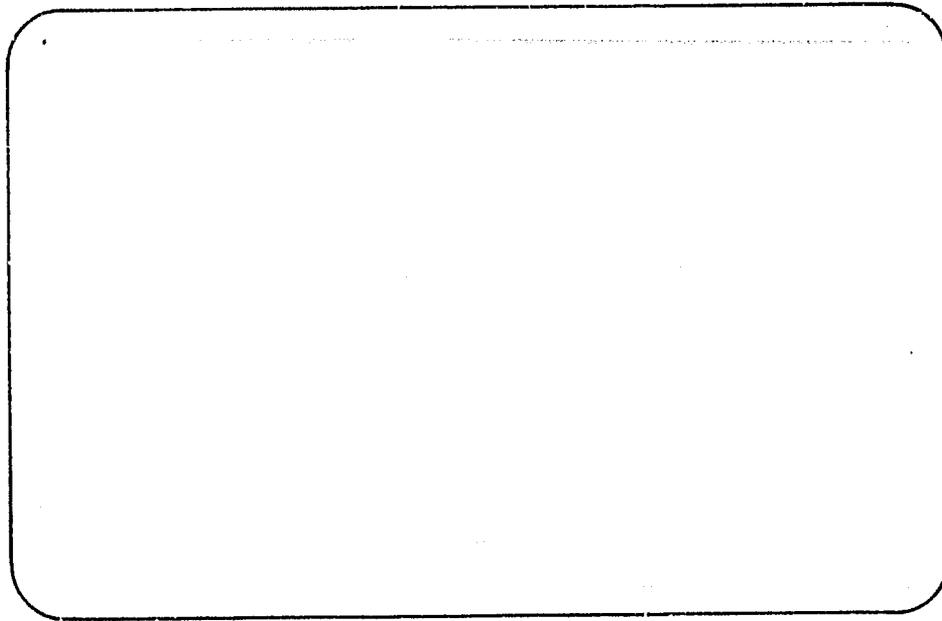


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CORNELL NUTRITIONAL SURVEILLANCE PROGRAM

Working Paper Series



Division of Nutritional Sciences
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**AN OUTLINE PLAN FOR DEVELOPING A
NUTRITIONAL SURVEILLANCE SYSTEM IN
NEW YORK STATE**

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A report of research of the Cornell University Agricultural Experiment Station

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I. INTRODUCTION

In mid-April the Nutrition Watch Committee convened by Governor Carey requested us to put forward suggestions for setting up a nutritional surveillance system in New York State. These suggestions are to be considered by the Watch Committee in making its recommendations in mid-May. Given the time limitations, we have confined ourselves to identifying the main issues to be considered, and to providing a framework for moving ahead - should it be so decided - to set up a New York State Nutrition Surveillance System (NYSNSS).

The next step should be to design the system in detail, we suggest along the lines of the "initial assessment" we have put forward elsewhere (Mason and Habicht 1981; Mason et al. 1982). These methods essentially elaborate the ideas put forward here. We stress that the present report, although consistent with an initial assessment, does not obviate the need for this assessment.

We have therefore sought to lay out a framework both for deciding upon how to go ahead with nutritional surveillance, and to allow details to be filled in later. This framework is likely to set the stage for future work on a NYSNSS, so that it is imperative that any omissions or misconceptions in this document be identified and corrected by the Watch Committee before the work is done.

In drawing up these suggestions we have benefited from discussions with representatives of the Department of Social Services (Food Stamp Program), Department of Health (MCH, WIC, IPO, Bureau for Chronic Disease Prevention), and the State Office for the Aging in two meetings in Albany on April 16 and April 28, 1982, and from continuing advice from Jo-Ann Lamphere.

General Purposes of Nutritional Surveillance

Nutritional surveillance means watching over nutrition in order to make decisions which will lead to improvements in nutrition in a population (NAS 1982; WHO 1982). This watching over requires regular information referring to population groups rather than to individuals (WHO 1976). The multiple factors that affect nutrition - agricultural, health, economic, environmental, etc. - often make it necessary to use a variety of data sources for this purpose.

Information needs are determined by identifying what problems are of concern; what agencies deal with these problems; what decisions are being made that could affect these problems; what information is needed to make these decisions; and what is currently being done about these problems. The first

consideration is thus: what questions need to be answered to make decisions to improve or protect nutrition? Once one knows what one is looking for then one can decide where to find it.

The Purposes of Nutritional Surveillance in New York State

The purposes here are taken to be:

- To provide a basis for assessing budgetary needs for preventing hunger and malnutrition in the state
- To allow allocation of these resources to needy areas and population groups
- To assess adequacy of design and delivery of existing programs for these groups
- To identify needs for additional actions

II. IDENTIFICATION OF PROBLEMS

Nutritional surveillance is relevant to both developing and industrialized countries. In developing countries, the problems of food consumption (i.e. under nutrition) are often manifested in the severe forms of malnutrition characterized by stunting and physical wasting among the poor, and hence are quite readily detected. Human effects of inadequate food availability to individuals and families are not however confined to physical evidence of malnutrition (e.g. wasting and anemia), but importantly include hunger as well. When severe malnutrition is less common, it may be particularly necessary to measure hunger. Among the foremost causes of these problems is poverty, especially when coupled with inadequate education which may impair consumer food choices.

The first step in designing nutritional surveillance is to define the problems in terms of who is affected. This is usually done by using existing data sources to identify both geographically and socio-economically those most in need of food and nutritional aid. For example, those affected by malnutrition and hunger have been suggested by the Watch Committee as the following: low income households; pregnant women; infants; children; teenagers; migrants; native Americans; elderly; chronically ill; homeless; recently unemployed.

Such a definition needs to be systematized to give comparable and mutually exclusive groups. We suggest a matrix defining groups of concern in terms of three sets of factors:

- Geographical location (by county and by area - upstate rural, etc.)
- Age and biological status
- Income, as Poverty Index Ratio (PIR)

To describe nutritional problems, and monitor how these change, indicators of nutritional status must be calculated for the groups so defined. This is discussed further in section IV. The extent or severity of the problem, and hence of need, can be described by using certain indicators of nutritional status and socio-economic conditions for groups defined for example as given above. First, numbers per group need to be assessed. Then indicators of need might include:

1. nutritional outcome: anthropometry, biochemistry, prevalence of low birth weight, infant mortality rate, etc.
2. socio-economic conditions: percent of population below poverty level, unemployment rate, wage or benefit/price ratio, etc.
3. indicators of hunger: time since last meal, quality of diet, no food in house, reasons for emergency food requests.

Nutritional surveillance not only involves an assessment of the extent of the nutritional problems, but how these are changing; in the present case, in the face of cutbacks in programs designed to protect the poor against hunger and malnutrition. This information on change is particularly useful to guide policy, and possibly to evaluate on-going programs.

In order to design a nutritional surveillance system, it is helpful to identify the type of information needed before looking for data sources. In turn, the type of information needed will depend on what questions need to be answered by the users of the system.

III. USES AND USERS OF THE SYSTEM

The easiest way of focusing on the data outputs needed is to consider specific questions, and hence to identify the uses and users. Two categories of use can be distinguished:

1. For general policy on resources and their use (e.g. for state/federal government negotiations)

2. Decisions within the state and counties on allocation of resources by area, program, etc.

A description of each of these categories of use, and the questions to be addressed, follows. These questions with information needs and possible data sources are laid out in **Table 1**.

1. **General Policy at Federal/State Level** - The general questions to be addressed are concerned with the status and numbers of people in nutritional need, including estimates of the numbers by group who are being reached by the existing nutrition-related programs, and those who are not. Specific questions are:
 - (1) Is there a problem now? Does it represent a deterioration in satisfying the nutritional needs of the people of New York State?
 - (2) Is this due to the federal budget cuts?
 - (3) What will be the effects of enacted and/or planned cuts and reallocation of resources?
 - (4) Which groups are in most need, or deteriorating most? Which programs are most relevant to these needs?

The answers to questions (1) to (3) do not need to be disaggregated, since the main purpose at this level is to demonstrate the existence of malnutrition so that public policy can be more carefully addressed, especially in these times of shrinking budgets and program cut-backs. Question (4) overlaps with the requirements for within - state decisions on resource allocations and program priorities.

2. **State/County Level** - The specific questions to be addressed are concerned with the programs within the state which currently or potentially have an impact upon those groups most affected by nutritional problems, and the causes of these problems. These programs are implemented through a variety of departments (i.e. DSS, DOH, DOE, SOFA, OGS, etc.), each with the administrative decision-making occurring at various levels (i.e. federal, state or county). We assume that the users of the information are both those concerned with resource allocations between programs (including with

TABLE 1

QUESTIONS TO BE ANSWERED BY THE NEW YORK STATE NUTRITIONAL SURVEILLANCE SYSTEM

<u>Policy Questions</u>	<u>Information Needs</u>	<u>Potential Data Source</u>
1. Is there a problem now? Does it represent a deterioration in satisfying the nutritional needs of the people of NYS?	Changes in #'s of needy, #'s served by programs, % needy served by programs over time (definition of needy and satisfaction).	Program data, i.e., FS, WIC, SSI, census data.
2. Is the deterioration due to budget cuts?	Change in funding over time vs. % needy served.	Program budgets by source of funds
3. What will be the effects of planned cuts and re-allocation of resources?	Cost/recipient/program; benefit/cost/program (define benefit).	Program budget and service data on #'s served and outcome.
4. Which groups are in most need; deteriorating most? Which programs are most relevant to needs?	Above data disaggregated.	As above

Program Questions

1. Does the program reach those people in need of nutrition and food aid?	# hungry, malnourished #'s hungry, malnourished, PRI #'s unemployed special groups	Food Stamp application. Labor Bureau Census data Vital statistics, clinics
a. Who is in need? What are their characteristics? How are they changing?		
b. Where is the need greatest?	% needy by county and total population. IMR, LBW, America. % needy served	Hospitals, IPO
c. Is this need currently being met? By what programs?		Program data
d. If not met, could it be met by existing programs?	Program priorities, budgets, flexibility	Program data
e. Are there groups who have needs but are not eligible for existing programs?	's needy above PRI	Census
2. Are there people who are being served who do not need it?	% targetted not needy	?

responsibility for initiating new programs as necessary), and those responsible for individual programs. These users need to be identified more specifically.

The questions may be formulated as follows:

1. Where is the greatest need? "Where" is defined in terms of geography, as well as administrative level of concern (i.e. state or county)? (Similar to (4) above).
2. Is this need being addressed, and by what programs?
3. Are the programs having an adequate effect (in relation to their objectives)?
4. If this need is not being met, can it be met by the existing programs?
5. Are there people who are being served, but who do not need it?
6. Are there groups who have needs, but are not eligible for any of the existing programs?

The answers to these specific questions will, it is proposed, provide the minimum information required for the users of NYSNSS (e.g. program administrators) to assess, and subsequently modify their programs. Thus, with this information in hand, the decision makers can review their programs in terms of:

- **Program activities:**
 - (a) Targetting: Are eligibility requirements adequate? Are the planned procedures for recruiting those in need adequate?
 - (b) Delivery design: Are the activities as designed likely to be appropriate to meet the needs of the recipients? (If resources are reduced, the choice is clearly to either reduce intensity (i.e. expenditure per head) or reduce the number targetted.)
 - (c) Intensity: Are the resources allocated per eligible person sufficient to permit the planned activities?
 - (d) Coverage: How many of those targetted are reached by the program? How many enter the program who are not targetted?
 - (e) Performance: Are the activities being performed as designed? If not, are they likely to impair the effectiveness of the program?
- **Expected effects:** Is the trend in outcome indicators adequate for the program's target groups?

The decision making process and hence the flexibility for modifying each program depends heavily on the administrative level (i.e. federal, state or county) at which the program is controlled. For instance, since decisions on the Food Stamps Program eligibility criteria are taken at the federal level at present, the input from state administrators may be limited. On the other hand, many of the decisions concerning the WIC Program are taken at the state level, so that here there is more flexibility for modifications.

IV. BASELINE ASSESSMENT AND IDENTIFICATION OF DATA NEEDS

A **baseline assessment** is needed of what is currently known (from existing data) about the nutritional conditions of different groups defined geographically and by economic and biological status. This might fill in the cells of the matrix shown in **Table 2**, in terms of numbers, program coverage, and nutritional status and hunger indicators. Summary tabulations should also be produced e.g. as **Annex 1, Table A1**. The purposes of this baseline assessment are:

- to test the information needs: is the information adequate in principle? What other information is needed? For what further decisions?
- to identify gaps in the existing information
- hence to demonstrate the types of outputs a nutritional surveillance system might produce.

Much of this information can be drawn from census as well as administrative data, and frequently may be disaggregated down to the county level. Often this data may be further disaggregated to specific areas within a county, this being useful when decisions can be made at the county level. However, for ease of handling, as well as demonstrative purposes, the 62 counties in New York state could be categorized into three geographical groups:

1. Urban downstate (9 counties)
2. Urban upstate (25 counties)
3. Rural upstate (28 counties)

Within each geographical region identification of who the needy are could be done by showing the **outcome indicators by various sub-groups** - e.g. as shown in **Table 2**. Summing across columns obviously gives higher levels of geographical aggregation; summing across rows gives county totals. Drawing up

TABLE 2

Sample Matrix Display of Information by Income, Age and Group

		<u>County</u>											
		1	2	3	4	5	6	8	9	10	11	12	→ 62
<u>PIR < 1.0</u>													
Infants													
Children	1- 5y/o												
	6-18y/o												
Pregnant & lact. ♀													
Non p & l ♀	19-65y/o												
Men	19-65y/o												
Elderly	> 65y/o												
Total													
<u>PIR 1.0-1.30</u>													
Infants													
Children	1- 5y/o												
	6-18y/o												
Pregnant & lact. ♀													
Non p & l ♀	19-65y/o												
Men	19-65y/o												
Elderly	> 65y/o												
Total													
		<u>In each cell:</u> - Numbers - Program participation - Nutritional status and hunger indicators											
<u>PIR 1.31-2.0</u>													
Infants													
Children	1- 5y/o												
	6-18y/o												
Pregnant & lact. ♀													
Non p & l ♀	19-65y/o												
Men	19-65y/o												
Elderly	> 65y/o												
Total													
<u>PIR > 2.0</u>													
Infants													
Children	1- 5y/o												
	6-18y/o												
Pregnant & lact. ♀													
Non p & l ♀	19-65y/o												
Men	19-65y/o												
Elderly	> 65y/o												
Total													

such dummy tables helps to define who is needy as well as to define where they are located. Changes in indicators over time (monthly, yearly) for a particular geographic region can usually be displayed graphically; examples are given in **Figures 1 and 2**. Other modes of data presentation may include mapping New York state to show the magnitude of certain indicators in certain counties or regions; see **Figures 3 and 4**. Presentation of data in tables, time charts and maps is valuable for comparative purposes, and in particular allows better visualization of the existing situation.

Examples of various dummy tables for nutritional outcome indicators are shown in Annex 1 **Tables A2 – A4**. Important questions to be answered revolve around the programs designed to alleviate the nutritional problems of the groups in need. Therefore, the surveillance effort requires that these groups be described not only in geographical and socio-economic terms, but also in terms of the programs directed at them: this requires **process** data (e.g. on program delivery).

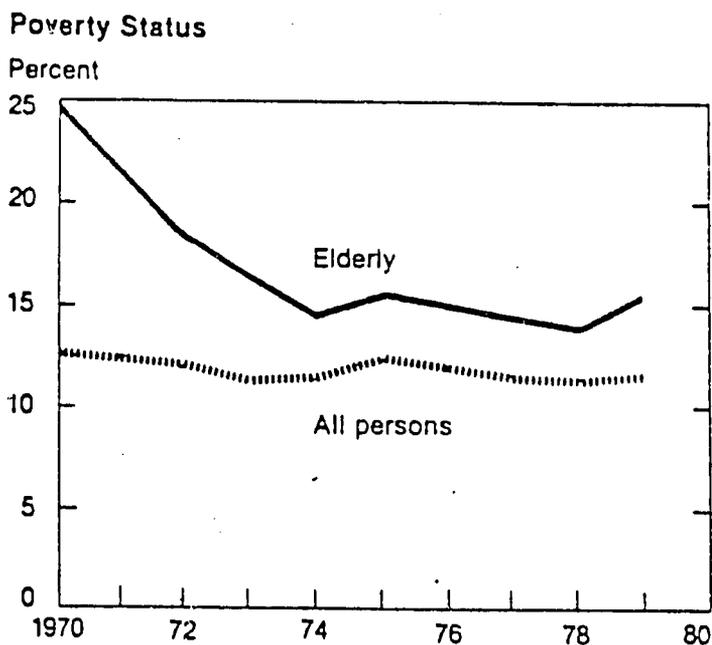
In New York State, many nutrition related programs exist which help to mitigate the economic and social deprivation of the groups in need. These programs include Food Stamps, Special Supplementary Food Program for Women, Infants and Children (WIC), nutrition activities for the elderly, school lunch and summer feeding programs for children, and others, many of which are described in the various Nutrition Watch handbooks. The eligibility for selected programs by group (defined in Table 2) is shown in **Table 3**. Information has already been compiled on programs specific to the elderly, and is available in the report on Nutritional Surveillance for the Elderly recently compiled by the Bureau of Chronic Disease Prevention.

In order to describe programs such as Food Stamps, WIC, etc. general information on a variety of factors is needed, and would include:

1. total number of individuals eligible (by county, state).
2. total number of participants (annually or monthly).
3. percent of targetted who are participating.
4. total budgets of programs including expenditure per recipient.

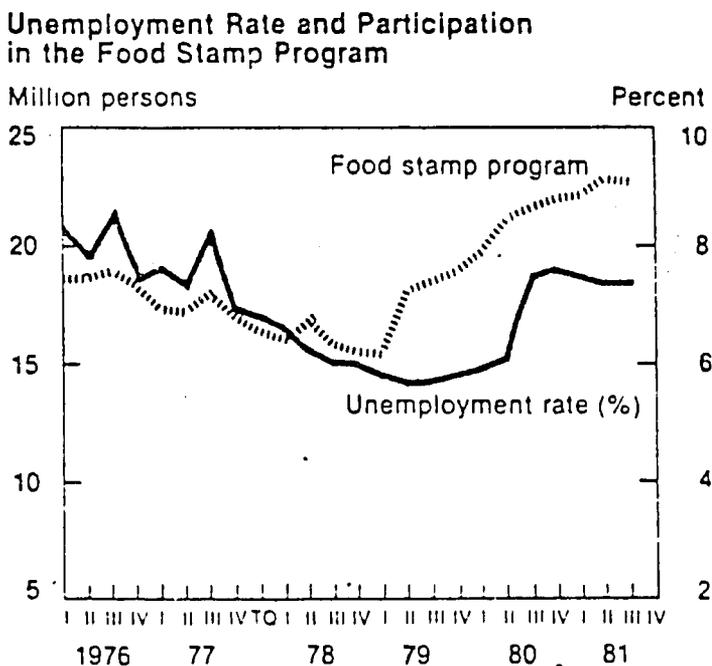
Figures 1 and 2: EXAMPLES OF CHARTS ^{a/}
 (i.e., times series, etc...)

Figure 1:



Source: Bureau of the Census.

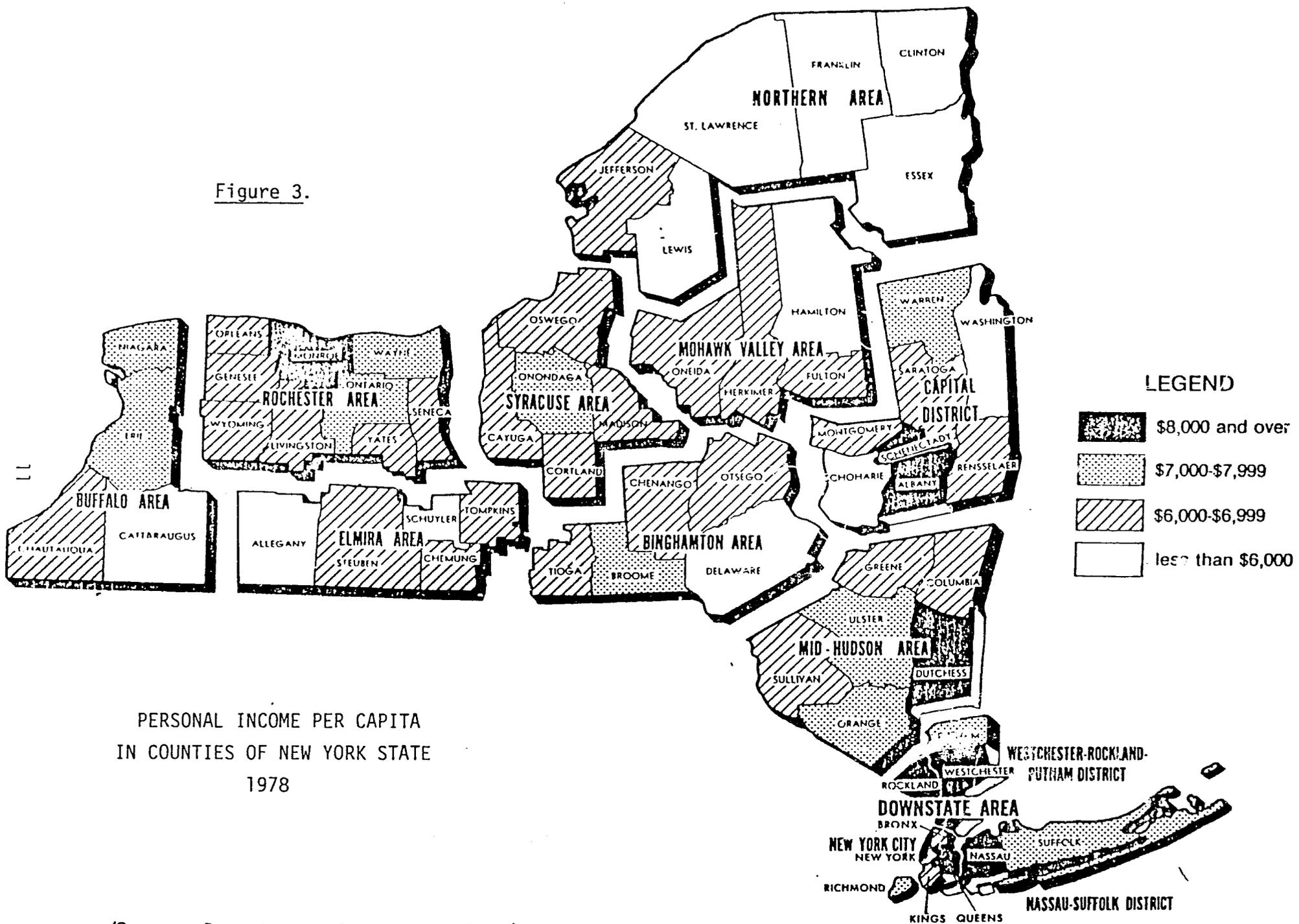
Figure 2:



Fiscal years. 1981 preliminary.

^{a/} From the "1981 Handbook of Agric. Charts", USDA Agric. Handbook No. 592.

Figure 3.



PERSONAL INCOME PER CAPITA
IN COUNTIES OF NEW YORK STATE
1978

(Source: Department of Commerce, 1980)

TABLE 3

Program Eligibility by Age Group and Income Group*

	WIC	FS	Sch. Lunch	AFDC	Medi- caid	Unemp. Ins.	SSI	Meals-on- Wheels	Congregate Meals
<u>PIR < 1.0</u>									
Infants	✓	✓		✓					
Children 1- 5y/o	✓	✓		✓					
6-18y/o		✓	✓	✓					
Pregnant & lact. ♀	✓	✓		✓					
Non p & l ♀ 19-65y/o		✓		✓					
Men 19-65y/o		✓							
Elderly > 65y/o		✓					✓	✓	✓
<u>PIR 1.0-1.3</u>									
Infants	✓	✓		✓					
Children 1- 5y/o	✓	✓		✓					
6-18y/o		✓	✓	✓					
p & l women	✓	✓		✓					
Non p & l ♀ 19-65y/o		✓		✓					
Men 19-65y/o		✓							
Elderly > 65y/o		✓					✓	✓	✓
<u>PIR 1.3 -2.0</u>									
Infants									
Children 1- 5y/o	✓								
6-18y/o	✓								
p & l women	✓								
Non p & l ♀ 19-65y/o									
Men 19-65y/o									
Elderly > 65y/o								✓	✓
<u>PIR > 2.0</u>									
Infants									
Children 1- 5y/o									
6-18y/o									
p & l women									
Non p & l ♀ 19-65y/o									
Men 19-65y/o								✓	✓
Elderly > 65y/o									

* Additional information is needed before this table can be completed.

The format for displaying such data is shown in Annex 1 **Tables A5 – A6**.

More information is needed on **where and what** decisions are made on targetting, delivery, design, etc. of such programs, (i.e. county, state-level, department, etc.).

The matrix used in Annex 1 Tables A2 – A4 simultaneously disaggregates these groups in terms of geographic area, biological status, and income level. Such a matrix should be constructed so that each group (cell on the matrix) is mutually exclusive and the matrix itself is overall inclusive. As discussed, in a series of these matrices, different kinds of information, such as total numbers in each group or indicator values describing each group can be presented in each cell.

By organizing the baseline data in tables such as these, gaps in our information are easily determined by blanks in the cells. In order to fill in these information gaps, a thorough search should first be made of all the existing data from administrative sources (state, county, local), university groups or private research organizations. Only after all existing data resources have been exhausted should new studies be considered for obtaining the sought-after information.

During the present climate of budget cuts, decisions need to be made regarding assessment of these programs (i.e. targetting, delivery intensity, coverage and performance), and policy formulation in order to maintain effectiveness in the face of dwindling funds.

In summary, once the baseline data has been drawn up (indicators chosen and information gaps filled) the most important role of the surveillance system is to monitor how the data in the cells of the matrices of Tables 2 and Annex 1 Tables A2 –A4 are changing over time. It is precisely this type of information which is needed to answer the policy and program questions outlined in Table 1.

V INDICATORS

Choice of indicators depends on numerous factors which include: type of data source (coverage and representativeness), periodicity, time lags, computer facilities, cooperation of source agency and others.

Table 4 lists examples of the potential outcome indicators for use in the NYSNSS system. The indicators which might provide the most information on

TABLE 4

Indicators For Possible Use in NYSNSS

<u>Indicator</u>	<u>Group</u>	<u>Source</u>	<u>Aggregation</u>	<u>Periodicity</u>	<u>Comments</u>
*Low birth-weight	Infants	Vital stats: Birth certificates	County Race, educ.& age of mother	Annual (monthly possible)	IPO currently compiles for WIC/MCH use
IMR	Infants	Vital Stats: Death certificates	County Race	Annual	Slow to change over time
*Weight for age	Pre-school Sch. age	Head-start WIC Schools	County County	on entry then- every 6 mths grades 1,3,7, and 10	not reported
*Height for age	Pre-school Sch. age	as for weight for age as for weight for age			
*Anemia	Infants Pre-sch. Pregnant women	WIC WIC WIC	(County) (County) (County)	entry & 6 mths entry & 6 mths entry & 6 mths	not analyzed currently. Hope to start
Nutritional status of Elderly	> 65y/o	?	?	?	Study could help develop

* High priority for use

Table 4 (cont'd)

Economic Outcome:

Unemployment rate	Unemployed adults (?)	Dept. of Labor	County	Monthly	
Unemployment Insurance	# applicants # recipients # exhausted cases	Dept. of Labor, Off. of Unemployment Insurance	Local office Zip code NYC	Monthly Annual Monthly	
Consumer Price Index As ratio with wage rates and benefits.		Bureau of Consumer Affairs			Considered not to be very reliable

Food Accessibility Indicator:

Square footage of food stores in an area		State Dept. of Ag. & Markets		Not currently recorded. Could be obtained by modifying the licensing form for milk handlers.	
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Hunger Indicator:

e.g., time since last meal; diet quality; reasons for application for program	Adults; elderly; (program applicants)	Food stamps? Elderly programs? Nutrition aides? Salvation Army, etc.?	County	Monthly	Needs Research
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nutritional status would probably be (1) the weights and heights of preschoolers, (2) the prevalence of anemia, and (3) the prevalence of low birthweight babies. However, as will be discussed later, the final choice of indicators will depend on such factors as their "responsiveness" to change as well as the quality of data. There is a lack of information on what indicators should be used to measure hunger, as well as for assessing the nutritional status of the elderly. Hunger indicators in particular require field studies and testing for better definition. Also, it appears that little information is collected on the nutritional status of adolescents, adult men, non-pregnant and non-lactating women, and the elderly.

The most accessible sources of regular data are from program sources. The data will often need to be manipulated to take account of the population not covered. Particular use may be made of people on first contact with any of the programs. Sources not related to official aid programs - e.g. hospitals, voluntary agencies such as Salvation Army - need to be identified and evaluated. The list of available data in New York State provided to the Watch Committee is attached as **Annex 2** for ease of reference. Other relevant factors when considering data sources are discussed below.

The quality of the data in terms of reliability, precision and accuracy, is extremely important especially for anthropometric (e.g. height, weight etc.) and biochemical (e.g. hemoglobin, hematocrit) indicators. Standardization of the protocol (e.g. taking the height and weight measurement or hemoglobin analysis) combined with a system of quality control is essential.

Another important factor in choosing the outcome indicators is to understand what changes in the values of these indicators mean. This may require a historical analysis to see what changes occurred with these indicators during the hard times of past recessions. For example, were there greater proportions of low birthweight babies born in the poor socio-economic and depressed areas during the 1975 recession? If so, what were the factors associated with this? In general, for assessing the responsiveness of an indicator to change, a historical analysis may be done, or perhaps since we are presently entering hard times we should start looking for changes in these indicators now.

Studies on Indicators.

Before the NYSNSS can be designed, there are certain pieces of information which are needed so that the appropriate indicators can be chosen.

Studies may be required to supply this information. A discussion of some possible studies follows.

1. Responsiveness: e.g.
 - Is there a greater proportion of low birthweight babies born in depressed areas during "hard times"? This may require historical analysis.
 - Are children from poor socio-economic groups shorter and lighter than their counterparts from high socio-economic groups?
2. An evaluation regarding the quality of the data source from which the indicators are obtained must be made. In other words, how accurate, precise and reliable are the current anthropometric (height, weight) and biochemical (hemoglobin, hematocrit) data that are being collected by existing programs such as WIC and Headstart? Who is actually doing these measurements, and are they following standard protocol with a quality control component?
3. More information and studies are needed on deciding what proxy indicators should be used to measure hunger. A suggestion of possible qualitative indicators might include, but not confined to:
 - Reasons for emergency food requests
 - Time since last meal
 - Quality of diet

Methods of obtaining this information might include sampling people eating at soup-kitchens such as the Salvation Army's, case-control studies on malnourished individuals found in hospitals, or from asking for this type of information on the application forms used for such food assistance programs as Food Stamps. These are just suggestions of possible ways to measure hunger, and it is clear that more work needs to be done to identify the most feasible indicator.

4. Nutritional status of the elderly. Little information exists for this age group. If a proxy indicator for hunger can be developed, then this might also be used to assess the situation of the elderly. Work is needed to determine what type of physical assessment can be used to measure the "wasting" (sometimes called the "dwindles") of the elderly which is associated with undernutrition. Considerations for the nutritional status assessment of the elderly may be found in the

previously mentioned report by the Bureau of Chronic Disease Prevention.

5. Adequacy of a household's income in terms of purchasing power: some type of price/wage index which could be used to describe various regions within the state. Presently, it does not appear that an indicator such as this exists which can be used at the county level to describe and compare the purchasing power of families from different regions.
6. Other studies may be necessary to fill in the gaps of information which still exist in the baseline statement. Many of these gaps of information will revolve around program coverage especially in terms of who we should know more about because data does not currently exist. These groups of concern (i.e. their total numbers, geographical location, age, race, etc.) might include:
 - (a) Those individuals who are eligible for a program, but are not participating in it.
 - (b) Those individuals who are in need but not eligible for a program. (For example, this group might include the working poor whose income level is slightly above the eligibility cut-off, etc.)

Existing administrative data typically provides the numbers, locations and characteristics of the individuals participating in the programs; however, little of this same type of information is available on those individuals who are in need, but not participating in the existing programs. Methods for assessing people without program contact need to be developed (or thought out).

VI. NEXT STEPS

In our experience, a fairly substantial effort is needed for the design phase ("initial assessment") of a nutritional surveillance system. Hitherto, it has most successfully been approached as a small project - requiring a work plan, personnel, budget, etc. It is premature to propose such a project. Here we set out some of the things that would need to be done before a surveillance system could be started; decisions will be needed on all these points. When these are made, one could proceed to draw up a work plan for the design of the system.

A. Organization

Focal point for administration of NYSNSS.

Consideration should be given to the fact that nutritional surveillance is going to be inter-sectoral (or inter-departmental) in terms of data collection, analyses, and data use. Those responsible for the system will need:

1. The authority and mandate to collect certain types of data.
2. The resources to collect, analyze and interpret the data.
3. The institutional set-up to relate data outputs to decisions.

Developing a work-plan for NYSNSS

The actual design of the system needs to take certain questions into account which include "who does what". A work-plan must be drawn up which includes assigning responsibilities to certain individuals and agencies so that it is clear - who is responsible for getting what information from which source. Included in this plan should be a time schedule of activities which need to be initiated and completed at the specified dates.

A certain number of full-time staff will be needed in order that anything worthwhile will be established. Therefore job descriptions need to be drawn up to delineate and assign certain tasks to certain individuals. If the need arises to conduct field studies, then the training of field staff must be considered. In addition, training sessions may be necessary to improve the protocol standards and quality control practices of the data presently being collected by existing programs (WIC, Headstart, etc.). Along these lines provision of supplies which are required (forms, equipment, maintenance) must be made. The budget needs to take into account the expenses of staffing, data collection and analysis, equipment costs, and so on.

In regards to data analysis and interpretation, NYSNSS will probably rely on the already processed data from administrative sources (such as WIC, Food Samps, etc.). However, if additional data analysis or interpretation is necessary, data research groups from either state, private or university run programs, might be employed for consulting purposes.

A major purpose of the NYSNSS system is to disseminate the information it has collected and analyzed. Therefore, a key factor which determines the usefulness of the NYSNSS system is to ensure the results can be related back to decision-making either at the policy or program level.

B. Work to be Done

As discussed throughout this paper, specific activities must take place in order to set-up and carry-out a nutritional surveillance system for the state of New York. To summarize as well as reiterate the important points which were discussed, an outline of the work to be done is given below. Steps 1-4 need to be done before the NYSNSS can be instituted, while steps 5-6 need to take place during the implementation of the system.

Before:

1. Initial assessment
 - fill out the matrices given in Table 2, Annex 1 Tables A2-A4, etc.
 - further specify policy and program needs for information
2. Select indicators
3. Determine data sources
4. Design routine analysis and presentation of results

During:

5. Carry out routine analysis and data presentation
6. Institutionalize flexibility to examine NYNSS needs, performance, and institute changes as indicated.

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- USDA 1981.** 1981 Handbook of Agricultural Charts. USDA Agricultural Handbook No. 592. Washington, D.C.
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ANNEX 1

SUMMARY INDICATORS

Table A1

Characteristics of New York State by Region*

<u>Characteristic</u>	<u>Downstate</u>	<u>Upstate Urban</u>	<u>Upstate Rural</u>	<u>NYS</u>
Total Population-1980				
% NYS Population				
% Pop. w/PIR <1.0				
% Pop. > 65 y/o				
% Pop. on Food stamps				
% Pop on Public Assist.				
Unemployment Rate				
Infant Mortality Rate				
% Birthweight <2500 Gm				
(\bar{x} H/A at Sch. entry)				
(\bar{x} W/A children 1-3 y/o)				

* See Table A7 for definition of regions.

Table A2

Weight For Age By Income Group, Age Group and County

	1	2	3	4	5	6	7	8	9	10	11	12	→ 62
<hr/>													
PIR < 1.0													
<hr/>													
Infants													
Children	1- 5y/o												
	6-18y/o												
Pregnant & lact. °													
Non p & l ♀	19-65y/o												
Men	19-65y/o												
Elderly	> 65y/o												
Total													
<hr/>													
PIR 1.0-1.30													
<hr/>													
Infants													
Children	1- 5y/o												
	6-18y/o												
p & l women													
Non p & l ♀	19-65y/o												
Men	19-65y/o												
Elderly	> 65y/o												
Total													
<hr/>													
PIR 1.31-2.0													
<hr/>													
Infants													
Children	1- 5y/o												
	6-18y/o												
p & l women													
Non p & l ♀	19-65y/o												
Men	19-65y/o												
Elderly	> 65y/o												
Total													
<hr/>													
PIR > 2.0													
<hr/>													
Infants													
Children	1- 5y/o												
	6-18y/o												
p & l women													
Non p & l ♀	19-65y/o												
Men	19-65y/o												
Elderly	> 65y/o												
Total													
<hr/>													

<p>In each cell: - numbers and % of population below standard: e.g., 10th percentile of NCHS for children and Metropolitan Life standards for adults</p>

Table A3

Incidence of LBW/1000 Live Births by Income Group and Area

	<u>Downstate</u>	<u>Upstate Urban</u>	<u>Upstate Rural</u>	<u>NYS</u>
PIR < 1.0				
PIR 1.0-1.30				
PIR 1.31-2.0				
PIR > 2.0				
For total area				

IMR by Income Group and Area

	<u>Downstate</u>	<u>Upstate Urban</u>	<u>Upstate Rural</u>	<u>NYS</u>
PIR < 1.0				
PIR 1.0-1.30				
PIR 1.31-2.0				
PIR > 2.0				
For total area				

Table A4

Change in Prevalence of Anemia
by Income and Age Group by Region

	Downstate			Upstate Urban			Upstate Rural			New York State		
	1982	1983	% Δ	1982	1983	% Δ	1982	1983	% Δ	1982	1983	% Δ
<u>PIR < 1.0</u>												
Infants												
Preschool												
Preg/Lact women												
Elderly >65												
<u>PIR 1.0-1.30</u>												
Infants												
Preschool												
Preg/Lact women												
Elderly >65												
<u>PIR 1.31-2.0</u>												
Infants												
Preschool												
Preg/Lact women												
Elderly >65												
<u>PIR > 2.0</u>												
Infants												
Preschool												
Preg/Lact women												
Elderly >65												

Table A5

Eligible Participating in Food-Aid Programs by Income, Age and Area

	Downstate WIC/FS/Sch. Lunch	Upstate Urban WIC/FS/Sch. Lunch	Upstate Rural WIC/FS/Sch. Lunch	New York State WIC/FS/Sch. Lunch
<hr/>				
PIR < 1.0				
Infants				
Children	1- 5y/o			
	6-18y/o			
Pregnant & lact. ♀				
Non p & l ♀	19-65y/o			
Men	19-65y/o			
Elderly	> 65y/o			
Total				
<hr/>				
PIR 1.0-1.30				
Infants				
Children	1- 5y/o			
	6-18y/o			
p & l women				
Non p & l ♀	19-65y/o			
Men	19-65y/o			
Elderly	> 65y/o			
Total				
<hr/>				
PIR 1.31-2.0				
Infants				
Children	1- 5y/o			
	6-18y/o			
p & l women				
Non p & l ♀	19-65y/o			
Men	19-65y/o			
Elderly	> 65y/o			
Total				
<hr/>				
PIR > 2.0				
Infants				
Children	1- 5y/o			
	6-18y/o			
p & l women				
Non p & l ♀	19-65y/o			
Men	19-65y/o			
Elderly	> 65y/o			
Total				

KEY: WIC: Special Supplementary Food Program
for Women, Infants and Children
FC: Food Stamps
PIR: Poverty Index Ratio
y/o: years old

Table A6

* Eligible Served by Economic Aid Programs by Income Group, Age Group and Area

	Downstate AFDC/Unemp./SSI	Upstate Urban AFDC/Unemp./SSI	Upstate Rural AFDC/Unemp./SSI	New York State AFDC/Unemp./SSI
PIR < 1.0				
Infants				
Children	1- 5y/o			
	6-18y/o			
Pregnant & lact.				
Non p & l	19-65y/o			
Men	19-65y/o			
Elderly	> 65y/o			
Total				
PIR 1.0-1.30				
Infants				
Children	1- 5y/o			
	6-18y/o			
p & l women				
Non p & l	19-65y/o			
Men	19-65y/o			
Elderly	> 65y/o			
Total				
PIR 1.31-2.0				
Infants				
Children	1- 5y/o			
	6-18y/o			
p & l women				
Non p & l	19-65y/o			
Men	19-65y/o			
Elderly	> 65y/o			
Total				
PIR > 2.0				
Infants				
Children	1- 5y/o			
	6-18y/o			
p & l women				
Non p & l	19-65y/o			
Men	19-65y/o			
Elderly	> 65y/o			
Total				

Table A7

Distribution of Counties - 1980 Census

<u>Downstate</u>	<u>Upstate Urban</u>	<u>Upstate Rural</u>
Bronx	Albany	Allegany
Kings	Broome	Cattaraugus
Nassau	Chemung	Cayuga
New York	Dutchess	Chautauqua
Queens	Erie	Chenango
Richmond	Herkimer	Clinton
Rockland	Livingston	Columbia
Suffolk	Madison	Cortland
Westchester	Monroe	Delaware
	Montgomery	Essex
	Niagara	Franklin
	Oneida	Fulton
	Onondaga	Genesee
	Ontario	Greene
	Orange	Hamilton
	Orleans	Jefferson
	Oswego	Lewis
	Putnam	Otsego
	Rensselaer	St. Lawrence
	Saratoga	Schoharie
	Schenectady	Schuyler
	Tioga	Seneca
	Warren	Steuben
	Washington	Sullivan
	Wayne	Tompkins
		Ulster
		Wyoming
		Yates

ANNEX 2

NUTRITION SURVEILLANCE

DATA AVAILABILITY IN NEW YORK STATE

TYPE	DESCRIPTION	SOURCE	HOW USED	PARAMETERS
Vital and Health Statistics Information System	<p>See Attachment 1.</p> <p>Other information collected includes maternal and paternal education and occupation and maternal pregnancy history, parity, and prenatal care. Attachment 1.</p>	Certificate of live birth (local registrar) or State Department of Health.	Data base for research, program planning and evaluation, and targeting special services (such as MCH programs).	<p>Most accurate and complete compilation of basic health data and rate of occurrence in State; can be broken out by city and census tract. Collected for over 100 years.</p> <p>Confidential information collected on mother of child is not copied into the local register, and is used for statistical purposes only. No nutritional status information is collected.</p>
	Lists cause (both primary and contributing) time and age of death and family history. Attachment 2.	Certificate of death and certificate of fetal death.		Birth and death certificates can be matched to determine outcome of live pregnancy in case of infant death.
Improved Pregnancy Outcome (IPO) Information System	<p>Series of tables showing precedence and consequences of pregnancies for any area in NYS (outcome measures).</p> <p>Table A. Live Births:</p> <ol style="list-style-type: none"> 1) Maternal Age and Race 2) Birth Weight, Race and One Minute AFGAR Score 3) Birth Weight, Race, and Gestation Age 4) Parity and Race 5) Previous Pregnancy Outcome and Race 6) Mother's Education and Race 7) Spacing and Race 8) Prenatal Care, Prenatal Visits, and Race 	Birth and death records (vital statistics, NYS Department of Health).	<p>Analysis of maternal and infant characteristics.</p> <p>Program planning and evaluation.</p> <p>Community health diagnosis.</p> <p>Target health education campaigns.</p>	<p>Statewide by county or census tract.</p> <p>Analysis of data available since 1978.</p> <p>Quality of data - see Attachment 3.</p>

Table B. Spontaneous Fetal Deaths:

- 1) Maternal Age and Race
- 2) Parity and Race
- 3) Previous Pregnancy Outcome and Race
- 4) Mother's Education and Race
- 5) Spacing and Race

Table C. Induced Fetal Deaths:

- 1) Maternal Age and Race

Table D. Neonatal Deaths:

- 1) Maternal Age and Race
- 2) Birthweight, Race, and One Minute Apgar Score
- 3) Birth Weight, Race, and Gestation Age
- 4) Parity and Race
- 5) Previous Pregnancy Outcome and Race
- 6) Mother's Education and Race
- 7) Spacing and Race
- 8) Prenatal Care, Prenatal Visits, and Race

Table E. Infant Deaths:

- 1) Maternal Age and Race
- 2) Birth Weight, Race, and One Minute Apgar Score
- 3) Birth Weight, Race, and Gestation Age
- 4) Parity and Race
- 5) Previous Pregnancy Outcome and Race
- 6) Mother's Education and Race
- 7) Spacing and Race
- 8) Prenatal Care, Prenatal Visits, and Race

Primary Care Profile

See Attachment 4 for data elements:

- 1) health status characteristics
- 2) socio-economic characteristics
- 3) service characteristics

1980 Census

1980 NYS Physician Survey

NYS Vital Statistics

As a statewide inventory of all primary care resources;

To identify areas and populations with a high need for services;

Annually updated.

700 primary care analysis areas are identified (includes groups of minor civil divisions).

TYPE	DESCRIPTION	SOURCE	HOW USED	PARAMETERS
Primary Care Profile (Continued)			for program evaluation, practitioner placement and resource allocation.	Need among ICAMS defined as: 1) low birth weight ratio of greater than 4% of total live births; 2) PC physician to population ratio of less than 1:2000; 3) percent of popu- lation with income equal or below 200% of poverty limit; 4) percent of popu- lation aged 65 and over.
SPARCS (Statewide Planning and Research Cooperative System)	Serves as a unified and comprehensive information network to support and link functions of resource planning, financing, and surveillance of hospi- tal services in NYS. Matches insti- tutional and patient statistical medical and financial facts and hos- pital costs and services.	Financial reports and in-patient information for all general hos- pitals in State.	Provides unified hospital data and pro- files to government, the hospital industry, insurance companies, and the public. Examples of uses: -to obtain information on hospital lengths of stay and costs by patient diagnosis for reimbursement -identify aberrant cases of morbidity and mor- tality patterns for research purposes.	Elements of SPARCS: -uniform billing form-- used as reimbursement claim form by hospitals -discharge data abstract set-- also used for hospital utilization review -federal annual hos- pital report -state supplement to hospital report In 1978, SPARCS develop- ment was begun. Informa- tion is annually up- dated. Offers minimal data that could be used for nutrition surveillance purposes (be- cause incidence of hospital admissions caused by nutritional deficiencies is low).

TYPE	DESCRIPTION	SOURCE		
IIC Certification Form	<p>Document completed on all WIC participants:</p> <ul style="list-style-type: none"> - Age - Racial/Ethnic Status - City/Town of Residence - County of Residence - Health Area of Residence - Height - Weight - Birth Weight - Birth Length - Hemoglobin and/or Hematocrit Values - Reason for Nutritional Need - Type of Nutritional Education Provided 	<p>Local WIC contractors complete and send to New York State Health Department.</p>	<ul style="list-style-type: none"> - Officially certify persons eligible for WIC - Issue computer-printed checks - Program Evaluation: <ul style="list-style-type: none"> - Determine source of health care - Determine racial-ethnic make-up of WIC participants - Provide information about quantity of nutrition education received by participants - Determine reasons for nutritional need 	<p>Collected at six-month intervals for infants and children; once during pregnancy, and at six weeks and six months post partum.</p> <p>Limitations:</p> <ol style="list-style-type: none"> 1) No standard method for obtaining measurements 2) Comparability of hematological data, since type and method of determination performed varies.
IIC Affirmative Action Plan	<p>Ranks areas (counties and large cities) in order of need for WIC services in a composite index using:</p> <ul style="list-style-type: none"> - neonatal mortality, - low birthweight, - maternal age less than 18, - and two indices of "poverty" 	<p>New York State Department of Health's annual published reports for neonatal mortality low birthweight and mother's age; 1970 census data from U.S. Department of Commerce</p>	<p>Serves as guide for establishment of new WIC programs in areas of greatest need when additional monies are received from USDA.</p> <p>Ensures targeting of resources to high risk areas</p>	<p>Attachment 5</p>

NEW YORK STATE DEPARTMENT OF SOCIAL SERVICES

Type	Description	Source	Use	Parameter
FNS-256	County participation by PA/NPA * households and persons. Bonus value issued.	Reports submitted by local districts.	Claiming for reimbursement.	Four month delay in receiving information.
Social Statistics	Number of persons and cases in receipt of PA, expenditure for PA. Number of children in receipt of AFDC. Number of people in receipt of FSI.	Reports submitted by local districts.	Informational.	Six month delay in receiving information.
Selected characteristics of public assistance recipients in NYC by community district.	Characteristics by borough number and age of children on assistance.	Office of Policy and Program Development.	Management and planning.	Based on September '80 data. Not updated regularly.
WIS 1240	Number of PA and FS active cases. Number of applications received, denied, withdrawn, and accepted.	WIS	Management and planning.	Complete historic information not available since counties have gone on WIS at different times.
MMIS - Medicaid Surveillance and Utilization Review.	Number, age, and sex of clients with nutrition related diseases. Number of claims and cost of care.	MMIS - Medical Management Information System.	Ascertain scope of nutrition related illnesses being treated. Cost of care for nutrition related diseases.	Five month delay. Reports available statewide on by county on a monthly basis.
FNS 101 Participation in Food Programs by Race	Gives racial and ethnic background on participating households.	Submitted by local districts who collect it from the application	Submitted to USDA.	Can only be used to identify groups at risk since certain minorities are prone to certain diseases.
<p>* PA/NPA is public assistance/non-public assistance households for food stamp purposes.</p>				

OTHER DATA SOURCES IN NEW YORK STATE

Statistical Series by Category and Description

Commerce, Department of
Personal Income in Counties of NYS:

Detailed estimates from the United States Department of Commerce for more than 70 income segments in the State as a whole apportioned among NYC and the remaining 57 counties through use of some of 80 "allocators."

Education Department
High School Graduates:

Number of high school graduates and number in classes, grades 9 - 12; enrollment data for each graduating class presented to show number of student dropouts for the three preceding years.

Department of Labor (Division of Research and Statistics)

Work Force: Total Employment Plus Total Unemployment

Social Services, Department of
Public Assistance Caseloads and Expenditures

- Old Age Assistance
- Aid to Disabled
- Aid to Dependent Children
- Medical Assistance for the Needy
- Home Relief
- Emergency Assistance to Families

Title and Frequency of Publication

Personal Income in Areas and Counties of NYS (annual).

Supplement to the NYS Business Fact Book (annual).

Annual Educational Summary

Employment Review (monthly): Employment Review Supplement

Social Statistics (monthly); Statistical Supplement to the Annual Report of the Department of Social Services (annual)

Area Covered and Year of Origin

Counties and New York City 1948

School Districts 1902

State 1957
SMSA's 1958
Most Counties 1960

Local S.S. Districts (usually counties) 1958

CNSP WORKING PAPER SERIES

Currently available:

1. Nutritional Surveillance: A synopsis. June 1981.
2. Nutritional Surveillance. August 1981.
3. Surveillance Summaries. January 1982.
4. Analytical Methods for Nutritional and Socio-economic Data. April 1983.
5. Principles for Evaluation of On-going Programs. May 1982.
6. An Outline Plan for Developing a Nutritional Surveillance System in New York State. May 1982.
7. Initial Assessment for Nutritional surveillance in the Philippines. Forthcoming.
8. Preliminary Analysis of Nutritional and Agricultural Data, Eastern Province, Kenya. August 1982.
9. Static and Dynamic Poverty Indicators: An Indonesian Example. May 1983.
10. Reducing Malnutrition Through Rural Development: A test of Planning Methods in Haiti. June 1983.
12. Malnutrition by Socio-Economic Classification in Palawan, the Philippines. June 1983.
13. Changes in Nutritional Status in the Philippines from 1979 to 1980. Forthcoming.
14. National Health Information Systems and their use in Nutritional Surveillance. January 1983.
15. On Sampling Variance of the Sensitivity of an Indicator. January 1983.
16. Note on a Framework for Monitoring and Evaluation of UNICEF/WHO Nutrition Improvement Programmes. March 1983.
17. On Error in the Estimate of Malnutrition Due to Bias and Random Error in Anthropometry and Age. June 1983.
18. Age Misstatement for Children: A Problem for Interpreting Anthropometric Measures in Bangladesh. June 1983

Additional Documents Available from CNSP:

Report of Workshop on Social and Nutritional Surveillance in Eastern & Southern Africa. May 17-19, 1982.

Background Papers for Workshop on Social and Nutritional Surveillance in Eastern & Southern Africa. May 17-19, 1982.