	12.6%	12.8%
Health Practitioners, Technicians and Related	10.9%	11.1%
Clerical and Administrative Support	20.6%	15.2%
Service	24.5%	20.6%
Production, Operating Maintenance and Material Handling	42.3%	33.2%

Source: Local 1199.

The percentage of vacancies that were temporary also changed little across occupational groupings between 1997 and 1998, although declines did occur for clerical and administrative support, service and production and maintenance positions. [Table 20.] Interestingly, the decreases were in those occupations which tend to have lower wages. Some of the highest figures for percentage of openings temporary were for nurse aides, housekeeping positions and receptionists (only 6.7% of the LPN and 3.5% of the RN vacancies were temporary, while 18.4% of the nurse aide and 34.6% of the housekeeping were temporary).

TABLE 21. PERCENT OF REPORTED VACANCIES FOR PART-TIME POSITIONS BY OCCUPATION GROUPING, 1997-1998

	1997	1998
Professional, Paraprofessional and Technical	18.8%	19.4%
Health Practitioners, Technicians and Related	28.2%	30.4%
Clerical and Administrative Support	32.8%	40.2%
Service	59.1%	67.1%
Production, Operating Maintenance and Material Handling	22.5%	38.2%

Source: Local 1199.

The percentage of vacancies that were for part-time positions increased across occupational groupings, just as it did for most settings. [Table 21.] The largest of these increases was for production and maintenance jobs. Looking at specific occupations accounting for large proportions of the total vacancies reported, part-time positions accounted for 62% of the nurse aide vacancies, 52% for receptionists, 67% for housekeeping, 37% for LPNs and 28% for RNs.

TABLE 22. PERCENT OF REPORTED VACANCIES FOR PART-TIME POSITIONS BY SETTING BY OCCUPATION GROUPING, 1997-98

		1997	1998
Professional, Paraprofessional and Technical			
	Office/Clinic/D&TC	9.5%	1.5%
	Nursing Home	22.4%	13.5%
	Hospital	21.8%	24.6%
	NEC	9.9%	14.9%
Health Practitioners, Technicians and Related			
	Office/Clinic/D&TC	17.2%	18.0%
	Nursing Home	39.1%	54.0%
	Hospital	27.0%	27.7%
	NEC	22.2%	16.7%
Clerical and Administrative Support			
	Office/Clinic/D&TC	20.3%	34.0%
	Nursing Home	18.4%	20.4%
	Hospital	35.7%	42.4%
	NEC	12.0%	17.8%
Service			
	Office/Clinic/D&TC	20.0%	59.1%
	Nursing Home	76.0%	88.5%
	Hospital	54.0%	59.1%
	NEC	63.9%	51.4%
Production, Operating Maintenance and Material Handling			
	Office/Clinic/D&TC	33.3%	33.3%
	Nursing Home	16.4%	40.0%
	Hospital	23.0%	38.1%
	NEC	40.0%	30.0%

Source: Local 1199.

Table 22 shows the distribution of percentage of vacancies part-time across settings and occupations for 1997 and 1998. The rise in percentage of nursing home vacancies that are part-time positions appears to have been spread across health practitioners and technicians, service

occupations, and especially production and maintenance. In fact, together with hospitals, nursing homes seem to account for the bulk of the rise in percentage of positions in this occupational grouping that are for part-time jobs. However, when these data are analyzed at this level of detail some of the individual numbers can become very small and therefore questionable regarding their external validity.

To the extent that these analyses are more broadly applicable, the following are noteworthy:

- Social workers represented the majority of part time reported professional vacancies across settings;

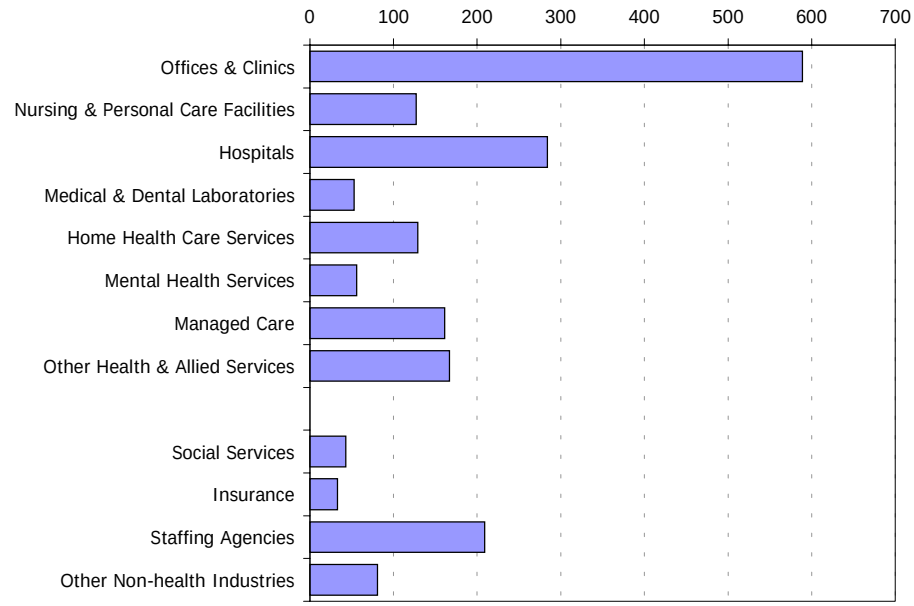
- LPNs represented the majority of part time reported health practitioner vacancies across settings, with RNs contributing in hospitals;

- Data entry workers (offices and clinics), receptionists and unspecialized clerks (hospitals) and secretaries/typists (NEC) represented the majority of part time reported clerical vacancies;

- Nurse aides, housekeeping, and medical assistants represented the majority of part time reported service vacancies in nursing homes and hospitals; and

- General laborers, material movers and motor vehicle operators represented the majority of part time reported production vacancies in nursing homes and hospitals, with maintenance contributing in nursing homes.

FIGURE 21. *NEW YORK TIMES* EMPLOYMENT CLASSIFIED ADVERTISEMENTS FOR HEALTH CARE & RELATED POSITIONS BY EMPLOYMENT SETTING, MARCH-JULY, 1999[17]



Source: *New York Times*.

The classified advertisements for health care and related positions in the *New York Times* for the period from March to July of 1999 show a somewhat different pattern than the Local 1199 job vacancies data, most likely due to the types of institutions where 1199 members are most often employed. [Figure 21.] Almost one-third (31%) of the Times advertisements were for positions in offices and clinics, which tends to confirm the growth in ambulatory care, followed by hospitals (15%) and staffing agencies (11%). It is worth noting that this last category, staffing agencies, may be supplying hospitals with workers. All other settings and employer types accounted for less than 10% of the advertisements. Interestingly, 'non-health' settings, i.e., social services, insurance, staffing agencies and other non-health, accounted for close to one-fifth (19%) of the advertisements during this period.

[17] On-line classified advertisements are sampled at the beginning of each month.

TABLE 23. ***NEW YORK TIMES*** **EMPLOYMENT CLASSIFIED ADVERTISEMENTS BY DETAILED OCCUPATION, MARCH-JULY, 1999**

	Occupation	Number of Positions Advertised	Percent
Managerial & Administrative	Financial Managers	54	2.4%
	Personnel Managers	9	0.4%
	Medicine and Health Services Managers	95	4.2%
	All Other Managers and Administrators	110	4.9%
	Accountants and Auditors	23	1.0%
	All Other Financial Specialists	18	0.8%
Professional, Paraprofessional & Technical	Physical and Life Science Techs.	10	0.4%
	Computer Support Specialists	20	0.9%
	Computer Programmers - Systems Analysts	13	0.6%
	Social Workers Medical and Psychiatric	63	2.8%
	Counselors	15	0.7%
	Respiratory Therapists	5	0.2%
	Occupational Therapists	2	0.1%
	Physical Therapists	11	0.5%
	Speech-Lang. Pathologists and Audiologists	8	0.4%
	All Other Therapists	12	0.5%
	Registered Nurses	516	23.0%
	Nurse Practitioner	23	1.0%
	Licensed Practical Nurses	108	4.8%
	Physician Assistants	21	0.9%
	Pharmacists	18	0.8%
	Pharmacy Technicians	6	0.3%
	Dietitians and Nutritionists	12	0.5%
	Medical and Clinical Lab Technicians	23	1.0%
	Dental Hygienists	3	0.1%
	Medical Records Technicians	64	2.9%
	Nuclear Medicine Technologists	5	0.2%
	Radiologic Technologists	48	2.1%
	Electroneurodiagnostic Technologists	7	0.3%
	Cardiology Technologists	6	0.3%
	Surgical Technologists and Technicians	9	0.4%
	All Other Hlth. Profs. Paraprofs. and Technicians	44	2.0%
Sales & Related	PR Specialists and Publicity Writers	13	0.6%
	Sales Reps and Salespersons	44	2.0%
Clerical & Administrative Support	Insurance Claims & Examining Clerks	44	2.0%
	Bill and Account Collectors	169	7.5%
	Secretaries	216	9.6%
	Receptionists and Information Clerks	68	3.0%
	Bookkeeping Accounting and Auditing Clerks	17	0.8%
	Billing Cost and Rate Clerks	27	1.2%
	All Other Clerical and Admin Support Workers	112	5.0%
Service	Dental Assistants	2	0.1%
	Medical Assistants	55	2.5%
	Nursing Aides Orderlies and Attendants	7	0.3%
	Home Health Aides	4	0.2%
	Physical and Corrective Therapy Assists	12	0.5%
	Occupational Therapy Assistants and Aides	2	0.1%
	Other	68	3.0%
	Total	**2241**	**100.0%**

Source: *New York Times*.

With the exception of RNs (23.0%), secretaries (9.6%), bill and account collectors (7.5%) and all other clerical and administrative support workers (5.0%), each occupation accounted for less than 5% of the advertisements posted. [Table 23.]

TABLE 24. *NEW YORK TIMES* EMPLOYMENT CLASSIFIED ADVERTISEMENTS BY EMPLOYMENT SETTING FOR SELECTED OCCUPATIONS, MARCH-JULY, 1999

	Offices & Clinics	Nursing & Personal Care Facilities	Hospitals	Medical & Dental Laboratories	Home Health Care Services	Other Health & Allied Services NEC	Managed Care	Staffing Agency	Other (Non-health)	Total
Registered Nurses	48	41	62	2	64	56	42	79	42	**436**
Medical Secretaries	129	1	9	0	0	8	2	5	1	**155**
Bill and Account Collectors	55	3	9	0	2	17	10	12	25	**133**
All Other Clerical and Admin Support Workers	30	2	31	0	3	16	2	8	4	**96**
Licensed Practical Nurses	12	12	8	0	16	13	4	16	11	**92**
Medicine and Health Svcs Mgrs.	39	9	6	4	9	11	3	2	5	**88**
All Other Mgrs. and Administrators	27	3	10	3	7	13	6	10	4	**83**
Social Wkrs Medical and Psychiatric	3	12	15	0	3	20	2	0	7	**62**
Receptionists and Information Clerks	36	0	4	2	0	8	1	8	1	**60**
Financial Mgrs.	8	0	9	1	3	9	11	3	5	**49**
Medical Records Technicians	10	1	14	0	0	6	1	14	2	**48**
Medical Assistants	31	0	2	1	0	3	1	5	3	**46**
Insurance Claims Clerks	0	0	0	0	0	0	39	1	0	**40**
Radiologic Technologists	11	0	8	1	0	4	2	8	2	**36**
All Other Hlth Profs Paraprofs and Technicians	16	1	2	1	2	5	1	6	1	**35**
All Other Sales Reps and Salespersons Svcs	2	0	0	6	1	3	0	2	17	**31**
Secretaries Except Legal and Medical	5	3	13	0	0	4	3	3	0	**31**
Total	**462**	**88**	**202**	**21**	**110**	**196**	**130**	**182**	**160**	**1,521**

Source: *New York Times*.

Among those occupations for which the most classified advertisements were placed, the distribution across employer types varied substantially. [Table 24.] For RNs, the largest number of ads were placed by staffing agencies (18%), followed by home health (15%), hospitals (14%) and other health and allied services (13%). In fact, the only setting with less than 40 RN ads was laboratories. Almost all the ads for medical secretaries (83%) were placed by offices and clinics, as were almost half (41%) of the ads for bill and account collectors. Just under two-thirds (64%) of the ads for other clerical and administrative support workers were from offices and clinics (31%) and hospitals (32%). The ads for LPNs were fairly evenly spread across offices and clinics (13%), nursing homes (13%), home health (17%), other health and allied services (14%), staffing agencies (17%), and other non-health (12%) employers.

As with the Local 1199 data, since some of these numbers are quite small the temptation to broad generalizations should be avoided.

TABLE 25. *NEW YORK TIMES* EMPLOYMENT CLASSIFIED ADVERTISEMENTS FOR NURSING OCCUPATIONS BY DETAILED EMPLOYER TYPE, MARCH-JULY, 1999

	Registered Nurses	Nurse Practitioner	Licensed Practical Nurses	Total	Percent
Offices & Clinics - MD	30	6	4	**40**	**7.3%**
Offices & Clinics - Other/Unknown	12	3	3	**18**	**3.3%**
Nursing & Personal Care Facilities	41	0	12	**53**	**9.7%**
Hospital	62	1	8	**71**	**13.0%**
Medical & Dental Laboratories	2	2	0	**4**	**0.7%**
Home Health Care Services	64	0	16	**80**	**14.7%**
Other Health & Allied Services NEC	38	0	4	**42**	**7.7%**
School or Other Education-Related	5	0	1	**6**	**1.1%**
Social Services	12	0	9	**21**	**3.8%**
Ambulatory	12	2	6	**20**	**3.7%**
Insurance	7	0	0	**7**	**1.3%**
Staffing Agency	79	3	16	**98**	**17.9%**
Managed Care	42	0	4	**46**	**8.4%**
Mental Health	6	1	3	**10**	**1.8%**
Group Practice	6	0	5	**11**	**2.0%**
Non-health	18	0	1	**19**	**3.5%**
Total	**436**	**18**	**92**	**546**	**100.0%**

Source: *New York Times*.

Looking over the classified advertisements placed for nursing professionals shows that the majority of the other health and allied services ads were placed by managed care organizations. [Table 25.] By including NPs and LPNs, the ads placed by home health employers and staffing agencies stand out even more, largely due to ads for LPNs. Particularly for NPs and LPNs, these numbers are quite small and should be viewed with a skeptical eye.

B. Experimental Indicators

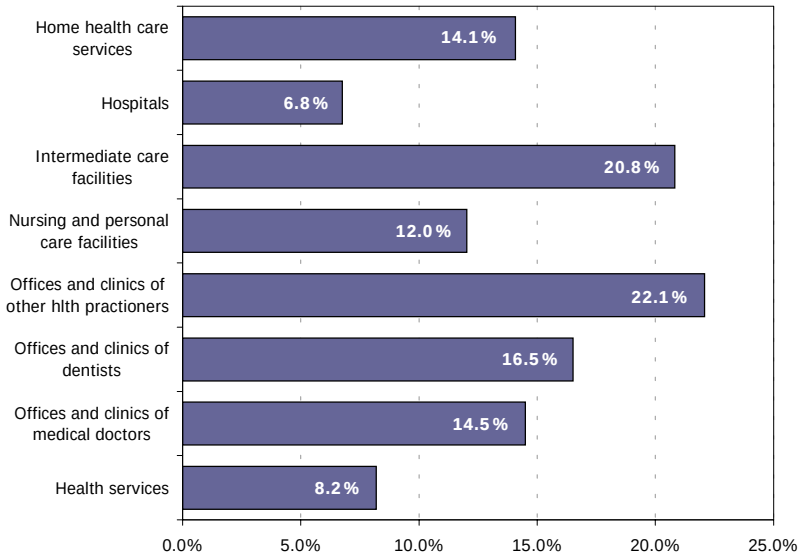
The Center continues to try to identify potential quantitative indicators of health care workforce trends. These efforts have been divided into identifying trend indicators (quantitative measures representative of current and historical trends) and developing quantitative models to estimate current and possible future NYC health services employment.

1. Trend Indicators

Wages

If wage trends in NYC are assumed to follow courses similar to those seen on a national scale, then an examination of the national trends in health services and hospital wages may provide some insights into the overall balance between supply and demand for workers in these settings.

Figure 22. Percent Change in Average Hourly Wage by Health Services Setting, U.S., 1988-1998 (CPI Indexed)

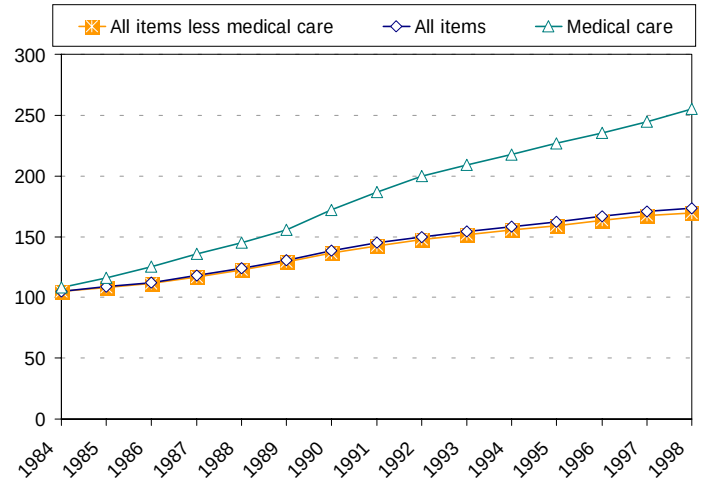


Source: BLS (CES).

Looking at the long term trend in U.S. health services pay rates, the average hourly wage for health services as a whole rose 8.2% between 1988 and 1998. [Figure 22.] Wage rate increases (none dropped) vary greatly across settings. Both intermediate care facilities (the lowest paying) and other health care practitioners' clinics saw average hourly wages increase more than 20% from 1988 to 1998. In contrast, hospitals (the highest paying), saw a 10-year rise of just under 7.0%, making them the only health services setting which saw an increase of less than 10% nationwide during the decade.

Costs & Expenditures

FIGURE 23. CONSUMER PRICE INDEX, ALL URBAN CONSUMERS, NEW YORK-NORTHERN NEW JERSEY-LONG ISLAND, NY-NJ-CT-PA CMSA, 1984-1998 (BASE PERIOD : 1982-84=100)



Source: BLS (CPI).

The cost of medical care, as measured by the Consumer Price Index, has risen much faster than that of other goods. [Figure 23.] Both the 'all items' and 'all items less medical care' indices increased over 60% between 1984 and 1998, while the medical care index rose more than 130%. Thus, the rate of increase in the cost of medical care in the NY CMSA was over 9 times that for national health services wages between 1988 and 1998 (76.1% versus 8.2%, respectively).

Also, for the period for which NYC ES-202 employment data are currently available, 1989-1998, the percentage increase in the medical care CPI for the NY-NJ-CT-PA CMSA was 63.7%, approximately 4 times the increase in NYC health services employment (16.3%). Thus, the cost of medical care for consumers in the NYC area rose 4 times faster than the number of workers employed in health care in NYC during the 9-year period from 1989 to 1998.

Health Services Sector of the Economy

Two potential indicators of the relative condition of the health services sector in NYC are the Location Quotient and the National Share of Growth Component[18].

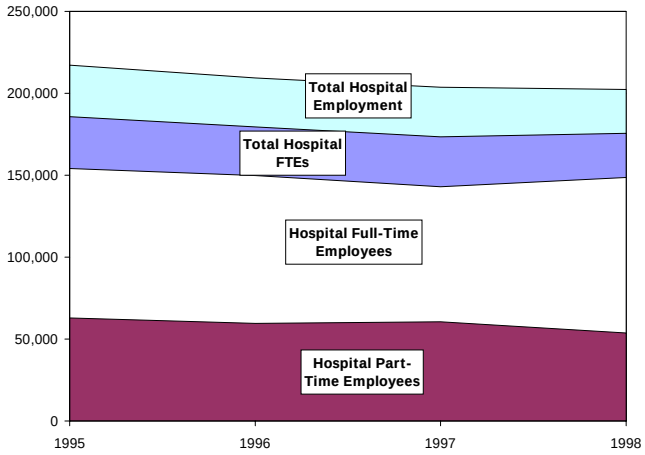
The Location Quotient measures an industry's concentration in a geographical area relative to the entire country, or an industry's share of local employment as compared to its share of national employment. For health services in NYC in 1998, this quotient was 1.18, which implies that the industry – in this case health services – is "producing more goods and services than are consumed locally."[19]

[18] Framework developed by the Hubert H. Humphrey Institute of Public Affairs, University of Minnesota. Also, data used here are from the CES-National & SA series, since ES-202 data are not currently available for the US.
[19] Hubert H. Humphrey Institute of Public Affairs, "Framework for Understanding Your Industries", p.4.

The National Share of Growth Component is simply the share of local job growth that can be attributed to growth in the national economy. For health services in NYC, employment grew less than the national share between 1980 and 1990, i.e., health services employment grew more slowly over this period in NYC than in the U.S.

Hospitals

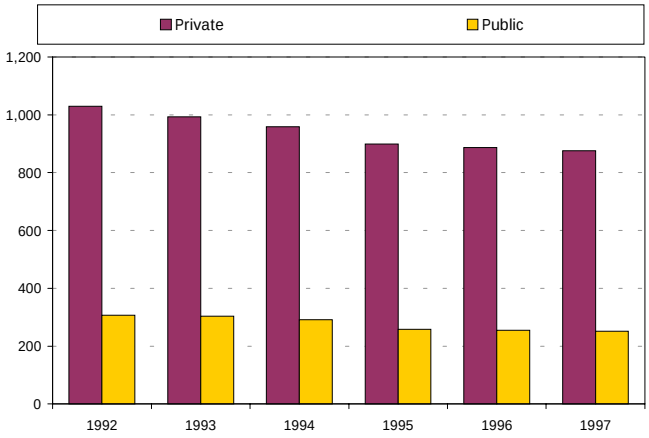
FIGURE 24. HOSPITAL EMPLOYMENT, FTES, FULL AND PART TIME EMPLOYEES, NYC, 1995-1998



Source: DOL (ES-202); DOH (ICR); CHWS.

If the algorithm described in the *First Annual Report* for estimating full-time and part-time employees from total employment and total FTEs is applied to NYC hospital employment across time, an interesting picture emerges. The trend toward increasing usage of part-time workers described in the *First Annual Report* appears to have changed course, with total hospital FTEs and hospital full-time employees increasing from 1997 to 1998 while total hospital employment and part-time employees declined. [Figure 24.]

FIGURE 25. TOTAL PATIENT DAYS PER 1,000 POPULATION BY AUSPICE, NYC, 1992-1997[20]

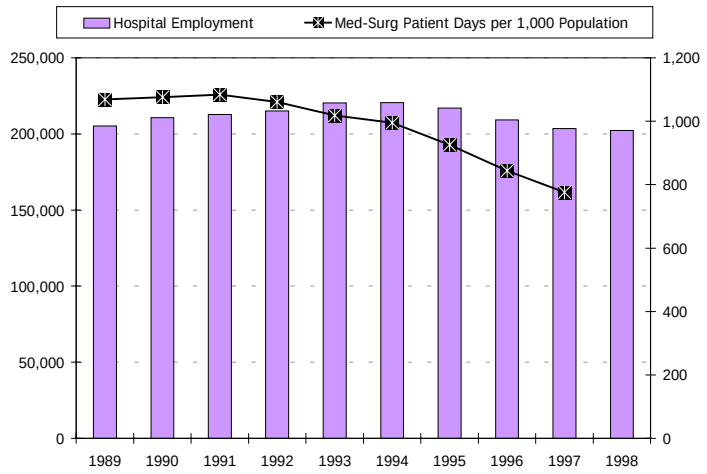


Source: UHF; Census Bureau.

[20] 1997 represents the most recent year for which utilization data were available as of the time this report went to print.

Hospital utilization in NYC declined steadily throughout the 1992-97 period in both the private and public sectors. Overall, utilization in the public sector declined relatively more than in the private sector (-18.0% versus –14.9%, respectively, 1992-97). However, the rate of decline was the same in both sectors between 1996 and 1997 (-1.3%). [Figure 25.]

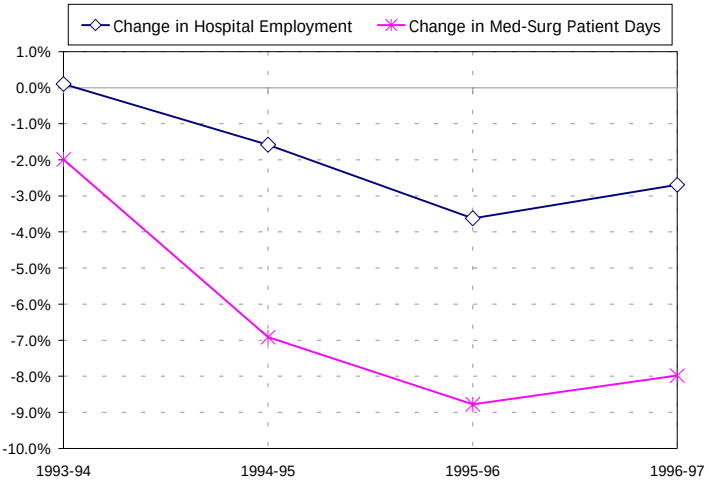
FIGURE 26. MED-SURG PATIENT DAYS PER 1,000 POPULATION, NYC, 1992-1997/8



Source: DOL (ES-202); UHF; Census Bureau.

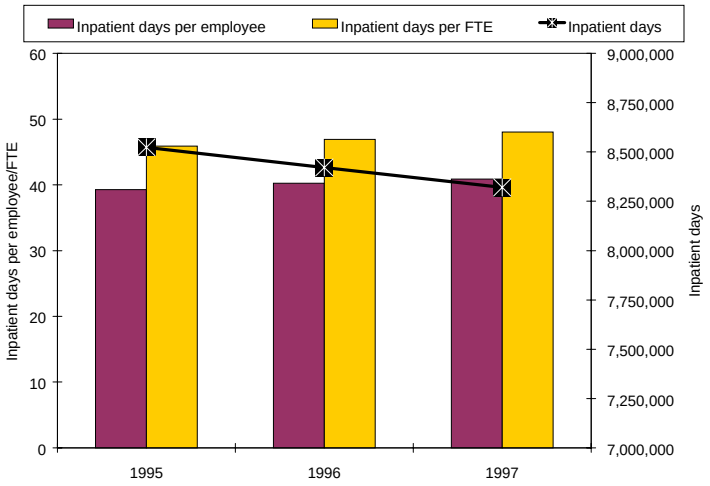
NYC hospital utilization began to decline after 1991, while employment in NYC hospitals continued to increase until 1994 (it has dropped every since). [Figure 26.] While it appears that the trend in medical-surgical patient days may precede that for hospital employment, between 1993 and 1997 (the last year for which utilization figures are currently available) the rates of change in these two quantities have actually followed parallel courses. [Figure 27. below.]

FIGURE 27. ANNUAL PERCENTAGE CHANGE IN TOTAL HOSPITAL EMPLOYMENT & MED-SURG PATIENT DAYS, NYC, 1993-1997



Source: DOL (ES-202); UHF.

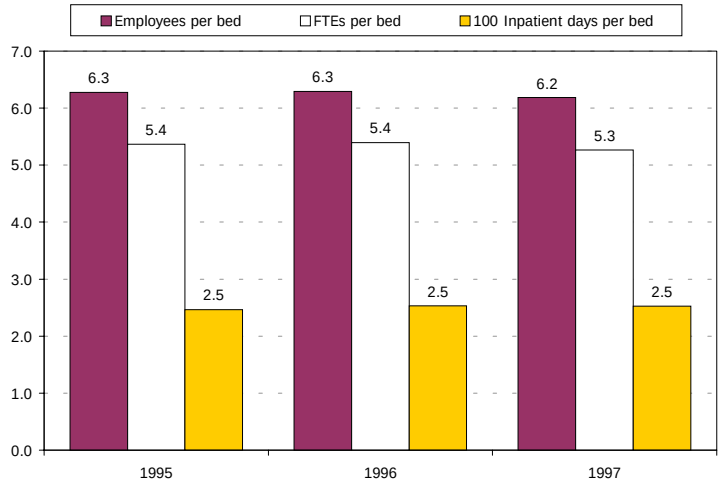
FIGURE 28. INPATIENT DAYS AND INPATIENT DAYS PER EMPLOYEE AND FTE, NYC, 1995-1997



Source: UHF; DOH (ICR).

To place these trends in perspective, other changes in NYC hospitals need to be examined. For instance, the decline in inpatient days for NYC hospitals during the 1995-1997 period can be compared to the trends in ratios of inpatient days to hospital employees and FTEs. [Figure 28.] This particular comparison shows that between 1995 and 1997 the decrease in inpatient days has outpaced the decline in employees and FTEs such that the inpatient days per employee and FTE ratios dropped from 1995 to 1997, following the trend reported in the *First Annual Report*.

FIGURE 29. HOSPITAL INPATIENT DAYS, EMPLOYEES AND FTES PER BED, NYC, 1995-1997



Source: DOL (ES-202); DOH (ICR & Hospital Occupancy Reports); UHF; CHWS.

One final way of examining these figures is to present a measure of hospital capacity alongside indicators of utilization and employment. [Figure 29.] Examination of ratios of inpatient days, employment and FTEs to hospital beds suggest that, while the total capacity (as indicated by number of hospital beds) decreased between 1995 and 1997, so did utilization, employment and FTEs.

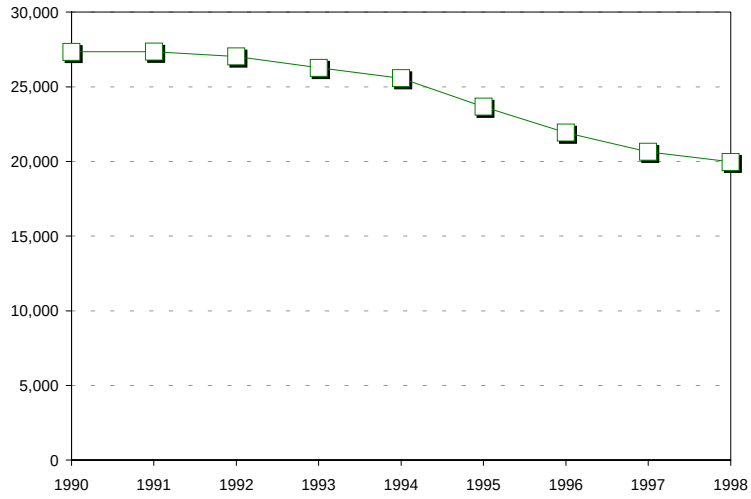
TABLE 26. HOSPITAL FTES PER BED BY OCCUPATIONAL GROUPING & AUSPICE, 1995-1997

	Private		Public	
	1995	1997	1995	1997
Administration	0.5	0.5	0.6	0.6
Health Professionals & Paraprofessionals	1.2	1.3	1.7	1.4
Nurses	1.3	1.2	1.1	1.0
Services	1.6	1.6	1.6	1.3
Nurse & Therapy Aides	0.5	0.4	0.6	0.5
Other	0.6	0.5	0.3	0.1
Total	**5.5**	**5.5**	**5.9**	**5.0**

Source: DOH (ICR); UHF; CHWS.

If the two-year trend in FTEs per bed is disaggregated by occupational grouping and auspice, the points of greatest change become more clear. [Table 26.] The staffing-to-capacity ratios in the private sector remained almost constant between 1995 and 1997, while in the public sector the overall ratio decreased substantially, with most of this change occurring in the health professionals and paraprofessionals and services occupations.

FIGURE 30.A. AVERAGE DAILY CENSUS, NEW YORK CITY HOSPITALS, 1990-98



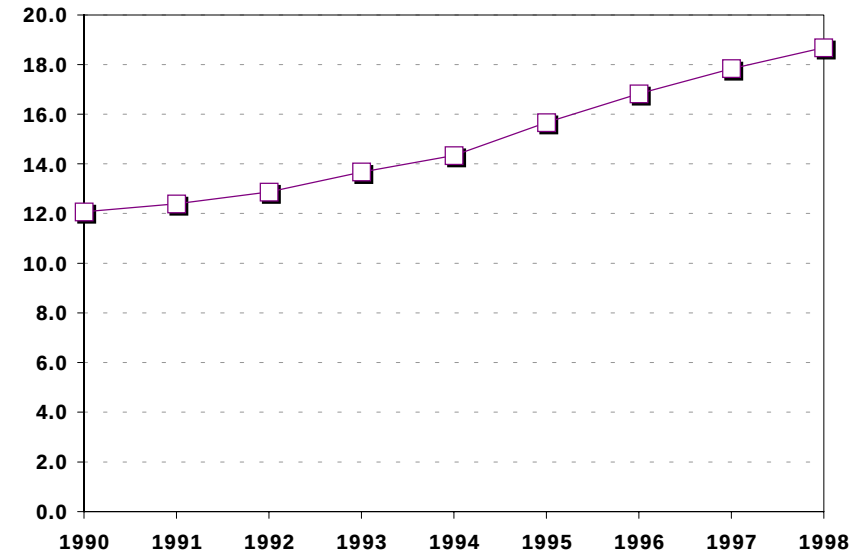
Source: UHF.

The average daily census in NYC hospitals declined from 1991 through 1998, with the greatest rate of decrease between 1995 and 1997. [Figure 30.a.] According to UHF, factors contributing to this trend include the growth of managed care, declines in epidemics such as AIDS and tuberculosis, the shift to outpatient settings, and new technologies that reduce hospital stays[21].

[21] UHF. "Patterns in Inpatient Census Declines." *Hospital Watch* 10(2). September, 1999.

If the employment daily census trends are combined into employment per average daily census, then a steady rise from 1990 to 1998 in employment per filled bed is observed. [Figure 30.b.]

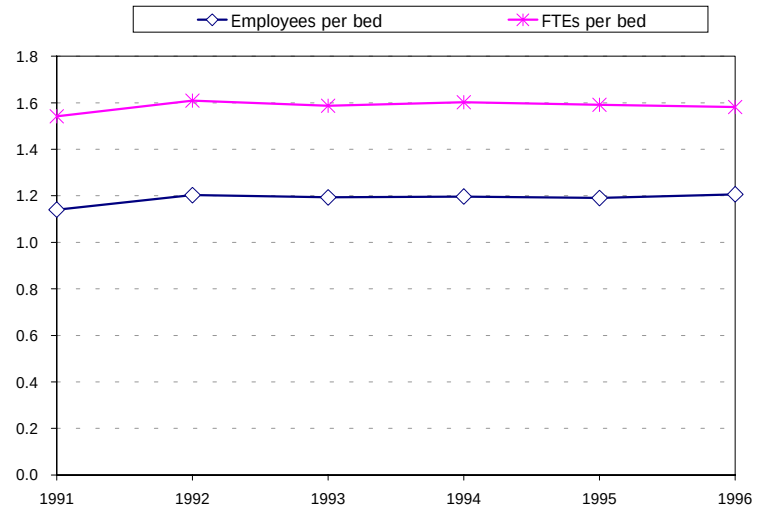
FIGURE 30.B. EMPLOYMENT PER AVERAGE DAILY CENSUS, NEW YORK CITY, 1990-1998



Source: DOL (ES-202); UHF.

Nursing Homes

FIGURE 31. EMPLOYEES AND FTES PER BED IN NURSING HOMES, NYC, 1991-96



Source: DOH (ICR); DOL (ES-202).

The trend in overall staffing levels, relative to capacity, in NYC nursing homes remained relatively stable from 1992 to 1996 in terms of both numbers of employees and numbers of FTE employees per bed. [Figure 31.] Since NYC nursing homes employment rose 12.9% and FTEs increased 9.5% over this time period, while the total number of nursing home beds increased 6.7%, this indicates an overall expansion in the industry with only a very slight shift upward in staffing levels.

2. Models

Along with experimenting with potential indicators of health service employment and workforce conditions, preliminary endeavors at developing quantitative models for estimating current and future employment levels have also been undertaken. In the *First Annual Report*, model development focused solely on total NYC health services employment. For this report, the health services model is reviewed and updated and a similar preliminary model for total NYC hospital employment is presented.

The initial step in model development is to locate appropriate sources of supplementary data about the population served by the health care system. Along with the sources already identified for their inclusion of health workforce specific data, additional data are compiled based on their potential for contributing to useful health workforce models. These sources include historical U.S. Bureau of the Census data on population and age structure at various geographic specificity levels, BLS CPI figures, and BEA employment cost and production price indices for health services industries.

Health Services

As reported in the *First Annual Report*, after scrutinizing a succession of bivariate and partial correlations, a series of one- and two-year lagged effect linear regression models for health services employment were developed and tested for predictive adequacy using historical data spanning 1988-1998. Two models, hereafter referred to as Model 1 (A) and Model 1 (D), were selected based on principles of simplicity as well as quantitative measures of predictive capacity (adjusted R-squared, etc.). Both models used total NYC health services employment (as reported in the 1989-1997 ES-202 data and derived from the preliminary 1998 BLS SA estimates) as the dependent variable.

The independent variables in Model 1 (A) are 2-year lags of total US health services employment, the NYC unemployment rate, and the NY-LI-NJ CMSA CPI. The independent variables in Model 1 (D) are simply the latter two in Model 1 (A). Thus:

Model 1 (A)

$$\text{NYC Hlth Svcs Employment}_t = ß_1\,(\text{US Hlth Svcs Employment})_{t-2} + ß_2\,(\text{NYC Unemp Rate})_{t-2} + ß_3\,(\text{CMSA CPI})_{t-2} + c$$

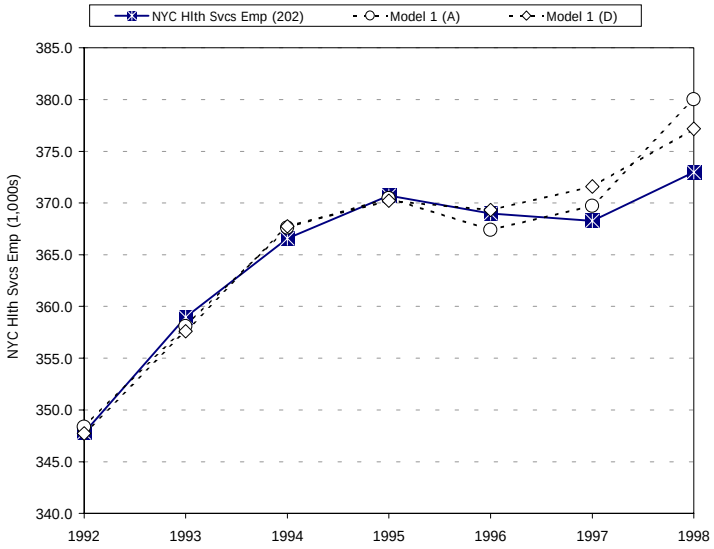
Model 1 (D)

$$\text{NYC Hlth Svcs Employment}_t = ß_1\,(\text{NYC Unemp Rate})_{t-2} + ß_2\,(\text{CMSA CPI})_{t-2} + c$$

In Model 1 (A)[22], with an adjusted R-squared of 0.98, only the values of $ß_2$ and c (the constant) were significant at the 0.05 level. In Model 1 (D)[23], with an adjusted R-squared of 0.94, both the coefficients and the constant were significant at the 0.05 level. Predicted values for 1992-1998[24] were calculated with both models and compared to total NYC health services employment figures[25]. The employment figures generated by both models closely approximated the actual counts very closely over the entire 1992-1998 time period, each varying by less than one percent during any given year.

[22] $ß_1$ = -165; $ß_2$= 2,021; $ß_3$= 10,619; c= 149,043.
[23] $ß_1$= 2,434; $ß_2$= 874; c= 209,921.
[24] BLS Local Area Unemployment Statistics figures for NYC are currently only available beginning with 1990.
[25] Except for 1998: total NYC health services employment for 1998 is an estimate generated with a linear forecast algorithm based on the ES-202 1990-1997 and BLS SA 1990-1998 time series data.

FIGURE 32. COMPARISON OF PREDICTED VALUES AND NYC HEALTH SERVICES EMPLOYMENT, ORIGINAL MODEL, 1992-1998

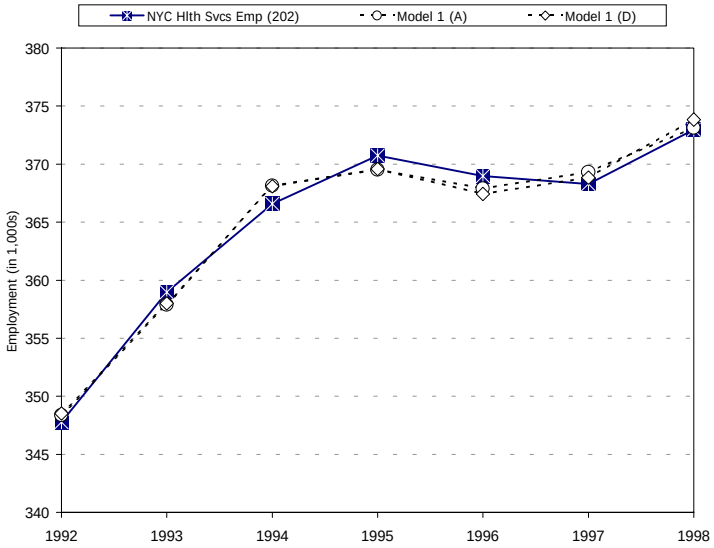


Source: DOL (ES-202); BLS (LAUS & CES & CPI); CHWS.

While the predictive capacity of these models regarding the level of NYC health services employment over the 1992-1998 period appeared strong, the issue of validity remained. The next step was to test this model on different geographies. The two chosen for this initial investigation were NYS and NYS excluding NYC. In both instances, the model's predictive adequacy seemed to hold, despite different patterns in the trend lines. [See *First Annual Report*.]

Since the 1998 employment figure used for original model development was an estimate based on both the ES-202 and SA data [See Section II.C.], the total NYC health services employment model has been updated to rely solely on ES-202 data now that the 1998 figures from that source have become available. [Figure 33.]

FIGURES 33. COMPARISON OF PREDICTED VALUES AND NYC HEALTH SERVICES EMPLOYMENT, UPDATED MODEL, 1992-1998

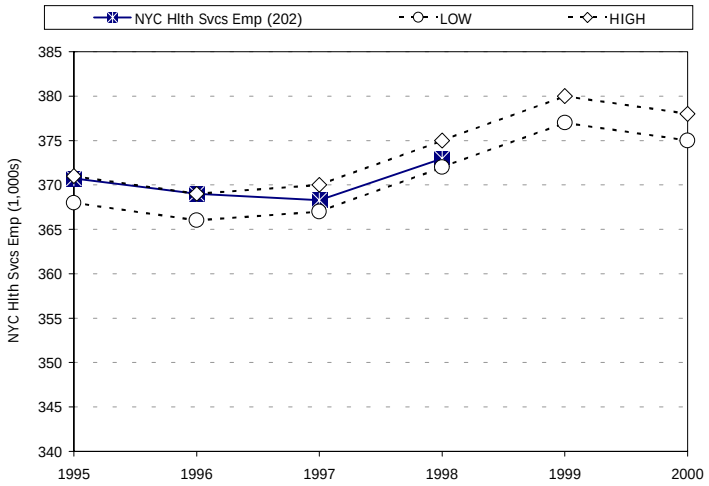


Source: DOL (ES-202); BLS (LAUS & CES & CPI); CHWS.

The predictive capacity of the updated models remained high (an adjusted R-squared of 0.97 for each), and the coefficients for Model 1(D) remained similar[26]. However, the coefficients for Model 1(A) changed dramatically[27], suggesting that Model 1(D) may be the more reliable of the two.

It is important to note that all of these comparisons amount to post-hoc validations. More than anything else, model validation will require the continued accuracy of these predicted values into the future. Accordingly, since figures for all the independent variables included in Model 1 (D) are available through 1998[28], projections through 2000 were calculated using the standard error of the estimate[29] generated by the analysis of variance from the model to construct a range of predicted values.

FIGURE 34. PREDICTED NYC HEALTH SERVICES EMPLOYMENT, MODEL 1 (D), 1995-2000



Source: DOL (ES-202); BLS (LAUS & CPI); CHWS.

The predicted trend remains as it was in the *First Annual Report*: a modest 1998-1999 increase followed by a potential 1999-2000 decrease.

The implication of this model, *if it stands the test of time*, is that the total system-wide level of health services employment in NYC may be quite strongly influenced by the general state of the local economy, or at least that it has been during the time period covered by the data used to generate the models.

[26] $ß_1$= 2,797; $ß_2$= 704; c= 231,711.
[27] $ß_1$ = 40; $ß_2$= 2,900; $ß_3$= -1,661; c= 246,486.
[28] Though all of these are subject to revision.
[29] This produces a somewhat more conservative range than would construction of confidence intervals.

Hospitals

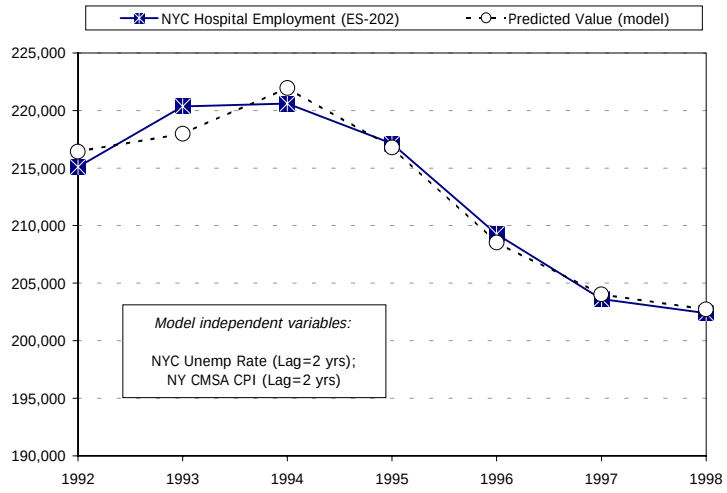
When this same process is applied to total NYC hospital employment, a similar conclusion may be drawn. Since hospitals represented over half of all NYC health services employment during the 1992-1998 period, this may not be surprising, but again the influence of the general economy *appears* to be quite strong.

The independent variables that emerged after reviewing the relevant bivariate and partial correlations were once again the NYC unemployment rate and the NY CMSA CPI at a two-year lag interval:

$$\text{NYC Hospital Employment}_t = ß_1\,(\text{NYC Unemp Rate})_{t-2} + ß_2\,(\text{CMSA CPI})_{t-2} + c$$

The adjusted R-squared for this model is also quite high (0.96) and the predicted values it generates for 1992-98 vary from ES-202 figures by 1.1% or less. [Figure 35. below.] Interestingly, the CPI exerts a downward influence on hospital employment[30], while its coefficient was positive in the health services employment model. Thus an increasing cost of living seems to be followed by a rise in total health services employment and a drop in hospital employment. However, the overwhelming coefficient in both models is that for the unemployment factor, not the CPI. As noted in the *First Annual Report*, NYC hospital and total health services employment did not follow the same trends over the 1992-1998 interval. While both rose during the first 2-3 years of the period, hospital employment increased at less than the rate of total health services and its later rate of decline exceeded that for health services as a whole. In addition, total health services employment in NYC rose from 1997 to 1998, while hospital employment declined. Accordingly, while hospital employment represents the majority of NYC health services employment, the economy impacts it quite differently (*if* the theorized relationships presented here hold true).

FIGURE 35. COMPARISON OF PREDICTED VALUES & NYC HOSPITAL EMPLOYMENT, 1992-1998

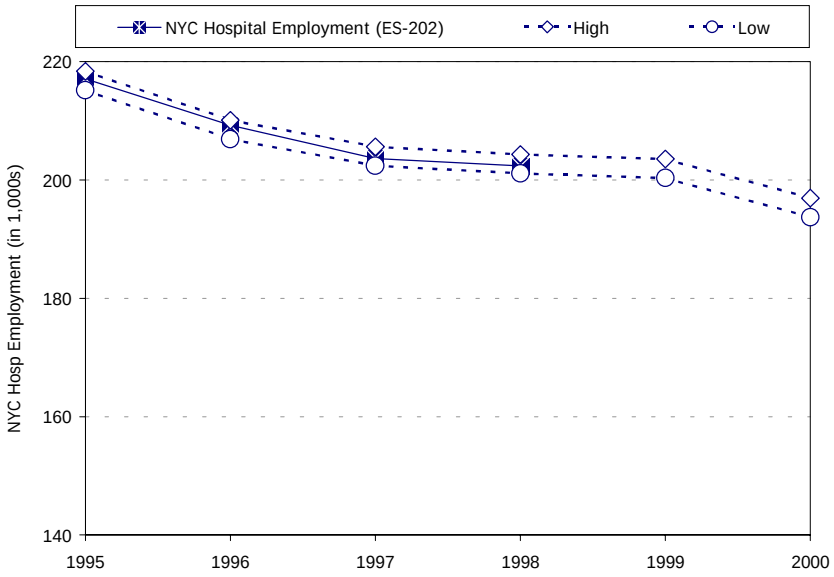


Source: NYS DOL (ES-202); BLS (LAUS & CPI); CHWS.

[30] $ß_1$= 3,329; $ß_2$= -706; c= 291,233.

As with the health services model, validation of the hospital employment model will require continued accuracy over time. Projection ranges through 2000 were thus produced using the same standard error of the model estimation method used for the health services employment projections. [Figure 37.] The resulting predicted values suggest that there may be little change in NYC hospital employment between 1998 and 1999 (less than 1.0% up or down), followed by a decline in NYC hospital employment between 1999 and 2000.

FIGURE 36. PREDICTED NYC HOSPITAL EMPLOYMENT, 1995-2000



Source: DOL (ES-202); BLS (LAUS & CPI); CHWS.

It is important that these kinds of empirical models be used with caution. *Neither these models nor their possible implications should be applied to other setting-specific or occupation-specific employment trends. Such factors were not considered and therefore should not be included in considering these models.* Moreover, the test of time has yet to be applied. If the models' expected values over the 1998-2000 period hold true, *then and only then* can they be considered seriously as potential workforce indicators.

C. Issues Facing the NYC Health Workforce Tracking System

1. Data Integration

Differences in workforce definitions (e.g., FTEs, employees, paychecks), as well as in employment setting and occupational categories continue to make integration of the available health workforce databases problematic. Initial work on the development of crosswalk methodologies and protocols has helped somewhat, but the difficulty remains. Also, see the table of data sources at the beginning of Section V for a complete listing of the range of types of counts reported by different data sets.

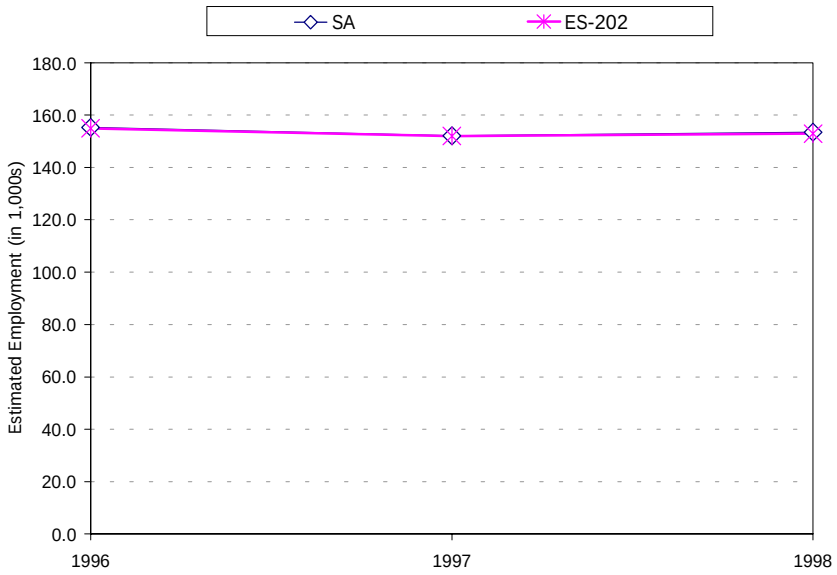
Definitional problems continue to exist at the most basic level of aggregation, total health services employment, and will endure due simply to the purposes of the various programs and activities under which the data are collected. DOL focuses on firms, and relies heavily on existing unemployment insurance related programs that count paychecks. ICRs require FTE information for their cost-centered purposes. And so forth. The difficulties discussed in the *First Annual Report* regarding the nature of data collection and issues of inclusion and exclusion also hold.

The *First Annual Report* discussed the disconcerting differences between the ES-202 and SA data sets, and upon further analysis and reflection the decision has been made to avoid relying on the SA data because they are collected from a less comprehensive base of firms and, it turns out, need to be re-benchmarked to the ES-202 data on an annual basis[31].

In order to explain why the SA data functioned well in producing the 1998 estimates used in the *First Annual Report*, but at the same time are an inferior data source, an example based on private sector hospital employment in NYC is presented below. [Figure 37, 38 & 39.] The 1998 estimates in the *First Annual Report* were calculated with a projection algorithm based on the correspondence between the historical trends in the SA *and* the ES-202 data. In general, and in part because they are benchmarked to the ES-202, the SA data follow a very similar trend to that produced by the ES-202. In Figure 37, with the *y*-axis scale anchored at zero, the 1996-98 trend lines traced by the two data sources are difficult to distinguish.

[31] Personal conversations with DOL and BLS staff.

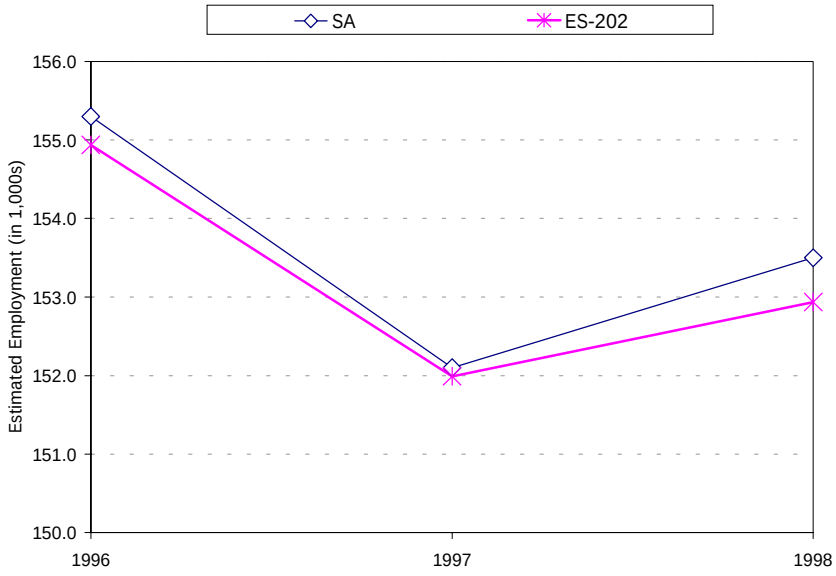
FIGURE 37. PRIVATE SECTOR HOSPITAL EMPLOYMENT IN THE SA AND ES-202 (FULL SCALE), NYC, 1996-1998



Source: BLS (SA); DOL (ES-202).

However, if the *y*-axis scale is reset to a narrower range, as in Figure 38, it is clear that the SA over-estimated private hospital employment in NYC, relative to the ES-202, in all three years. Moreover, the 1996-97 decrease and subsequent 1997-98 increase were both exaggerated by the SA estimates.

FIGURE 38. PRIVATE SECTOR HOSPITAL EMPLOYMENT IN THE SA AND ES-202 (LIMITED SCALE), NYC, 1996-1998

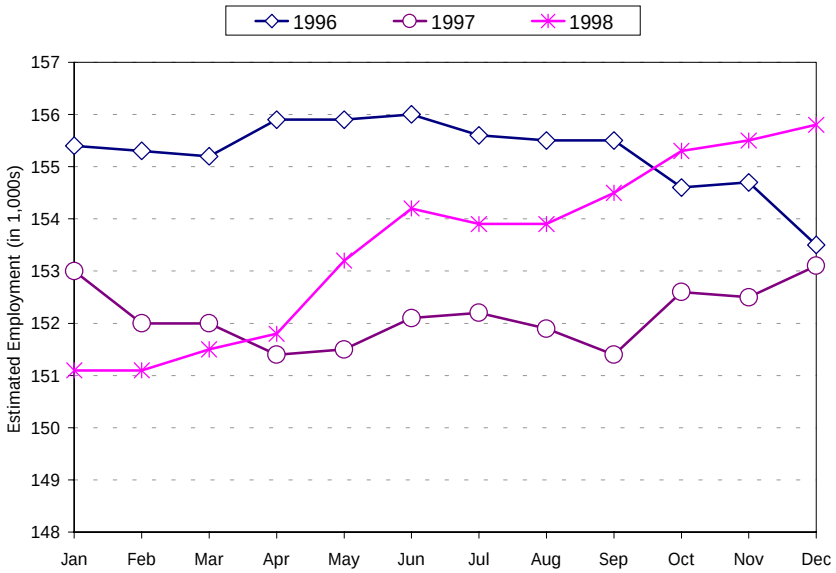


Source: BLS (SA); DOL (ES-202).

Thus, the SA described a 1996-97 loss of approximately 3,200 private sector hospital jobs, followed by a gain of about 1,400 between 1997 and 1998. In contrast, the ES-202 estimated a drop of approximately 2,900 and a rise of just about 900.

Moreover, *the monthly SA data should not be used to track short term trends*. An example of why this is so is presented in Figure 39.

FIGURE 39. MONTHLY CURRENT EMPLOYMENT STATISTICS FOR PRIVATE SECTOR HOSPITALS, NYC, 1996-1998



Source: BLS (SA).

If, for instance, the December monthly figures were used to compare private sector hospital employment in NYC in 1996 and 1998, a rather dramatic 2-year increase is discovered. However, the *average annual employment* in NYC hospitals *decreased* from 1996 to 1998. In other words, even when using the same month for both years, the monthly data show a year-to-year increase when there was actually a decrease.

2. Timeliness

There are substantial lags between data collection and data availability for current health workforce data, necessitating the use of 1998 figures for most of this report. Accordingly, more current original data are being sought to insure the timeliness of information disseminated. [See Section III.C.]

III. OTHER FACETS OF THE TRACKING SYSTEM

A. TRACKING SYSTEM ADVISORY COMMITTEE

Tracking System activities have been carried out in consultation with the Advisory Committee established by the Center as an integral component of the overall project. The first meeting of this committee, which includes representatives of organized labor, health professions researchers, health professions educators, human resource directors and other senior staff from NYC health facilities, state agencies (including the New York State Departments of Education and Labor), a representative of a federal agency (Health Resources and Services Administration), and health services membership organizations, was held November, 1998, in New York City.

During this meeting, the Tracking System Progress Report and both the findings and methodology from *The Changing Nursing Home Workforce in the Greater New York City Area* were presented. [See *First Annual Report* for a description of that project.] Members of the Advisory Committee were asked for general feedback on the Progress Report and their thoughts on the nursing home study methodology as a possible prototype for further Tracking System research projects. Committee members also provided the Center with insights into the substance and format of Tracking System information which they felt would be most beneficial and useful to them, including suggestions for future research questions, and into the factors that they felt were most likely to have implications for the future magnitude and makeup of the NYC health services workforce. Wherever feasible, these ideas and issues were addressed or included in the *First Annual Report*. Many have also been incorporated into the Center's proposals regarding next steps for the Tracking System.

The second meeting of the Advisory Committee was held April, 1999, in New York City. Committee members reviewed the Final Draft of the *First Annual Report* and made recommendations which were subsequently incorporated into the *First Annual Report*.

Throughout, project assistance has been provided by individual Advisory Committee members on a task-specific basis, including feedback on selected analyses, participation in pilot interviews, and recommendations and critiques of proposed methodological and substantive changes. In addition, topical meetings have been held with individual Committee members to acquire more in-depth insights than it is possible to obtain in large group meetings, and Advisory Committee members have also assisted the Center with its second year additions to the Tracking System. [See Section III.C.]

The next meeting of the Advisory Committee is currently planned for Spring, 2000

B. Dissemination of Data and Findings

Along with providing all Advisory Committee members with the selected data tables and analyses included in the Tracking System Progress Report, the Center has incorporated Tracking System data and findings into related research reports, such as those on the nursing home workforce, nursing education, and nursing supply [See section III. C.], to fulfill special data requests, and to make special presentations.

Since the Tracking System's inaugural year was devoted largely to data set identification and collection, further dissemination efforts are still in the developmental stage. Based on input received from the Advisory Committee, the current strategy includes a web-based presentation of key Tracking System reports, data and analyses. A preliminary Tracking System world wide web presence has been established at <http://www.albany.edu/~md0608/NYCHealthWorkforce.html>. Comments and suggestions regarding this web page are invited.

C. Special Studies

1. Hospitals & Nursing Homes

One of the most crucial data issues identified during the first year of the Tracking System was the need for more timely data on employment trends. Accordingly, the Center began to identify any reports that hospitals and nursing homes already complete on a regular basis that include workforce information. This strategy would minimize work for the facilities, and thus be the least intrusive method for collecting timely employment data. If copies of reports that are already being produced were sent to the Center, then this data could be supplemented with short interviews with key informants at samples of facilities.

Possible reports initially considered were:

- Institutional Cost Reports (ICRs);
- the Occupational Employment Survey (Labor Department); and
- payroll runs by cost center or other budget-related internally generated reports.

With help from Advisory Committee members at hospitals and nursing homes, the Center narrowed its focus to payroll runs by title and cost center, which would have the benefit of being very timely and would allow trend analysis at the most basic level of facility organization. Initial inquiries at a limited sample of hospitals and nursing homes have been made. Results are pending.

2. Hospital Information Systems

Another addition to the Tracking System for its second year is an assessment of the employment and training needs of Local 1199 members working in hospitals regarding the job knowledge and needed skills associated with information systems and related technologies, focusing on the current and future impact of information systems and computers on medical records personnel, front line administrative personnel (such as receptionists and registrars), and staff in information systems offices.

Phase 1 of this assessment was a survey of hospital information systems to assess the 'population' of hospitals regarding their level of information systems implementation and usage. This survey was mailed to approximately 40 NYC hospitals. Thus far, the response rate has been negligible, but Phase 2 has commenced.

Phase 2 includes interviews with key administration level informants at a sample of hospitals to assess any recent or anticipated changes in facility staffing, and changes in the job skills and training needs of workers. The interviews also include items on the related workforce difficulties hospitals encounter and the strategies hospitals are using to address these issues and concerns. Tracking System staff pilot tested the interview with the Director of MIS at a non-NYC health system, and two NYC hospital interviews have been completed.

Phase 3 will include a series of structured discussion group meetings with Local 1199 members in medical records, front line administrative, and information systems job titles to understand their perceptions of their education and training needs, as well as their experiences with and perceptions of the broader job market.

Preliminary findings include:

- Level of system integration has an enormous impact on staff training needs. If multiple information systems (IS) are used (one for clinical, one for medical records, etc.), then multiple software interfaces need to be learned, as staff need to know multiple IS in order to look up and/or enter information, access records, etc. Moreover, more complex combinations of IS require more technical staff.

- IS related technical training needs are constant for both hardware and software. New systems, upgrades, new policies and new coverage regulations all require additional training.

- Higher end IS staff, especially programmers, are difficult to find and retain. This is especially true because of the NYC job market, in which internet companies and other private sector businesses are actively competing for these personnel.

- Medicaid Managed Care regulations are creating a large and ongoing set of training needs, particularly for front line administrative staff.

- Demand for medical transcriptionists may run high for the next few years, although long term prospects for this occupation are uncertain due to potential changes in transcription technologies.

3. The Marketplace for Nurses in New York State

There is a growing concern that a nursing shortage is developing in New York State and in the U.S., particularly in settings that require a high level of skills, such as critical care. The causes of the current shortages are not well understood, but are believed to be related to changes in both supply and demand. Factors sometimes cited as contributing to shortages include: the increased complexity of hospital patients; understaffing at hospitals; the aging of the nursing workforce; the decrease in young women selecting nursing as a career.

The current Center study was designed to meet a number of objectives, including:

1. To assess the nature and extent of current and future shortages and/or surpluses of RNs in New York State;
2. To describe current RN workforce and education system in the state;
3. To assess the current and future job market for RNs in New York State, by region, level of education preparation, and other characteristics;
4. To assess the satisfaction of employers with the preparation of recent nursing graduates;
5. To develop recommendations for the development of a system to monitor and assess on a periodic basis whether nursing program enrollment should be increased or decreased.

Methods

Original data collection included: a mail survey of all RNs who gained licensure in New York State between October of 1997 and September of 1998; a mail survey of major nursing employers in the state; and a survey of all nursing program directors in the state. In order to track RN education trends since 1990, IPEDS data were combined with data from the survey of nursing programs in the state (for academic years 1997/98 through 2001/02.

Preliminary Findings

Preliminary analysis of the recently licensed RN survey suggests that in 1998 RNs without prior job experience faced great difficulty obtaining jobs, particularly positions that are full time, offer benefits, and are in their chosen specialty area. While employers may be sensing a shortage of *experienced* RNs, there appears to be a surplus of newly trained RNs, especially in western New York. Further analyses are underway.

The first report to be produced as part of this study was the Center's *Registered Nursing Education in New York State: Recent Trends 1990-2001*. Key findings from that report include:

- Of the RNs graduating from an associate, bachelors or diploma program in New York State in the 1998-99 academic year, 55% were from associate degree programs, 44% from bachelor degree programs and less than 1% from diploma programs.

- In 1998-99, 42% of nursing degree awards were from SUNY, 42% from independent colleges, 13% from CUNY and 4% from the Regents program.

- There has been a significant decline in the number of NYS nursing program graduates, dropping from 7,696 in 1995-96 to 6,050 in 1998-99.

- Based on a survey of Deans and Directors of nursing education programs, the number of graduates will continue to decline over the next two years.

Employer and baccalaureate completion surveys will be finalized and analyzed this summer**.**

IV. NEXT STEPS

A. EXISTING DATA

The Tracking System must continue its current collection and analysis of secondary data on the supply, demand, and use of health workers for all major health care settings in New York City, with attention to both broad trends and areas of expected growth and shrinkage. Further inroads also need to be made in reconciling and integrating these data sources.

Complementary to these ongoing efforts, the Tracking System will need to monitor and refine its indicators and projection methodologies in order to produce the most timely and accurate health workforce intelligence for interested health workforce stakeholders.

B. ORIGINAL DATA

The next stage in developing the Tracking System must also expand beyond existing data sources in a more systematic manner, incorporating more primary data collection and analysis efforts in order to paint a more precise picture of the structure and direction of health care employment in NYC. Such efforts have begun on a limited basis [See Section III.C.].

C. DISSEMINATION

Perhaps most importantly, now that the Tracking System has explored, assembled and assessed a broad array of health workforce data, more attention needs to be paid to dissemination and to incorporating more explicit policy-oriented discussions and analyses. Multiple media can and should be employed, including written reports, convening groups for discussion as well as information gathering, executive briefing sessions, and electronic media such as the Center's web pages (http://chws.albany.edu).

V. DATA SOURCES

The cornerstone of the Tracking System is to collect, compile and analyze existing data on the NYC health workforce. An updated list of the data sources currently incorporated into the Tracking System appears below (other sources have been rejected or are currently undergoing review). [Table 27.]

TABLE 27. CURRENT DATA SOURCES FOR THE NYC HEALTH WORKFORCE TRACKING SYSTEM

Source	Database	Setting(s)	Number of occupations	Units	Geography	Years
DOH	ICR	Hospitals	~ 30	FTEs	NYS (by facility)	1993-1998
DOH	ICR	Nursing homes	7	FTEs	GNY (by facility)	1991-1996
DOH	CON	All licensed health care facilities	N/A (by facility only)	Special	NYS (by facility)	1997-Aug. 1999
DOL	ES-202	Hospitals, Nursing homes, Offices, Labs, Home health, Other	N/A (by setting only)	Employees (Paychecks)	NYS (by county)	1989-1998
BLS	Consumer Price Index	N/A	N/A	Cost indices	NYS; NY-NJ CMSA	1984-1998
BLS	OES Wage	N/A (occupations only)	~ 200	Employees & wages	NYS & NYC PMSA	1996-1997
BLS	State and Area Employment	Total Health Services, Hospitals (private sector), Nursing homes (private sector)	N/A (by setting only)	Employment	NYC	1988-1998; (monthly 1999 through August)
BLS	Local Area Unemployment Statistics	N/A (total unemployment only)	N/A (total unemployment only)	Unemployment rate	NYS; NYC (by county)	1990-1998
Census	County Business Patterns (private sector only, except hospitals, nursing & personal care facilities and NEC)	Hospitals Nursing homes, Offices, Labs, Other	N/A (by setting only)	Employees; firms	NYS (by county)	1993-1997
Census	Economic Census	All	N/A (by setting only)	Establishments, receipts, payroll, employees	NYC PMSA (private sector only by county)	1997
Census/BLS	CPS	All	~500	Individuals	U.S.	1995-1999 (monthly)
Local 1199	Layoffs	All Local 1199 affiliated	~ 175	Positions	GNY (by facility)	1993-March 1999
Local 1199	Vacancies	All Local 1199 affiliated	~ 175	Positions	GNY (by facility)	1996-March 1999
SED	Licensure files	All	8	Individuals	NYS (by county)	Dec. 1998 - Oct 1999
NCES	IPEDS	Education	~ 900 major fields of study, including over 100 health care-specific fields	Degrees awarded (by type)	U.S. (by postsecondary educational institution)	1993/4-1996/7 (1997/8 data not due to be released until Spring 2000.)
UHF	*Hospital Watch*; *Health Care Annual*	Hospitals	N/A	Patient days		1989-97
NYT & other papers	Classified ads	All	All	Positions advertised		Mar-July 99
GNYHA	Hospital survey	Hospitals	22	FTEs; wages	GNYC	1997

Tracking System data sets are updated as more recent data become available. Also, as additional sources of existing health workforce related data are identified, they are added to the Tracking System. New additions since the *First Annual Report* include the 1998 ICR data for hospitals, DOH CON approvals, the 1998 ES-202 data, the Economic Census, the 1999 Layoffs and Vacancies data, the July 1999 DOH Licensure figures, the 1997 OES Wage data, the 1998 GNYHA Survey of Hospital Personnel, the Current Population Survey, the 1997 County Business Patterns, the 1998 National Compensation Survey, the GNYHA Survey of Nurse Staffing, and the April-Aug 1999 New York Times classifieds (including a preliminary evaluation of their representativeness). The SED institutional report data have been dropped, and the State and Area Current Employment Statistics have been relegated to a less prominent role following a re-evaluation of their precision.

The remainder of this section of the report is devoted to providing brief status updates on each of the currently incorporated data sets. For a more complete description of data sources first utilized in the *First Annual Report*, please consult the data section of that report.

A. DEPARTMENT OF HEALTH

1. Institutional Cost Reports – Hospitals

The Center has extended its collection of hospital Institutional Cost Report (ICR) data to include 1998. Changes made in the reporting procedures between 1994 and 1995 created some irreconcilable inconsistencies in coding. Now that the Center has received 1997 and 1998 ICR data, the 1993 and 1994 data have been dropped so that more detailed trends employing consistent occupational categories can be presented for 1995-1998.

While timeliness remains an issue with ICR data, the Center's efforts to expedite the receipt of these data from DOH has reduced the experienced lag from at least one full calendar year between collection and dissemination to an approximately 10 month lag.

2. Institutional Cost Reports – Nursing Homes

While the Center recently received 1997 and 1998 nursing home ICR data from DOH, receipt was too recent for inclusion in this report. They are currently being cleaned. As with the hospital ICR data, the time lag is still an issue but progress has been made in reducing the delay as much as possible.

3. Institutional Cost Reports – Ambulatory Health Care Facilities

The Center has recently arranged to receive ICR data for ambulatory health care facilities for 1995-98 from DOH. These data have not yet been received.

4. Certificates of Need (CONs)

A preliminary presentation of the public information available from DOH CON approvals has been included in this report. Currently, the Center simply continues to download this information from the DOH web site. That site contains only limited information, rather than the full content of actual CON applications and approvals.

A request was sent to DOH in September, 1999, for two sample complete applications since they should contain more detailed and useful information, including anticipated workforce impact. The full content of these applications was received from DOH at the end of December, 1999. While information on projected utilization by type of service, projected utilization by occupation,

anticipated salary by occupation, and anticipated staffing changes by occupation (in FTEs unless out-sourced), as well as answering the question raised in the *First Annual Report* regarding which requests actually represent new capacity, the inefficiencies of this process in terms of time (a 3-month delay) and information (two CON applications – one for an extension clinic relocation and one for a long term home health care program expansion – consisted of approximately 100 pages of information, four of which included information relevant to the Tracking System) are being reviewed before further requests are made.

B. DEPARTMENT OF LABOR

1. Covered Employment and Wages Program (ES-202)

The Center has received statewide ES-202 data from DOL for 1998. These data remain the principal source for setting-specific employment trends currently included in the Tracking System.

There is an 8 to 10 month delay between year's end and receipt of the data[32], but the Center is currently working on an arrangement with DOL to receive these data quarterly in order to assess the integrity of these quarterly figures.

2. Occupational Employment Statistics

The Center has collected the most recent publicly available OES occupational wage data. Employment and wage data for 1996 were made available for the NYC MSA[33] and presented in the *First Annual Report*. Since 1996 represented the first year of a new three-year sampling scheme for the OES[34], they are no longer available. However, 1997 employment and wage data from the OES have been collected for both the NY PMSA[35] and New York State. These data are not comparable with the 1996 data presented in the *First Annual Report*, as they are derived from the second year of the new OES and changes in up-weighting methodologies were implemented by DOL between the 1996 and 1997 data disseminations.

[32] The data collection and dissemination methodology for the ES-202 result in no actual 'final' figures, as firms reporting late are added into the data as they are received. For Tracking System purposes, it is simply assumed that almost all firms will have reported their data by the end of the third quarter of the following year.
[33] NYC MSA includes Bronx, Brooklyn, New York, Putnam, Queens, Richmond and Westchester counties.
[34] BLS: <http://www.bls.gov/oes_emp.htm>.
[35] NY PMSA includes NYC, Putnam, Rockland and Westchester counties.

C. U.S. BUREAU OF THE CENSUS

1. County Business Patterns

Two key points to note regarding the County Business Patterns data are: with the exception of hospitals, the figures apply only to the private sector; and there is a substantial lag in their release. For instance, the 1997 County Business Patterns data were originally scheduled for release June, 1999. They were not actually available until November, 1999.

Accordingly, due to the substantial lag and a discrepancy in the 1997 figure for employment in NYC offices and clinics of medical doctors [See Section II.A.], this data source may soon be dropped from the Tracking System.

2. Current Population Survey

The Current Population Survey (CPS) is a monthly sample survey of households commissioned by BLS and conducted by the Bureau of the Census. The primary purpose of this survey is to assess the current conditions of employment and unemployment on a national basis. Accordingly, it can be used to assess national conditions, but State and local estimates are beyond the scope of CPS usage[36]. The CPS covers the civilian non-institutional population age 16 years and over and includes information on employment status, demographic characteristics, and earnings, as well as special topics related to employment status[37].

The Center has begun to explore using these data for providing the Tracking System with an additional national context perspective. Moreover, these data - unlike most of the other available data - are released in a timely fashion. For instance, data for October, 1999 were available at the time this report was being written[38].

3. Economic Census

The Bureau of the Census conducts a quintennial Economic Census, the most recent of which was conducted in 1997. The Center has collected the 1997 data for New York, which include employment figures for the NYC PMSA and New York State at a detailed industry level by whether or not the firms are subject to or exempt from the Federal Withholding Tax. As with the CBP, these data represent an actual count rather than a sample. Unlike the CBP, the Economic Census includes establishments in all auspices, although those with no paid employees were excluded

[36] The Center is, however, investigating the possibility of using the CPS for generating limited State level estimates.
[37] BLS: < http://www.bls.gov/cps_over.htm>
[38] March 1999 data were used in this report because they are the most recent release which has been collected and analyzed.

The 1997 Economic Census also represents the first full implementation of the North American Industry Classification System (NAICS), a new Federally mandated industry classification system. Prior to this, the Standard Industrial Classification (SIC) was used. While the NAICS classification scheme is in some ways an improvement over the SIC, the health care settings it includes are not all strictly comparable to the SIC. A comparison based on the 1997 Economic Census and the 1997 ES-202 is presented below. [Table 28.] (For more information on the SIC-NAICS conversion, see http://www.census.gov/epcd/www/naics.html).

The primary problem created by this new industry classification is that trending data for many of the health services settings has been rendered difficult or impossible. Moreover, DOL and BLS industry data have been based on the SIC (for example, the ES-202 and SA), so this issue extends beyond the Economic Census. Eventually, all Federal programs which collect data based on industry, or setting, will use the NAICS. Fortunately, BLS has told the Center[39] that it will not be implementing NAICS until 2002 or 2003, in large part because they must first recode their historical data to the new scheme. Thus, while the switch will require reworking and/or revisiting previously trended DOL and BLS data, it should be possible.

TABLE 28. COMPARISON OF ECONOMIC CENSUS & COVERED EMPLOYMENT & WAGES EMPLOYMENT DATA, NYC PMSA[40], 1997

NAICS	Setting	Economic Census	SIC	Setting	ES-202
62	Health care & social assistance	589,374			
	Health care	504,085	80	Health services	431,336
621	Ambulatory health care services	195,330			
6211	Offices of physicians	44,264	801	Offices & clinics of doctors of medicine (part)[41]	44,264
6212	Offices of dentists	17,405	802	Offices & clinics of dentists	17,403
6213	Offices of other health practitioners	8,530	804	Offices & clinics of health practitioners, NEC	8,813
6214	Outpatient care centers	22,534	801	Offices & clinics of doctors of medicine (part)	20,432
			809	Health & allied services, NEC (part)	
6215	Medical & diagnostic laboratories	4,895	807	Medical & dental laboratories (part)	4,700
6216	Home health care services	93,558	808	Home health care services	42,201
6219	Other ambulatory health care services	4,144	809	Health & allied services, NEC (part)	
			400	Transportation services (part)	
622	Hospitals	229,155	806	Hospitals	228,923
623	Nursing & residential care facilities	79,600	805	Nursing & personal care facilities	63,939
			836	Residential care (part)	
624	Social assistance	85,289			

Source: Census Bureau (Econ. Census); DOL (ES-202); CHWS.

Also, the U.S. Bureau of the Census is the sole source for all general population counts and projections presented or used in this report.

[39] Based on personal conversation with BLS staff.
[40] NYC PMSA includes five boroughs, Putnam County, Westchester County and Rockland County.
[41] The term 'part' as used here denotes a setting in the SIC coding system which has been split across two or more settings in the NAICS coding system.

D. Bureau Of Labor Statistics

1. State and Area Current Employment Statistics

The Center continues to collect local area employment data from the State and Area Current Employment Statistics program (SA) for total health services, private sector hospital and nursing home employment from BLS. While these data are collected and released by BLS on a more timely basis than most other workforce statistics (monthly employment estimates through preliminary December 1999 figures are currently available), the Center's analyses have shown that only the annual average figures produce valid trend descriptions for setting-specific employment. The monthly employment figures from this data source fluctuate too much to be useful for the Tracking System. Moreover, these data are only valid for trend analyses. The SA represents a sample of establishments with the primary purpose of gauging overall employment rather than industry-specific employment. In fact, it is annually benchmarked to the ES-202. Therefore, while these data were used to supplement the ES-202 data by providing a basis for preliminary 1998 estimates of employment in the *First Annual Report*, their use in this report is more limited. [See Section IV.A.1.]

2. Local Area Unemployment Statistics

The 1990-1998 data from this series were presented in the *First Annual Report*. The 1999 figures will not be available until 2000.

3. Employment Projections

The Center obtained the 1996-2006 BLS employment projections by occupation for NYC. These data include 1996 base employment, 2006 projected employment and job openings statistics. While these projections give some indication of expected future demand for certain occupational categories, they are based on a combination of historical trends, aggregate national economic indicators, available information on industry-specific developments, and BLS staff judgment. As such, they are also subject to the same limitations.

No industry-specific elements are included in the local area projections. For occupation by industry projections, only national level data have thus far become available. Efforts to integrate the projections and to examine their compatibility and comparability regarding with other data, such as the OES and ES-202, have led the Center to conclude that while occupational projections information may provide an accurate national picture of potential future demand, they are inadequate for application to smaller areas.

4. National Compensation Survey

The results of the August 1998 National Compensation Survey (NCS) for the New York-Northern New Jersey-Long Island, NY-NJ-CT-PA, CMSA, were released in October, 1999. These data consist of sample-based estimates of hourly wages by occupation or occupational grouping for the CMSA. While this geography covers more than NYC or the NY PMSA (the most detailed geography for which OES wage data are available), the data include hourly wage estimates for occupational groups by full or part time and by union or non-union – information that is not included in the OES data. The private sector response rate for the 1998 administration of the NCS for the NY-NJ-CT-PA CMSA was lower than usual BLS standards for publication, and this should be kept in mind when interpreting the one table presented from the NCS in this report.

E. LOCAL 1199

TABLE 29. LOCAL 1199 MEMBERSHIP (1999) AND TOTAL EMPLOYMENT (1998) COMPARISON BY SETTING, NYC

	Local 1199 Members	Pct. of 1199 Members	Total Employment	Pct. of Total Employment	Local 1199 as a Percentage of Employment
Hospitals	58,774	53.2%	202,376	54.3%	29.0%
Offices & Clinics	2,387	2.2%	60,824	16.3%	3.9%
Nursing Homes	24,195	21.9%	55,454	14.9%	43.6%
Home Health Services	20,985	19.0%	35,426	9.5%	59.2%
Medical & Dental Labs	295	0.3%	3,714	1.0%	7.9%
Other	3,924	3.5%	15,185	4.1%	25.8%
Total	**110,560**	**100.0%**	**372,979**	**100.0%**	**29.6%**

Source: Local 1199; NYS DOL (ES-202).

The *First Annual Report* presented data on layoffs and job vacancies from Local 1199, the largest health care worker union in NYC. The same data, complete with updated information, are presented here. However, since the printing of the *First Annual Report*, Local 1199 has been able to provide the Center with a profile of its membership by type of setting. Accordingly, preliminary steps toward assessing how representative Local 119 membership may be of the broader NYC health workforce are being taken.

By comparing the number of 1199 members employed in each setting as of September, 1999[42], with the total reported employment in each setting during 1998, it appears that 1199 members are fairly well represented among hospital and nursing home workers, but not among employees of

[42] Profile data were recoded into the SIC system by Center staff.

offices and clinics or laboratories. While it also seems that 1199 members are well represented among home health care services and other health care settings' workers, there are definitional issues which have yet to be resolved (see the *First Annual Report* for a discussion of this issue regarding home health care services employment). [Table 29.]

Nonetheless, at this point some tentative inferences about broader trends among hospital and nursing home workers, can be made from the information presented based on Local 1199 data.

1. Layoffs

The Center continues to receive these data from Local 1199 on a quarterly basis.

2. Job Openings

The Center continues to receive these data from Local 1199 on a quarterly basis.

F. NATIONAL CENTER FOR EDUCATIONAL STATISTICS

1. Integrated Postsecondary Educational Data System

While the IPEDS data represent a census of all postsecondary educational institutions in the U.S., there is a substantial lag between collection and dissemination. For instance, the 1997-98 Completions data are not expected to be available until Spring, 2000[43].

G. EMPLOYMENT OPPORTUNITIES ADVERTISEMENTS

1. New York Times

The Center continues its periodic sampling of *New York Times* employment opportunity advertisements to gauge ongoing employment needs and/or hiring trends, including information on educational and skill requirements for hiring, setting type, location and full or part time workers sought.

In order to assess the representativeness of New York Times advertisements, the Center has begun an analysis of other NYC newspaper classifieds. The first of these analyses is presented in Table 30.

[43] Based on personal conversation with NCES.

TABLE 30. HEALTH EMPLOYMENT CLASSIFIED ADVERTISEMENT IN NYC MINORITY NEWSPAPERS, AUGUST, 1999

Newspaper	Setting	Occupation
Amsterdam News	Nursing home	RN
		LPN
		Home health aide
		personal care aide
El Diario	Home health services	Home health aide
		Home health aide
		Home health aide
		Home health aide
		Home health aide
		Home health aide
	Unknown	Dental Technician
		Dental Technician
	Unknown	CSW

Source: New York Times

In both the *Amsterdam News* and *El Diario*, the majority of the home health aide advertisements requested bilingual (Spanish/English) speaking applicants, and most of the jobs – across occupations – were located in Queens. Whether or not these sources will continue to be incorporated into Tracking System analyses is under review in light of the limited number of advertisements identified therein.

Also, a cross-sectional analysis utilizing DOH ICR data on hospital characteristics uncovered no statistically significant differences between those hospitals advertising in *New York Times* classified advertisements (August, 1999) and those not advertising with regard to borough, number of beds, auspice and total FTEs. This suggests that the hospital advertisements being analyzed may very well be representative of the industry as a whole. The next step will be to repeat this analysis across time.

H. OTHER

1. Greater New York Hospital Association

The Greater New York Hospital Association (GNYHA) has shared the results of its most recent (1998) survey of hospital and continuing care facility personnel (*Survey of Hospital Personnel in the Greater New York City Area*; 1999) with the Center. Included in this survey are data items covering total FTEs, attrition, voluntary and involuntary terminations, expected changes in staffing and FTEs by occupation (47 specific job titles), as well as difficult-to-recruit occupations. [See Section II.A.]

GNYHA has also released the final report from its *Survey of Nurse Staffing in the New York City Region* (November, 1999). This report covers vacancy and turnover rates, recruitment

difficulties and scheduling, as well as an applicant pool profile and information on recruitment incentives and externship and internship programs. [See Section II.A.]

Excerpts from both these reports are reprinted with permission.

2. American Hospital Association

Prior to 1994, the American Hospital Association produced annual reports detailing hospital employment for almost 30 occupational groupings, as well as hospital utilization data including inpatient days and average daily census, at both the state and metropolitan area levels. Unfortunately, the number of occupational groupings was reduced to 4 in 1994 and the most recent published report (1996 data) no longer breaks out these data for New York City. As such, the Center has begun to phase out Tracking System usage of these data in favor of hospital utilization and FTE employment estimates derived by UHF from DOH ICR data and UHF surveys.

4. United Hospital Fund

The United Hospital Fund (UHF) has provided to the Center hospital utilization data, including patient days, for NYC hospitals, for 1992-1997, primarily via *Hospital Watch* and the *Health Care Annual*. UHF has also shared the results of its 1996 and 1997 surveys of ambulatory care centers with the Center. These data are currently being prepared for analysis.

3. New York State Education Department Licensure Data

The Center has thus far received these figures through October 1999 for 8 relevant health professions licensed by the State. SED has been sending irregular updates since the Tracking System's inception, and is anticipated to continue doing so.