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$33,000 LOSS in 12 Hospitals Due to Nursing Schools

Here's a Comprehensive Study of Costs in 24 Carolina Institutions With Less Than 20 Patients, Conducted Under Quite Similar Conditions

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In this discussion of the cost of nursing service in small general hospitals with and without schools of nursing, in order to get the two groups of hospitals on a comparative cost basis it is necessary to show that the patients in both groups get practically the same service.

Eighty general hospitals in the Carolinas applied to the Duke Endowment for assistance in the care of free patients during 1930. The 15 general hospitals that care for Negro patients only were eliminated. Of the remaining 65 hospitals, 24 had been in operation a year or more and had averaged less than 20 patients a day in 1930. This is the group selected for the study. The facts brought out are intended to give a fairly clear picture of what rural hospital service is like in the South. It is probable that this is a fair sample of what rural hospital service is like in the nation.

Twelve of these hospitals operate schools of nursing and 12 do not. Seven of the 12 that operate schools are located in North Carolina and five in South Carolina. Nine of the 12 that do not operate schools are North Carolina hospitals and three in South Carolina.

The 16 North Carolina hospitals are located in 14 different counties, all comparatively rural, and 15 different towns. In 11 of the 14 counties the hospitals are located in the largest town in the county. There are other hospitals in six of the counties. All of the hospitals are located in counties with comparatively small county towns with two exceptions. There is a county town of 21,400 inhabitants in one of these counties and 10,500 in the other. In the latter county the hospital is not located in the county town. There are other hospitals in both of these counties. The populations of the 14 counties range from 10,300 to 53,600.

The eight South Carolina hospitals are located in as many different counties and at the county seats with one exception. They are the only hospitals in their respective counties and located in the largest towns. The counties are comparatively rural and the towns in which these hospitals are located range from 2,500 to 11,000 inhabitants. The counties range from 22,800 to 42,000 people and practically all of the patients treated come from the counties in which the hospitals are located.

One of the hospitals in the group without schools of nursing is on the approved list of the American College of Surgeons and three of the group with schools of nursing, one group with schools of nursing, one conditionally approved. It appears probably, from what is known about recent improvements in the professional work of these hospitals that about four hospitals in each group will be on the next accredited list. Very little, if any, distinction can be made between the services rendered by the two groups as a whole from the professional standpoint. The diagnostic facilities compare favorably.

Eight of the 12 hospitals operating schools and 7 of the 12 without schools have organized staffs that meet regularly. Practically all of these hospitals are open to any reputable white physician in the community. It is doubtful if there is a white physician in any of the 22 counties represented who would not be permitted to treat patients in this hospital, except perhaps in two North Carolina towns where there are rival hospitals and the medical profession is divided. Both groups of doctors belong to the county medical society in each of these towns.

The clinical classification of patients on a percentage basis by services follows:

	With Schools, Per Cent	Without Schools, Per Cent
Medicine	20	23
General Surgery	33	29
Gynecology	5	6
Obstetrics	14	18
Eyes, ear, nose and throat	17	13

Orthopedics	5	5
Communicable	2	2
Dermatology, urology and miscellaneous	4	4

The hospitals with schools had 50 per cent of their patients classified in general surgery and eye, ear, nose and throat combined, as compared with 42 per cent in the group without schools, and the difference is not made up by the larger percentage in gynecology and obstetrics. When the percentages classified in medicine are compared, the difference of three per cent appears.

Facts as to the number of patients operated on and deaths after operation appear in the following table:

	With Schools	Without Schools,
Abdominal sections	1,103	725
Deaths after operation	51	46
Death rate	4.6%	6.3%
Other major operations	286	178
Deaths after operations	22	10
Death rate	7.7%	5.6%
All major operations	1,389	903
Death rate	5.3%	6.2%
*Minor in-patient operations	1,500	1,000
Minor out-patient operations	518	577
Total patients operated on	3,407	2,480

*includes 1,168 tonsillectomies.

Major operations were performed on 26 per cent of the in-patients discharged from the group of hospitals with schools, as compared with 22 per cent in the group without schools, but 60 per cent of the in-patients in the last name group had operations of some kind, as compared with 52 per cent in the group with schools. The volume of surgery in proportion to patients would appear to be about the same in both groups.

The death rate after abdominal section is decidedly in favor of the group with schools of nursing, but this is probably explained by the fact that only 30 per cent of the days of care were free in this group, as compared with 50 per cent in the group without schools. The death rate is usually higher among free patients than among full pay patients, because more of them are moribund when they reach the hospital. This is confirmed by the fact that they stay longer in the hospital, 15 days for a free patient, as compared with eight days for a full pay patient in the general hospitals applying to the Duke Endowment for assistance. The ration of free patients in general hospitals assisted has increased from 29 per cent in 1925 to 49 per cent in 1930, and the death rate has increased from 5.1 percent to 6.3 per cent. In the surgical classifications and obstetrics the death rate has remained practically stationary, the increase having occurred in the medical classifications.

Some facts as to obstetrics appear in the following tabulation:

	With Schools	Without Schools,
Women delivered	332	300

Deaths of mothers	12	14
Death rate	3.6%	4.7%
Babies born alive	285	277
Stillborn babies	51	31
Total	336	308
Deaths, including stillborn	70	50
Baby death rate	20.8%	16.2%
Caesarian sections	38	17
Deaths of mothers	5	3
Death rate	13.1%	17.6%
Toxemia of pregnancy	37	22
Deaths of mothers	3	5
Death rate	8.1%	22.7%
Eclampsia	39	25
Deaths of mothers	7	7
Death rate	17.9%	28.0%

Again the group with schools shows a much more favorable death rate of mothers, but the proportion of stillborn babies is 15 per cent in this group as compared with 10 per cent in the group without schools. The proportion of deaths of babies born alive is practically the same in both groups. One explanation of the higher maternal death rate in the group without schools is the larger proportion of free patients.

The proportion of these patients who had Caesarian sections, toxemia of pregnancy or eclampsia is a clear indication of the fact that an unusually large percentage of the obstetrical patients that go to these small hospitals have serious compilations and that the prenatal care they get, if any, is not what it ought to be. Only six per cent of the patients in the group with schools were women who had babies in these hospitals and eight per cent in the group without schools. The 24 hospitals report only 30 Negro women delivered during 1930 and six of them died. Eleven of their babies were stillborn and two died after birth.

Some figures on the general death rates in these hospitals on a comparative basis appear in the following tabulation:

	With Schools	Without Schools,
In-patients discharged	5,346	4,040
Deaths	328	261
Death rate	6.1%	6.5%
Death rate, excluding stillborn	5.2%	5.7%
Deaths after 48 hours	155	135
Death rate after 48 hours	2.9%	3.3%
Deaths within 48 hours	173	126

Death rate	3.2%	3.1%
Stillborn babies	51	31
Death rate within 48 hours, excluding stillborn	2.3%	2.4%
White in-patients discharged	4,909	3,719
Deaths	283	223
Death rate	5.8%	6.0%
Stillborn babies	45	26
Death rate, excluding stillborn	4.9%	5.3%
Negro in-patients discharged	437	321
Deaths	45	38
Death rate	10.3%	11.8%
Stillborn babies	6	5
Death rate, excluding stillborn	9.0%	10.4%

If stillborn babies are excluded, it will be seen that the death rate within 48 hours is practically the same in both groups of hospitals, but there is a difference in the death rate after 48 hours of almost one-half of one per cent in favor of the hospitals with schools of nursing. As stated above, this difference is probably explained by the larger per cent of free patients in the group without schools. In both groups of hospitals the proportion of Negro patients is eight per cent of the total. As a consequence, the much higher death rate of Negros does not materially affect this comparison.

Some data on the operation of these hospitals from the administrative standpoint appear in the following tabulation:

	With Schools	Without Schools,
Number of hospitals	12	12
Number of beds	360	300
Number of bassinets	30	30
Total	**390**	**330**
Average size of hospital	33	27
Average patients per day	135	117
Average patients per day per hospital	11	10
Average bed occupancy	35%	35%
Graduate nurses	26	38
Student nurses	131	0

Practical nurses	5	27
Other employees	73	51
Total Employees	**235**	**116**
Employees per patient per day	1.7	1
Out-patient visits	9,680	15,400
Days of care	49,400	42,660
Free days of care	15,000	21,370
Percent of days of care free	30%	50%
Average days stay of patients	8	10
Cost of in-patient service	$223,780	$158,900
Cost of out-patient service	9,780	7,240
Total cost of operation	**$233,560**	**$166,140**
Average cost per patient per day	4.53	3.73
Average cost per out-patient visit	1.01	.47

It will be seen that there is not much difference as between the two groups in the average size of hospitals and the percent of beds occupied daily is the same in both groups, but there is a big difference in the proportion of employees, particularly nurses, to patients, the percent of days of care that are free and the average cost per patient per day. The longer average stay of patients in the group without schools is explained by the larger percentage of free patients in this group.

From the facts brought out in the previous discuss, it would appear that there is no material difference in the type of hospital plant, the type of patients admitted, except that one group has more free patients than the other, the type of service rendered and the end results. Under these circumstances it would seem fair to assume that the patients cared for in the 12 hospitals with schools could have been cared for as well with at least 100 fewer employees if they had operated without schools of nursing could easily have cared for the 135 patients per day in the group with schools. There is certain minimum personnel without which a hospital cannot operate efficiently and several of the hospitals in the group without schools could accommodate twice the number of patients per day without increasing personnel, except perhaps to employ an additional Negro maid to assist in the kitchen and with the cleaning. In other words, the hospitals with schools had about 120 more employees (10 per hospital) than they really needed to give their patients proper care and attention. How this affects the different items making up the average cost per patient per day is brought out in the following tabulation:

	With Schools	Without Schools,
Administrative, housekeeping, plant operation and dietary salaries and wages	$0.67	$0.66
Nursing salaries and expenses	.89	.95
Sub-totals	**$1.56**	**$1.61**
Food	1.06	.79
Fuel, light, power, ice, and water	.41	.30
Medical and surgical supplies	.41	.26

Laundry	.34	.23
Household and dietary supplies	.12	.11
Administrative supplies and expense	.21	.14
Sub-totals	**$4.11**	**$3.44**
Laboratory salaries and expenses	.07	.07
X-ray salaries and expenses	.08	.05
Physical therapy salaries and expenses	.01	...
Medical and surgical salaries	.05	.03
Motor Service	.01	.01
Sub-totals	**$4.33**	**$3.60**
Replacement and repair	.20	.13
Daily per capita cost	**$4.53**	**$3.73**

The average cost per patient per day to provide the non-technical personnel is practically the same in both groups of hospitals. Practically all of the nursing salaries and expenses of the nursling's salaries and expenses is compensation paid graduate nurses, student nurses, nurses and orderlies, since most of the hospitals with schools require the students to furnish their own uniforms and textbooks and the amount spent on school supplies and recreation is comparatively insignificant. There is a difference in this item of expense of six cents in favor of the group with schools. This is caused by the fact that student nurses are paid anywhere from nothing during the probation period to $16 a month, while graduate nurses on the nursing service in these hospitals without schools of nursing are paid from $60 to $150 a month. But against these six cents per patient per day cost in the compensation paid nurses should be balanced additional costs in the hospitals with schools that can be attributed almost entirely to the fact that they operate schools. For example, the raw food cost is 27 cents more, 11 cents additional is spent for laundry, and also for fuel, light, power, ice and water, the difference in household and dietary supplies is one cent and seven cents each in administrative supplies and expenses and replacement and repair.

The difference of 15 cents in the cost of medical and surgical supplies is probably accounted for by the fact that the group with schools of nursing sell a great many more drugs and dressings to patients than the group without schools. As a general rule, hospitals which take a small percentage of free patients can afford to furnish drugs and dressings to their patients and charge them for it on their hospital bills, although the prescriptions may come from the local drug stores, because they are fairly certain to collect from many patients. On the other hand, the hospital caring for a large percentage of free patients usually does not charge on the patient's bill prescriptions ordered from the local drug store, unless it is very evident that the patient cannot afford to pay for the medicine himself. Even friends can usually find enough money to pay for necessary medicines. That the hospitals with schools followed the policy of charging on the patient's bill all drugs and dressings used would seem to be indicated by the fact that the average full pay patient paid $5.31 per day, as compared with $5 per day for the group without schools.

Unfortunately facts are not available as to raw food cost per meal, but it is doubtful that the variation between the two groups of hospitals would be more than a fraction of one cent. The difference of 27 cents in the average cost of raw food per patient per day is accounted for by the fact that the hospitals with schools of nursing are feeding approximately 100 more employees per day in proportion to patients, practically all of whom are student nurses. The average cost of raw food per day for a nurse in one of these hospitals is around 50 cents. In other words, the 100 extra people necessary to operate the schools of nursing are costing these 12 hospitals about $50 a day for raw food alone, or over $18,000 a year.

The 11 cents additional cost per patient per day for both laundry and fuel, light, power, ice and water is accounted for by the fact that these hospitals are providing lodging and laundry are cooking for about 100 more nurses in proportion to patients than the group without schools. This 22 cents per patient per day makes a difference in the total cost of more than $10,800 for one year.

The difference of one cent in the average cost of household and dietary supplies is probably due to the fact that more cleaning materials are used in the larger quarters provided for nurses in the group of hospitals with schools and also breakage of the larger amount of china and glassware used in the kitchen. The difference in cost for one year in this item only amounts to about $500 on a patient day basis.

The difference of seven cents each in administrative supplies and expenses and in replacement and repair are accounted for by the fact that there are more buildings and equipment necessary to house the 100 additional nurses in the group of hospitals with schools and consequently the cost of insurance and the cost of replacement and repair is greater in proportion to the number of patients cared for. The difference in these two items on a patient day basis would be about $7,000 for one year.

To summarize briefly these differences in cost: Raw food, $18,000; laundry and fuel, light, power, ice and water, $10,800; household and dietary supplies, $500; administrative supplies and expense and replacement and repair, $7,000; total, $36,300. From this amount should be deducted about $3,000 to cover the difference of six cents per patient per day in the cost of nursing salaries and expenses in favor of the group with schools of nursing. This balance of $33,300,

supplemented by about $12,000 that would have been available to these hospitals from the Duke Endowment for as many free days of care, if the money had been spent in that way, would have provided free treatment for 800 additional patients. There is no question but what the need existed in every community served by these 12 hospitals with schools of nursing, because the average general hospital assisted by the Duke Endowment in the Carolinas during the past year has averaged well over 50 percent of its days of care free and this group of hospitals averaged only 30 percent. The average free patient stays 15 days in the hospital.

But the $33,300 was spent for training nurses. The question is, Can the trustees of these hospitals justify this expenditure of money for training nurses that is contributed to pay the operating deficit? For even the full pay patient is forced in the average non-profit hospital to make a contribution to the operating deficit of the hospital, whether he knows it or not, because he pays more than the cost to care for him. The average person makes his contribution to a hospital to assist in paying for the care of patients unable to pay for themselves. He has no intention of paying for the cost of training young ladies to be nurses. The consequence is that the trustees of these 12 hospitals operating schools of nursing have a very definite duty to the people who make up the operating deficit, from tax funds or otherwise, to make it quite clear that a considerable part of this deficit is caused by the fact that the hospital operates a school of nursing. On what grounds could these trustees justify the expenditure? In another year or two the North Carolina Board of Nurse Examiners will not permit graduates of these schools of nursing to take the examination for registration. In South Carolina no such restriction has yet been imposed, but the graduates of these schools in both states are not eligible for membership in the national nursing associations and they would not be entitled to registration under the laws of a great many of the states.

Three of these hospitals average 3, 5, 6.1 and 7.4 patients per day, or a total of 17 patients, during 1930. They had 8, 12 and 15 employees, respectively, to care for them, or a total of 35. The ratio was two employees for every patient, while the average in the well-managed general hospitals with schools of nursing averaging over twenty patients a day is a small fraction over one employee per patient per day. Four, 7, and 9 student nurses respectively, or a total of 20, are included in these employees. In addition there are six graduate nurses. One hospital has one, another has two and the third has three graduate nurses. The average cost per patient per day in these three hospitals was $6.65, $5.89, and $5.66, respectively. It is fair to assume that the patients could have been cared for without schools at a cost of not more than $4 a day, as is being done in a number of other hospitals. The cost of in-patient service for the year was $36,813. The cost at $4 a day would have been $24,764, a difference of over $12,000 that the people of these communities contributed to the cost of giving training of very questionable value to 20 nurses ($600 for each nurse) for one year and it is doubtful that a single individual in these communities realizes what has happened, unless it is the executives and trustees of the hospitals concerned. In-patient income was $18,970, county and municipal tax funds made up $9,645 of the deficit of $17,843 and the balance of the deficit ($8,198) was contributed by local religious and civic organizations, individuals and the Duke Endowment.

The conclusions from the facts brought out in this discussion would appear to be (1) that the general hospital averaging less than 20 patients a day is less costly to operate without a school of nursing, (2) that the contributors who make up the operating deficit do so, not with the intention to assist the hospital with the training of nurses, but to assist in the care of free patients, and (3) that such hospitals cannot give student nurses proper professional training according to modern standards.

MINIMUM REQUIREMENTS

For Various Grades of Accredited Schools of Nursing as Recommended by the Standardization Board and State Board of Nurse Examiners-1932.

Section A

No.1	Every school of nursing to be connected with a general hospital, or if a special hospital, to have a year's affiliation with a general hospital.
No. 2	That no applicant who has ever been a mental patient or a drug addict be admitted to a school of nursing.
No. 3	Applicant to be a high school graduate or have equivalent credit.
No. 4	Students not to be given special duty except when needed to round out their experience. No charge to be made the patient by neither the hospital nor the student for this service.
No. 5	The ratio of students to be patients to be not more than one student to two patients. Ratio to be based on daily average of patients for the preceding year.

Section B

No. 1	The school of nursing to be incorporated.

No. 2	The school to be connected with a hospital having a daily minimum average of twenty patients for Grade B schools, and a daily average of thirty patients for Grade A schools.
No. 3	To have at least ten students.
No. 4	To have a minimum entrance age of eighteen years.
No. 5	The probation period to be not less than four months.
No. 6	The length of the class term to be not less than eight months.
No. 7	The number of hours on duty weekly not to exceed 56, except in case of emergency.
No. 8	The record and application blanks recommended by the State Board of Nurse Examiners to be used, and the records to be available at all times for inspection by the Educational Director.
No. 9	The superintendent of nurses to be registered in the state and to have had at least one year's previous experience in institutional work.
No. 10	The night supervisor and operating supervisor, if employed, to be registered in North Carolina.
No. 11	To have an instructor or teaching supervisor whose duties need not necessarily be limited to teaching.
No. 12	To have separate classes for each year's students.
No. 13	To have qualified dietitian capable of teaching dietetics or dietetics classes to be taught by a qualified dietitian from the high school or elsewhere.
No. 14	The nurses home to be comfortable and separate from the hospital.
No. 15	The superintendent of nurses or one of the graduate staff to live in the nurses' home.
No. 16	The curriculum and the teaching equipment to meet the recommendations of the National League of nursing Education.
No. 17	All the schools of nursing in Grade A to have at least three graduate, registered nurses.
No. 18	All schools of nursing in Grade B to have two graduate, registered nurses.

A Grade A school of nursing to meet all of the requirements under Section A and B.

A Grade B school of nursing may fall short in two points under Section B and still remain a Grade B school.

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