

FOOD RATIONING AND MORTALITY IN PARIS, 1940-1941

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FOOD rationing started throughout France on October 1, 1940, and a card system was evolved by age, occupation, and state of health. The following foods were restricted: bread, meat, cheese, fats (lard, oil, etc.), sugar, milk, chocolate, and milled products. Technically other foods could be obtained, but in reality it was difficult to get them; horsemeat, fish, and fowl were very scarce. At first potatoes were sold without restriction, but they were rationed later. They were issued in quantities varying from two to six pounds per person. Different kinds of tubers of slight nutritive value were sold to the public; such as turnips and rutabagas, which had formerly been used to feed cattle. All fruits became scarce; and prices doubled creating very serious difficulties for the lower income classes. It should be noted, too, that it was not possible to procure the full ration of meat allowed on each card. In reality, only ninety grams of meat per week was obtainable. However, that part of the population having relatives or friends in the country, received foods from them. There existed, furthermore, in the big cities, "Black Markets," where certain foods could be purchased, but these only by a few for the prices were outrageously high.

Table 1 gives the protein, fat, carbohydrate, and caloric value of foods rationed according to age, occupation, and state of health, as devised for France.

Four special basic diets were likewise devised for sick persons in the following categories: those with diseases accompanied by fever, where a milk diet alone was prescribed, were allowed 1,158 calories; cardiacs, nephritics, etc., on lacto-vegetarian diets, were allotted

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CLASSIFICATIONS	PROTEIN (Grams)	FAT (Grams)	CARBOHYDRATES (Grams)	TOTAL CALORIES
1 to 3 Years	42.86	48.94	125.80	1,151
3 to 6 Years	50.81	51.04	168.53	1,379
6 to 13 Years	37.99	35.57	180.05	1,228
13 to 21 Years	34.95	29.62	211.87	1,290
21 to 70 Years	28.91	25.27	163.18	1,025
70 Years and Up	25.31	25.54	133.28	890
Workmen and Farm Laborers	33.79	26.02	201.23	1,208
Workers (Light Industrial)	36.87	35.04	201.24	1,305
Workers (Heavy Industrial)	39.95	44.06	201.31	1,403

Table 1. Food value per day of rations in France, 1940-1941.

1,164 calories; diabetics on carbohydrate-restricted diets, 1,489 calories; nephritics on a meat-restricted diet, 1,542 calories.

AVERAGE TOTAL DIET IN PARIS

Because some food could be procured in addition to the basic ration, it is difficult to obtain a true idea of what the persons living in Paris really consumed. In a series of reports made to scientific societies throughout France, estimates have been based on the rations indicated on the cards, without taking into consideration the undetermined portions that each individual could have secured from other sources. This has been conducive to estimating exaggerated quantitative and qualitative insufficiencies.

A survey by H. Gounelle and R. Mande, of the Institut des Recherches d'Hygiene gives data on how different families of Paris were feeding themselves. Specially trained nurses made a thorough study in sixty-five different homes, and each day for one week, they weighed all the food consumed by members of the family of both sexes whose ages were between 20 and 50 years. The survey was carried out in May, June, and July, 1941. The results of this study more nearly approximate the actual situation. Table 2 shows the average daily consumption per person.

From this survey, Gounelle and Mande conclude that the diets studied show:

1. A total caloric insufficiency of about a thousand calories daily.
2. A calcium deficiency and a calcium-phosphorus imbalance.
3. An insufficient amount of Vitamin A.

Tuberculosis in Paris. It is undoubtedly a fact that morbidity and mortality caused by tuberculosis have noticeably increased in Paris. The percentage of rapidly-developed tuberculosis has gone up in an alarming manner. To illustrate this we have taken some figures from a report presented in September, 1941, to the Academie de Medecine de Paris by Dr. Marcel Moine, Chief of Statistics of the Comité National de Defense Contre La Tuberculose.

Comparing the figures of the first six months of 1941 with the corresponding ones in 1939, we find that the mortality of tuberculosis increased 10 per cent. In children under one year of age, the increase was 15 per cent. In children from one to nine years, the increase was 28 per cent. The deaths from pulmonary tuberculosis increased 20.4 per cent, and from other types of tuberculosis increased 30.4 per cent.

Table 2. Average daily food consumption by adult persons in Paris estimated by Gounelle and Mande from a study of sixty-five families.

NUTRIENT	QUANTITY	CALORIES	CALORIES (PER CENT OF TOTAL)
Protein	69.46 gms.	277.84	15.9
Fat	38.00 gms.	342.00	19.6
Carbohydrate	281.70 gms.	1,126.80	64.5
		1,794.64	100.0
Calcium	0.438 gms.		
Phosphorus	1.118 gms.		
Iron	0.016 gms.		
Vitamin ¹ A	3,472 I.U.		
Vitamin ¹ B ₁	340. I.U.		
Vitamin ¹ C	65. milligrams		
Vitamin ¹ D	0.71 I.U.		

¹ Vitamin estimates based on diets of only thirty persons.

In reference to morbidity, Moine, comparing the volume of work done in the laboratory department of l'Oise in the first semester of 1938 with that done in the corresponding semester of 1941, gives the following figures:

The requests for sputum examinations increased 38 per cent in the Beauvais Dispensary, and 101 per cent in Compiègne.

The positive results found in the sputum examinations of those coming to the dispensaries for the first time, showed an increase of 44.5 per cent in Beauvais and 47.3 per cent in Compiègne.

In five dispensaries an ominous increase was observed in the proportion of positive bacillus sputums per thousand sputum examinations. The average figures from five laboratories were as follows:

1938—	54.3	positive	results	per	thousand	sputum	examinations.
1939—	59.1	"	"	"	"	"	"
1940—	72.2	"	"	"	"	"	"
1941—	211.0	"	"	"	"	"	"

Thus, in the first half of 1941, there was an increase of 270 per cent as compared with the average figures for 1938 and 1939.

The department covering social insurance has also determined an increase in tuberculosis morbidity among the insured. Those reacting to the tuberculin tests were not only more numerous but they were also younger.

Ravina, Pecher, Bucquoy, and C. Pujol² point out the importance and gravity of forms of pulmonary tuberculosis which are actually seen and they indicate as possible causes: the summoning to the army or Civil Service of old tuberculosis patients considered as cured, or of young people who have not been thoroughly examined; moral factors (evacuation, separation from a familiar environment, etc.), and malnourishment.

In the discussion of this report, Rist also pointed out that an in-

² *Bulletin de la Société Médicale des Hôpitaux de Paris*, Nos. 17 and 18, July, 1941, pp. 464-469.

crease has actually been observed in the proportion of cases of rapidly fatal tuberculosis.³ Ameuille indicated that a characteristic of present-day tuberculosis is the increase of caseous pneumonia. Only two or three cases a week of pneumonia tuberculosis formerly were seen in his department; now there are from five to ten. Brule has also observed the increase in serous tuberculosis; the rapid development and early bilateralization of pulmonary tuberculosis make the use of pneumothorax more difficult. Etienne Bernard also pointed out the frequency of cervical tubercular adenopathies associated with evolutive pulmonary bacilli.

To lessen the ill effects upon persons with active tuberculosis and known lesions, a diet was given which corresponded to their general category, plus a supplementary amount of 45 grams of meat and 15 grams of fat daily per patient.

Despite the precaution indicated, the march of tuberculosis up to October, 1941, has been ominously progressive; thus, if the present dietary regime continues and the consequences increase, the problem of tuberculosis in France will be exceedingly grave.

GENERAL MORTALITY DURING THE FIRST ELEVEN MONTHS OF FOOD RATIONING

The food restrictions to which the population of Paris were subjected from the first of October, 1940; the intense cold aggravated by a prolonged and rigorous winter; and the absolute lack of heating facilities due to the fact that only 50 kilos of coal were available per year for each family created special conditions which were in some measure responsible for an increased mortality in Paris.

A comparative study of the deaths in this period with a corresponding period for the previous years was made. We have divided the mortality according to the ages of the deceased and have compiled statistics from 0 to 1 year, from 1 to 9 years, from 10 to 19 years, from 20 to 59 years, and from 60 years upward. All the fig-

³ Rist-Ameuille-Brule-Bernard: Discussion of the report of Ravina, *et al.*, footnote 2.

AGE	OCT. 1936- AUG. 1937	OCT. 1937- AUG. 1938	OCT. 1938- AUG. 1939	OCT. 1939- AUG. 1940	OCT. 1940- AUG. 1941
0-1	2,085	1,764	1,937	1,476	1,672
1-10	1,189	892	926	589	791
10-19	544	616	593	546	535
20-59	13,338	12,966	12,670	11,408	12,086

Table 3. Number of deaths occurring in eleven months for each of the years from 1936 to 1941. By age groups for persons up to 59 years of age.

ures are based on data supplied by the *Bulletin Bi-Mensuel de Statistique Municipale* of the City of Paris.

The number of deaths in Paris for the period of October 1, 1940, to August 31, 1941, was 33,346. The average number for the corresponding eleven months of the preceding four years was 31,015. Thus, there was an increase of 7.5 per cent. However, the increase in mortality during the months of restrictions was greater than these figures indicate because the population of Paris has decreased.⁴

The deaths for specific age groups occurring in five eleven-month periods are given in Tables 3 and 4. From these data, the following comments can be made:

1. Comparing the mortality of persons 60 years and over from October, 1940 through August, 1941, we find that the total number of deaths were 18,262, and for the same periods in each of the four preceding years the average was 15,130. This is an increase of 3,132 deaths, or 21 per cent.

2. The increase in mortality was especially noticeable in the winter months.

3. The number of deaths of children, adolescents, and adults under 60 years of age did not increase.

The most striking thing is the extraordinary increase in the mortality of the old people in December, 1940, and January, 1941. To

⁴The lack of accurate population estimates for Paris makes comparisons of mortality in the most recent period with previous years inexact. According to the census of 1936, Paris had a population of 2,830,000. On the basis of the number of ration cards distributed, it has been estimated that the population has decreased approximately 400,000 persons.

MONTH	Oct. 1936- Aug. 1937	Oct. 1937- Aug. 1938	Oct. 1938- Aug. 1939	Oct. 1939- Aug. 1940	Oct. 1940- Aug. 1941
TOTAL	15,415	15,304	15,339	14,462	18,262
October	1,479	1,433	1,194	892	1,487
November	1,370	1,407	1,341	912	1,594
December	1,625	1,668	1,644	1,170	2,150
January	1,659	1,821	1,757	1,802	2,896
February	1,754	1,568	1,555	1,691	1,755
March	1,781	1,548	1,771	1,877	1,649
April	1,375	1,371	1,401	1,470	1,561
May	1,305	1,298	1,426	1,389	1,521
June	1,168	1,063	1,147	1,204	1,426
July	954	1,117	1,115	1,099	1,189
August	945	1,010	988	956	1,034

Table 4. Number of deaths by month occurring in eleven months for each of the years from 1936 to 1941. For persons 60 years of age and over.

explain this, one must take into account the lessening of vitality in old people, which makes it difficult for them to struggle against the adverse circumstances of their environment. Furthermore, the children, adolescents, and younger adults had rations which varied between 1,025 and 1,379 calories; the old people had rations of 890 calories.

The motive of the Public Authorities in making the restrictions more rigorous in the case of old people was the fact that these, due to their diminishing activity and the absence of vitality and growth, have fewer necessities than adults. They were indubitably sacrificed in order to better as far as possible, the ration for the adults and children who represent the productive force and the future of the community.

Specific Diseases. Gout, which in normal times was relatively frequent in France, if compared with that observed in the countries of southern Europe and in America, has recently disappeared. Before the war, in the out-patient ward of Professor Costes, of the Hôpital Cochin, of a series of patients treated, not a single one remains which has not been cured spontaneously.

The obese, with the exception of those with glandular distur-

bances, have profited extraordinarily by the present diet. All have reduced in weight; some more than 50 kilos.

Diabetes treatment encounters serious difficulties through the lack of insulin and the food rationing. Insulin is very scarce and even in the diabetic wards it is reserved only for the patients in the most serious condition. If, up to now, the mortality rate of diabetes has not increased, it is sure to do so if the present conditions are maintained through the coming winter, especially if insulin continues to be so scarce.

Avitaminosis. The anticipated changes, due to the lack of foods rich in vitamins, did not become apparent. According to R. Mande, the vitamin content of the rations assigned was sufficient, with the exception of vitamin A. In the hospitals of Paris there has been no greater frequency of rickets, scurvy, xerophthalmia, beri-beri, poli-neuritis, etc., than before. During some months, the schools administered vitamins in the form of candy.

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