

AN ACCOUNT OF THE HEALTH OF NURSES AT WESTMINSTER HOSPITAL FROM JULY 1943 TO JULY 1946*

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INTRODUCTION

During the last 20 years attempts have been made to estimate the risks to health attendant on nursing as a profession, and to devise measures by which these risks may be minimized.

In this country these investigations have culminated in the 'Memorandum on the Supervision of Nurses' Health' of the King Edward's Hospital Fund for London (1943); and in America in the 'Health Program for Student Nurses' of the U.S. Public Health Services (1945).

The following hypotheses appear to be reasonably well established:

(1) That the nurse is liable to more illness than her contemporary in other walks of life (Borgny, 1934; American Hospital Association and others, 1938; Vernon, 1939). Diehl (1935) suggests that the higher illness rate in nurses is due mainly to a greater incidence of respiratory tract infection and cutaneous sepsis.

(2) That more illness occurs in student, than in trained, nurses (Pietzcker, 1937; American Hospital Association, 1938).

(3) That more illness in nurses occurs in the first year of nursing than in subsequent years (Branson, 1933; Davies & Frost, 1940).

(4) That at least in the U.S.A., nurses, in pediatrics and the communicable disease services, in which children form the majority of the patients, suffer more illness than nurses in other services (American Hospital Association, 1938; Davies & Frost, 1940).

(5) That the nurse requires special protection against tuberculosis (Soper & Amberson, 1939; Daniels, 1944).

In this country the Athlone (1938) and Rushcliffe (1943) Reports of the Ministry of Health have laid down basic standards of remuneration, and of living conditions, which greatly influence the well-being and health of all types of nurse.

The time is therefore opportune for detailed analyses of the health and working conditions of

nurses to test the validity of these hypotheses and to enable suitable protective measures to be evolved.

The present survey has been undertaken from this point of view, and, although of small scale, and of limited application, it is hoped that it may stimulate the interest of hospital staffs in the welfare of the nurses placed in their care, a matter of considerable importance in view of the present shortage of nurses and the widely felt desire to improve their status.

SCOPE OF INVESTIGATION

This paper gives an analysis of the medical condition of entrants to the nursing school of a general teaching hospital during the last 2 years of the war and the first year of peace. It has been impossible to record the health of a group of nurses throughout the training period of 4 years, because the survey was limited to 3 years by the tenure of the author's appointment as resident medical officer to the nurses' home; instead, as full a follow-up of their medical condition as was possible has been recorded. This limitation in the duration of the survey, while decreasing the value of the analysis, is to be contrasted with the advantage of the findings being those of one individual.

A detailed analysis of the illnesses of all the nursing staff below the rank of sister is given for the same period—about 250 nurses in each year.

The investigation was therefore of short duration, and in an abnormal period. Owing to the conditions of war, the nurses entering the hospital did not exactly represent the normal entry. The housing and working conditions of nurses were probably better than in most other general teaching hospitals in this country. These factors, which are considered in the next section, were not in the author's belief of such a nature as to influence the health of nurses materially in any direction.

CONDITIONS

In general the period covered is a homogeneous one. The war imposed a severe strain on hospitals and it might be thought on the health of members of their

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staffs. Nurses in addition have suffered from understaffing and long hours, and have had to cope with the additional work caused by the great dearth of domestic staff. This period then, at the end of 6 years of war, might well have been disappointing from the health standpoint. On the credit side must be placed the remarkable health of the nation as a whole with no serious epidemics. The illnesses of these years have also been influenced, in contrast with those recorded in most previous reports, by the employment of the sulphonamides, and in the last year, by the increasing use of penicillin.

The hospital and nurses' home were completed in 1939, so that the nurses' accommodation and working conditions were modern and hygienic, indeed luxurious in comparison with those of many other hospitals in London. There was a surgery in the nurses' home at which the doctor attended every morning, and two sickbay rooms capable of taking a maximum of seven nurses; these rooms were self-contained, could be isolated at need, and proved adequate in size.

In October–November 1943 a dietitian, Miss M. Muriel, from the scientific adviser's division of the Ministry of Food analysed the nurses' diet. In her report she stated 'that the nursing staff were able to get enough to eat but that the amounts of vitamin A, vitamin C and calcium were inadequate'. In view also of the low haemoglobin figures for women in this country during war-time, the author decided to supplement the provision of iron and vitamin C because the better alternative—the increase of natural foodstuffs—was impractical. Two large bowls of fersolate (grains v) and ascorbic acid (mg. 50) tablets were prominently displayed in the nurses' dining-room from this time onwards. Throughout the winter months only, supplies of vitamin B compound tablets were made available. At first these measures were received with a good deal of scorn, but with the help of propaganda from the home-sister and from the author, who, during these years, delivered medical lectures to the nurses, the good-natured antagonism disappeared, and the tablets were consumed.

METHODS

By January 1944, the health-record forms approved by the King Edward's Hospital Fund had become available, and after this date entrants were examined and their health supervised in conformity with its 'Memorandum on the Supervision of Nurses' Health'. The health-record forms were applied in the case of 161 nurses; in addition sixty-two nurses were medically examined by the author before this date in only slightly less detail, but were not subject to the follow-up. Where possible, information from these sixty-two nurses has been incorporated in

the health analysis, giving a total of 223 nurses (see Tables 1 and 2).

The Athlone Report (1938) quoted the Lancet Commission as stating that 25–30% of the annual intake of probationers were lost to the profession in their first year of service. It was felt that, during the war years, this figure had become an underestimate, and that an analysis of this costly drain of entrants should be attempted (see Table 3). Women's conscription led to the intake of women who would not have decided to take up nursing as a profession in peacetime, but this in the case of a London teaching hospital, is offset, partially at any rate, by the Nursing School being able to make a very considerable choice of entrants. For example, of those applying to enter Westminster Hospital only 30% were accepted.

For the sickness records, the whole nursing staff beneath the grade of sister was included. This comprised an annual average of 254 nurses at risk, of which 14 were fully trained staff nurses, on completion of their 4 years of training and with state registration, and 240 were student nurses in various stages of training. Each year of this survey starts on 1 July, and ends on the following 30 June. Thus '1943' begins on 1 July 1943 and finishes on 30 June 1944 (see Tables 4–7 inclusive).*

Most of the nurses during their training were affiliated, for varying periods of usually a few months only, to a sector hospital of the Emergency Medical Services' scheme. Sickness contracted in these circumstances has been included.

The great majority of nurses suffering from illness were, however, under the author's direct care as he was resident in the hospital to which the nurses' home was attached. Similarly, the diagnoses were to a large extent his own, in consultation when necessary with the honorary medical staff. Only those illnesses contracted in their own homes which did not delay return to duty remain unknown, and therefore unrecorded. It is reasonable to suppose that this quantum is a very small one in an otherwise comprehensive survey of the illness of the nursing population of a general London teaching hospital.

The tables have been compiled from the nurse's records in matron's office, the home-sister's day book, and medical documents on nurses. These three sources have been investigated separately, and the results cross-checked to ensure accuracy. Owing to the affiliation of nurses to sector hospitals and to an outside maternity unit, the health follow-up of nurses is necessarily incomplete.

* No new nurses entering after February 1946 have been included as they were not examined by the author, and because as the survey ceased on 30 June 1946, no follow-up details of them were available.

Table 1. *Medical condition of nursing entrants*
 161 nurses (King Edward's Hospital Fund Health Form). EXAMINATION:

HISTORY:		FINDINGS AT FIRST INTERVIEW		EXAMINATION:	
223 nurses		161 nurses		161 nurses	
No.	%	No.	%	No.	%
HISTORY:					
Family history:					
Tuberculosis	7	3	Measles	91	
Obesity	2	1	Whooping-cough	63	39
Rheumatic heart disease	2	1	Chicken-pox	60	24
			Mumps	35	
			Scarlet-fever	20	34
Previous nursing experience:					
None	54		Infictive hepatitis	12	21
More than 6 months' nursing	38		Diphtheria	6	19
Auxiliaries	8		Otitis media	4	30
			Juvenile rheumatism	3	18.5
			Tonsillectomy	42	19
			Appendicectomy	13.5	11
Age:					
Mean 20.4 years		7		1	
19 nurses (8.5%) were aged 25 or over		13	9.5 = respiratory	3	
		2		20	27
		1		3	
		6	4 = catarrhal	3	
Medical rejections:					
Following first interview, 4 nurses rejected: 3, chest X-ray findings, 1, asthma and hay-fever		2		12	
		4		1	
		3	4 = allergic	2	
		2		2	
		2		5	20
		4	2 = intestinal	2	12.5
		3	1 = dermatological	5	
		1		6	
		1		7	4
		1		4	2.5
		1		0	0
DEFECT					
Orthopaedic					
			Pes planus, bunions, hallux valgus, blisters from poorly fitting footwear		
Visual					
			Corrected with spectacles		
Dermatological					
			Acne	19	
			Ichthyosis	2	
			Others	9	30
Menstrual					
			Irregular K	19	30
			Dysmenorrhoea	11	18.5
Circulatory					
			Varicose veins	1	
			Poor peripheral circulation	3	
			Systolic murmurs, split sounds, triple rhythm (erect posture)	20	27
			Tachycardia (nervous)	3	17.5
Respiratory					
			Tonsils + + but without glands	12	
			Bronchitis	1	
			Glands	2	20
			Parenchymal infiltration	5	12.5
Postural and developmental					
			Posture	5	
			Obesity	4	15
			2° sex characteristics + or -	6	9
Nervous instability					
			Marked caries	7	4
			Dental	4	2.5
			Urinary	0	0

ANGULAR TESTS
 Schick test (113 nurses): 71% negative, 29% positive (those positive were immunized)
 Haemoglobin (112 nurses) (performed at some time during training, rarely on entry): mean 97% (Haldane)
 Of 2 nurses below 80%
 Of 15 non-anaemic nurses with one repeat estimation—average rise 8%
 Mantoux test (149 nurses): 70% positive, 30% negative (prophit survey technique)
 Persistent negatives (32 nurses): period between tests:
 Under 1 year 17
 Over 1 year but under 2 years 10
 Over 2 years 5
 32
 Conversions (12 nurses). Period between tests:
 Under 1 year 7
 Over 1 year but under 2 years 4
 Over 2 years 1
 12
 No nurse developed clinically active pulmonary tuberculosis

Table 2. Follow-up examinations on the group of 161 nurses

Ninety-four examined at end of first 6 months; sixteen examined at end of first year.

	No.
Menstrual:	
Irregular K or amenorrhoea	8
Previously irregular, now regular, K	1 } 12
Dysmenorrhoea	3 }
Circulatory:	
Benign murmurs noticed for first time	3
Tachycardia (nervous)	1 } 5
Varicose veins	1 }
Respiratory:	
Recurrent sore throats	2 } 3
Recurrent colds	1 }
Sepsis:	
Recurrent styes	1 } 2
Recurrent boils	1 }
Allergy:	
Papular urticaria	1 } 2
Angioneurotic oedema	1 }
Feet:	
Hallux valgus	1 } 2
Pes planus	1 }
Debility after night duty	2
Epilepsy	1
Spastic colon	1

The blood pressure was estimated for the first time at the second examination. It was less than 150/90 in all.

The one anaemic nurse: Hb 72% initially, rose to 95% and finally to 106% (low colour index anaemia).

Weight after 6 months (89 nurses): average increase of 1.2 lb./nurse.

Weight after 1 year (16 nurses): average decrease of 0.8 lb./nurse on initial weight.

No illness (223 nurses). Of 107 nurses who remained in training for 18 months or longer, eighteen (17%) had no illness. Namely: four nurses during 2½ years or longer. Seven nurses during 2-2½ years. Seven nurses during 1½-2 years.

Table 3. Nurses leaving before completion of training

81 nurses left out of 223* = 36%.

65 nurses who left in their first year:

33	no vocational interest	} 44
9	unsuitable personality or character	
2	unable to learn the work	
7	social reasons (marriage, or wanted at home)	
7	health reasons	
7	decided by parents or matron 'not strong enough'	
65		

16 nurses who left after their first year:

5	failed examinations
5	social
3	vocational
2	character
1	health
16	

44 (68%) of nurses leaving in their first year did so because they had attempted a vocation unsuitable to them. A high proportion of those might be easily weeded out by vocation selection tests. This number is probably too low because some of last grouping 'not strong enough' possibly left for vocational reasons.

Health reasons analysis—8 nurses out of 223 (3.6%).

X-ray evidence of pulmonary tuberculosis,	3
not clinically active	
Asthma and hay-fever	1
Epilepsy	1
Anxiety neurosis	1
Corneal ulceration	1
Mild thyrotoxicosis	1
	8

* None of these nurses had completed her training.

Explanation of Tables 4-7

Number of nurses at risk

A quarterly census of all nurses beneath the rank of sister has been averaged to give the yearly figures. Auxiliary staff such as radiographers, masseuses, etc. have not been included.

Nature of illnesses (Table 4)

The illnesses have been grouped, in relation to the main body systems, according to the types of illness common in nurses. The ordinary type under each grouping illustrates the main items of the group. Thus 'Respiratory tract infection' includes common colds, sore throats and influenza, as well as the less common bronchitis, pneumonia, dry pleurisy, sinusitis, non-tuberculous cervical adenitis and stomatitis. 'Sepsis of skin' does not include conjunctivitis or dental sepsis

which have been classified under their respective systems. 'Infectious fever' includes infectious mononucleosis, infective hepatitis, herpes zoster, as well as the exanthemata. No case of diphtheria occurred during the 3 years. 'Operation' only illnesses in which an operation is the main feature have been included in this group. Thus a dilatation and curettage performed for menorrhagia is classified under menstrual, whereas a hysterectomy for menorrhagia has been classified under operation. Dental extractions have been classified under dental disorder not operation. 'Injury' burns and scalds, except those which were septic at the time of the first examination, have been included under this heading. In a mixed illness, the component parts have been given a portion of the days lost according to the author's decision: the illness, however, remains as one

attack. The percentage figures given under the 3-year period heading refer to the attacks of each particular illness related to the total of attacks of all illnesses. It will be seen that respiratory tract infection, sepsis of skin, and gastro-intestinal illness have been short-term illnesses in comparison with infectious fever, operation, and injury, the long-term illnesses.

caution) to be published. Both the above corrections have been devised as a means of preventing a few long illnesses from falsifying the average duration of illness since the analysis dealt with what was essentially a group of short illnesses. In the author's opinion, supporting that of Court, an illness of more than 50 days duration in a nurse is 'excessive'. In the present survey 'exces-

Table 4. Analysis of all illnesses in nurses

Year	'1943'		'1944'		'1945'		3-year period 1943-6	
	251		247		265		763	
No. of nurses at risk ...								
Nature of illness	No. of attacks	Days off duty	No. of attacks	Days off duty	No. of attacks	Days off duty	% of attacks per illness	% of days off per illness
RESPIRATORY TRACT INFECTION (colds, sore-throats, influenza, etc.)	122	1323	49	594	89	1108	42.0	35.0
SEPSIS OF SKIN (boils, whitlows)	33	365	38	366	25	251	15.5	11.5
INTESTINE (gastro-enteritis, dyspepsia)	20	192	29	170	11	121	9.5	5.5
INFECTIOUS FEVER	15	425	9	281	11	300	5.5	12.0
OPERATION (appendicectomy, tonsillectomy, etc.)	11	245	11	397	6	310	4.5	10.0
INJURY	11	125	10	95	9	99	5.0	4.0
RHEUMATISM (subacute, fibrositis)	7	118	4	34	6	99	—	—
ALLERGY	5	44	4	23	7	17	—	—
NEUROSIS	3	44	4	49	9	331	—	—
MENSTRUAL DISORDER	2	4	5	87	7	22	—	—
DENTAL DISORDER	6	91	1	8	5	56	—	—
OPHTHALMIC DISORDER	3	18	3	49	2	20	—	—
DERMATOLOGICAL DISORDER	2	18	3	102	1	9	—	—
TUBERCULOSIS	0	0	3	197	0	0	—	—
ENDOCRINE (diabetes mellitus, thyrotoxicosis)	3	136	1	44	1	45	—	—
URINARY INFECTION	1	70	0	0	1	4	—	—
MISCELLANEOUS	3	16	0	0	7	14	—	—
Total	247	3234	174	2496	197	2806	—	—

Table 5. Analysis of all illnesses in nurses (rates)

	'1943'		'1944'		'1945'		3-year period 1943-6	
	Attack rate per nurse	Days illness per nurse	Attack rate per nurse	Days illness per nurse	Attack rate per nurse	Days illness per nurse	Attack rate per nurse	Days illness per nurse
All illnesses	0.9	12.9	0.7	10.1	0.7	10.5	0.8	11.2
Excluding illnesses of more than 100 days duration	0.9	12.0	0.7	8.7	0.7	9.5	0.8	10.0
Excluding illnesses of more than 50 days duration	0.9	9.9	0.7	7.5	0.7	6.5	0.8	8.0

Excluding illnesses of more than 100 days duration

This figure has been given in order to make possible a comparison with Wright's (1944) figures.

Excluding illnesses of more than 50 days duration

This figure has been given in order to make possible a comparison with Court's figures (personal communi-

sive' illnesses account for only 5% of the attacks, but 28% of the time lost.

The figures of the present survey corroborate the view of Branson (1933) that the attack rate is the most reliable single index of nurses' illnesses. The attack rate in the present survey is 0.8 per nurse per year whether 'excessive' illness has been excluded or

Table 6. Long illnesses in nurses

	'1943'			'1944'			'1945'		
	Nature of illness	No. of attacks	Days off duty	Nature of illness	No. of attacks	Days off duty	Nature of illness	No. of attacks	Days off duty
Illnesses of over 100 days duration	Diabetes mellitus	1	136	Tuberculosis of hip	1	168+	P.U.O., hysterical ataxia	1	125
	Cervical adenitis	1	79	Cervical adenitis	0	66	Pneumonia, empyema	1	126
				Appendicectomy, larval thyrotoxicosis, tonsillectomy	1	105	Appendicectomy, larval thyrotoxicosis, tonsillectomy	0	45+
	Total	2	215		2	339+		2	296+
Illnesses of over 50 days duration	Add to above total:			Add to above total:			Add to above total:		
	Glandular fever	1	58	Cornus of feet	1	60	Lumbago	2	127
	Pneumonia	1	51	Recurrent boils of ear	1	51	Infective hepatitis	1	77
	Cervical adenitis, tonsillectomy	1	46	Cervical adenitis tonsillectomy	0	52	Influenza, investigation of headache	1	57
	Injury to finger	1	61	Dysmenorrhoea (D+C)	1	53	Scarlet fever, ac. otitis media, rheumatism	1	55
	Infective hepatitis	2	114	Bronchitis, conjunctivitis, hyperpiesia	1	56	Broncho-pneumonia	1	81
	Pyelitis	1	70				Hysterectomy	1	77
	Sinusitis	1	57				Debility following a cold	1	67
	Rheumatism, sub-acute	1	65				Frontal sinusitis with drainage operation	1	79
							Tachycardia-neurosis	1	92+
							Cervical adenitis	1	66
	Total	11	737		6	611+		13	1074+

+ after a figure signifies that the nurse left the hospital before returning to duty.
 → indicates an illness of 1 year continuing into the next year.

Table 7. Comparison of illnesses of staff, and student, nurses

Year ...	'1943'				'1944'				'1945'			
	Students 238		Staff 13		Students 232		Staff 15		Students 251		Staff 14	
No. of nurses at risk ...	243		4		169		6		187		9	
All illnesses	Days off duty		Days off duty		Days off duty		Days off duty		Days off duty		Days off duty	
	3189		45		2357		139		2601		205	
Attack rate per nurse	Days illness per nurse		Days illness per nurse		Days illness per nurse		Days illness per nurse		Days illness per nurse		Days illness per nurse	
	13.5		3.5		10.0		9.5		10.5		14.6	
Excluding illnesses of more than 50 days duration	Days off duty		Days off duty		Days off duty		Days off duty		Days off duty		Days off duty	
	10.5		3.5		7.5		2.0		6.0		5.5	
ANNUAL RATES FOR THE 3-YEAR PERIOD 1943-6												
All illnesses	Student, attack rate		Student, attack rate		Student, attack rate		Staff, attack rate		Student, attack rate		Staff, attack rate	
	11.5		11.5		11.5		11.5		11.5		11.5	
Illnesses of more than 50 days duration excluded	Student, attack rate		Student, attack rate		Student, attack rate		Staff, attack rate		Student, attack rate		Staff, attack rate	
	8.0		8.0		8.0		8.0		8.0		8.0	

not, while the corresponding annual number of days lost for illness per nurse is 11.2 for all illness, 10.0 with illness of more than 100 days duration excluded, and 8.0 with illness of more than 50 days duration excluded.

A similar analysis of the figures has been used in Table 7 to compare the illnesses of student nurses with those of staff nurses. Staff nurses have been defined as nurses having completed their 4 years of hospital training and with state registration. A fractional year analysis has been employed to give reliable yearly 'at risk' figures for the fifty-three staff nurses involved during the 3 years, as their period of stay at the hospital averaged months only. It is particularly valuable to apply the correction, excluding illness of more than 50 days duration, to these figures, in view of the very small number of staff nurses involved.

*The contribution of the Children's ward,
Westminster Hospital, to nurses' illnesses*

Children's ward is subdivided into medical and surgical wards and cubicles for the severely ill. It is managed by one sister, with an average staff of eighteen nurses during the 24 hours.

It was opened at full strength 1 month after the beginning of this survey, in September 1943. One ward was closed during the air-raids in the early months of 1945, and for 3 weeks for measles quarantine in February 1946.

During the 3-year period, two outbreaks of tonsillitis, and three minor outbreaks of gastro-enteritis among nurses, were traced to this ward. No other ward was incriminated as the cause of such an outbreak. The figures for nurses, who fell ill from children's ward with tonsillitis, are given for the 3 years.

Children's ward nurses

1943, 9% of the nursing staff suffered 19.5% of all attacks of tonsillitis, and 18% of all days lost due to tonsillitis.

1944, 10% of the nursing staff suffered 33% of all attacks of tonsillitis, and 36% of all days lost due to tonsillitis.

1945, 8% of the nursing staff suffered 38% of all attacks of tonsillitis, and 36% of all days lost due to tonsillitis.

These figures do no more than show a high incidence of tonsillitis in nurses serving in children's ward. It is interesting that Afremow & Rhoads (1938), in analysing the distribution of 240 cases of sore-throat in nurses from the Cook County Hospital, U.S.A., found the incidence highest in the Children's Hospital and in the Contagious Diseases Hospital.

DISCUSSION

Health

The initial medical examination of recruits to the nursing profession revealed five women with X-ray signs of tuberculous involvement of the lung which was, however, in no case clinically active. Of those Mantoux negative, twelve showed conversion to a positive reaction while under supervision, without developing clinical or X-ray evidence of primary infection. It is interesting to note that amongst the medical students, whose total is less than half that of the nurses, and who receive no medical supervision from the hospital, five cases of active pulmonary tuberculosis developed during the same period.

One nurse was shown to be anaemic of low colour index type (72% Hb), which proved amenable to iron therapy.

Minor degrees of foot abnormality: pes planus, bunions, hallux valgus, and blisters due to ill-fitting footwear, proved the commonest abnormality on clinical examination.

On follow-up, altered menstrual function, particularly irregularity or amenorrhoea, was the commonest finding. During the first 6 months nurses averaged just over 1 lb. increase in weight, but judging from the findings in a small number weighed at the end of 1 year, this increase was probably only a temporary one.

The mean haemoglobin figure of 97% (112 nurses) was above the average of 91% for London nurses (Wills *et al.* 1942); and the rise of an average of 8% in the fifteen non-anaemic nurses who had one repeat haemoglobin estimation presumably bears testimony to the additional iron in the diet.

Of the 223 entrants, eighty-one* (36%) had left by the end of the survey, sixty-five* (29%) left in their first year of service, the remainder, sixteen* (7%), left after their first year of nursing. Eight* (3.6%) were rejected on medical grounds, four as the result of their initial examination, and four at a later date.

Of the sixty-five leaving in their first year of service, forty-four (70%) at least found themselves vocationally unsuited to the profession they had chosen. It is probable that similar figures apply to other nurses' training institutions. In view of the need for more nurses and the pressure on existing accommodation and teaching facilities, it is suggested that vocation selection tests, in view of their recognized value in His Majesty's Forces, should be tried to lessen this costly wastage.

* These figures are not complete as none of the entrants had completed her training; in fact only 107 out of the 223 had been at the hospital 18 months or more at the end of the survey.

Illness

It can be seen from the figures of Table 8 that the annual attack rate per nurse for all illnesses decreased from 1.2 in the early 1920's, to 1.0 in the late 1920's, to 0.8 in the late 1930's and early 1940's. These figures bear relation, in the author's opinion, to increasingly good basic conditions such as hours of duty, remuneration and, to a lesser extent, housing and diet.

Cutaneous sepsis accounts for between 22 and 29% of all attacks of illness, if the figure for the present survey, 15.5%, is excluded. It is interesting in this respect to compare these figures with some of the international figures (top of p. 452) from Pietzcker (1937). In these figures, as some cutaneous sepsis may have been grouped under skin diseases, as well as under diseases of the integumentary system (including subcutaneous tissue and breast), both have been listed:

Table 8. *Other illness records compared with those of the author*

Author	Subject	Period and year	Number at risk	All illnesses		Illnesses of less than 100 days duration	
				Annual attack rate per nurse	Annual illness per nurse	Annual attack rate per nurse	Annual illness per nurse
Branson (1933)	Nurses only	5 years, 1922-6	1273	1.2	—	—	—
		5 years, 1927-31	1365	1.0	—	—	—
Court (1943)	Nurses and auxiliaries	2 years, 1941-2	356	—	14.0	—	—
Wright (1944)	Nurses and auxiliaries	3 years, 1936-8	1385	—	—	0.8	10.7
Present survey	Nurses only	3 years, 1943-6	763	0.8	11.2	0.8	10.0

Table 9. *Other illness records compared with those of the author (respiratory tract infection, cutaneous sepsis)*

Author	Subject	Period and year	Respiratory tract infections		Cutaneous sepsis	
			% of annual attacks	% of annual days off	% of annual attacks	% of annual days off
Branson (1933)	Nurses only	5 years, 1922-6	37	—	23	—
		5 years, 1927-31	35	—	22	—
Pietzcker (1937)	Nurses only (international) Nurses only (Great Britain)	2 years, 1934-5	46.4	—	8.4	—
		2 years, 1934-5	41.6	—	25.5	—
Court (1943)	Nurses and auxiliaries	2 years, 1941-2	—	36	—	20
Wright (1944)	Nurses and auxiliaries	3 years, 1936-8	28	24	29	25
Present survey	Nurses only	3 years, 1943-6	42	35	15.5	11.5

From Table 9 it can be seen that respiratory tract infection accounts for between 35 and 42% of all the attacks of illness, if we exclude Wright's figures and those for nurses of other countries. It is interesting in this connexion to note that in Wright's analysis of illness, the group labelled 'miscellaneous' is large in both attacks and days lost. If it is presumed that this group contains the complications of upper respiratory infection, such as sinusitis, otitis media, cervical adenitis: and lower respiratory infections such as bronchitis, pleurisy, and pneumonia, which are not listed elsewhere, her figure of 28% for upper respiratory tract infections would probably be raised to the 35-42% category by their addition.

Explanation of Tables 8 and 9

These tables of illness figures have been taken from the published figures of various authorities in this country, and Pietzcker's (1937) international figures covering 17,741 attacks of illnesses. Of this total, 990 attacks were the contribution of the twenty institutions in Great Britain taking part.

The annual number of nurses at risk in Branson's (1933) figures, 264, is almost exactly comparable with those of the present survey, 254; whereas Wright's (1944) figures, which also include resident masseuses, radiographers and dietitians, increase from 410 to 500 over the 3-year period with an average of 462, and Court's (1943) figures are 128 nurses for 1941, and 228 nurses for 1942.

Adapted from Pietzcker 1937

% of attacks of respective illness to all attacks of illness	G.B.	U.S.A.	Canada	N.Z.	Sweden
Diseases of integumentary system (%)	25.5	8.2	9	9.3	5.2
Skin diseases (%)	2.1	6.8	1.9	2.6	3.4
Total of cutaneous sepsis and skin disease (%)	27.6	15.0	10.9	11.9	8.6

The present survey figure of 15.5% is seen to approximate to that of other countries rather than to that of Great Britain. It should also be remarked that Great Britain is the only country of the twenty countries listed by Pietzcker with a sepsis rate for nurses' illness of more than 15% of attacks. The reason for this is not evident to the author.

A further comparison between the figures of the present survey and those of Branson (1933), whose excellent paper was the first real attempt in this country to analyse the illnesses of nurses, and still

separately by Branson. As was to be expected there has been a definite improvement over the years in the tonsillitis figures, which can be taken as primarily due to the influence of the sulphonamides. But catarrhal disease, which comprises colds, influenza, sinusitis, etc. has proved resistant to therapy and it can be seen that the figures are essentially the same in the two surveys. This equality demonstrates the essential validity of the comparison which has been attempted.*

It has been shown by Dr Sheila Bevington (1943)

Table 10. *Comparison of the duration of some types of illnesses in nurses, over two decades*

	Branson's survey 1921-31		Present survey July 1943-July 1946		
	'Worst'	'Best'	'1943'	'1944'	'1945'
Sepsis	3.8 <i>1923</i>	1.8 <i>1926</i>	1.0	1.0	0.7
Tonsillitis	2.3 <i>1924</i>	1.7 <i>1922</i>	0.95	0.4	0.85
Catarrhal disease	2.9 <i>1925</i>	1.25 <i>1923</i>	2.7	1.2	2.2

The annual loss in days for each illness is expressed as the equivalent of so many nurses absent for a whole year. Branson (1933) has instanced figures for the 'worst' year of the 10 years, i.e. that with the greatest amount of each illness, and for the 'best' year. For the present survey figures are given for each of the 3 years.

remains the most extensive that the author has been able to find, has been attempted in order to give an indication of the effect of modern therapy on the duration of some types of illness. Branson has given very few figures for days lost due to illness as he felt that, in comparison with those of other institutions, these were fallacious: because in his words 'it is an article of faith among all those concerned, at St Bartholomew's, that leniency towards sickness and generous grants of leave for convalescence, are the truest economy in the long run'. The above statement is true also for the medical policy adhered to at the Westminster Hospital, and the author believes the two surveys to be comparable.*

It is felt that the improvement over the years shown by the sepsis figures is due in the main to the improvement of surgery in sepsis of the hand, with some lesser influence due to the sulphonamides. 1945 saw the start at Westminster Hospital of an increasing use of penicillin in such sepsis and it may be that the low figure of 0.7 for this year, in comparison with the stable figure of 1.0 for the previous 2 years, bears testimony to the shortening of incapacity by this drug.

In comparing the respiratory tract infections, tonsillitis and catarrhal disease have been treated

that nurses, although well satisfied with the treatment they receive for major illnesses, are on the whole dissatisfied with that for minor illnesses. This criticism of the treatment of minor illnesses has been the subject of comment and advice from the King Edward's Hospital Fund (1943). It has also been noted in practice by the author, who feels that it is of such importance that it merits further discussion.

The author believes that the underlying grievance of nurses is that an unsympathetic attitude is shown to them by the nursing authorities and often by the doctor when reporting minor illnesses. This grievance is found in all communities subject to discipline, and the psychological truths at its basis are believed to be the following. 'In any group of people the falling out of a member throws additional work on the others. Everyone senses that a balance must be struck between the personal feeling of ill-health and the social duty to colleagues of remaining on duty, but it is a human failing to believe instinctively that others give in to illness more readily than oneself. In this way the minor illnesses of others, and it is minor illnesses only, are subconsciously resented.

In the nursing profession there is in addition the psychological necessity for an emotional outlet for the multitude of niggling indignities and injustices

* See asterisk next column.

which are daily suffered at the hands of patients and which are an integral part of the nurse's service to sick people. By training the nurse learns to repress these feelings in her contact with patients, but in doing so often finds an outlet for them with her colleagues. It is in the relatively closed community of a nurses' home that such feelings come to be expressed more forcibly than in other walks of life. They are felt particularly by probationers, many of whom have left home for the first time, and such emotional stresses are, it is believed, frequently the predisposing cause of illness. It should at once be said that illness of this type bears an inverse ratio to the morale of the community and that it has been the author's good fortune to serve a community in which the *esprit de corps* has been of a very high order.

The author believes, however, that such breakdowns in health might be minimized, and at an early stage, if there were available in the nurses' home a mature woman not herself a nurse, to whom access was easy and friendly, for it is manifestly impossible for a matron and her staff to combine this position with that of their disciplinary and general functions. A welfare officer of this type has been used in His Majesty's Forces to cover an essentially similar need, and is also proving of value in industry. The author is convinced that such a homely influence in the comparatively rigorous discipline of the nurses' home would be of value in easing the other adjustments that every probationer has to make in taking up a profession which by its nature searches her psychological make-up to its foundations.

Because of the reluctance of nurses to report sick, and because of the danger to themselves and others in attempting to conceal illness, it has been suggested that definite amounts of illness-allowance be permitted which do not have to be made up at the end of a nurse's period of service. A minimum of 1 week a year, cumulative throughout the training period, has been recommended, and the author suggests that this measure should be made universal. ('Practices in Nursing School Health Programs—Report on 100 Schools', 1945.)

In those Institutions in which a nurse falling sick has to report in turn to her ward sister, matron's office, and the home sister before the doctor, it is suggested that the ward sister should notify matron's office of her sickness and thus save the nurse an interview which it is felt is unnecessary at this stage.

Further, in view of Branson's (1933) findings that first-year nurses suffer a high proportion of illness, in particular sore-throats, and from the finding that the children's ward is responsible for more illness among nurses than other wards, it would seem advisable to staff the children's ward with senior nurses and so obviate the added risk of illness to first-year probationers.

SUMMARY

An analysis of the medical condition of 223 entrants to the nursing profession is attempted, with particular reference to 161 such nurses examined in accord with the recommendations of the King Edward's Hospital Fund for London (1943). This is followed by a short-term medical follow-up on these nurses by clinical examination, weight records, and ancillary tests. Of the total number of entrants eight (3.6%) were rejected on medical grounds, and four (2.5%) of the 161 were rejected on the findings of the initial examination.

An analysis of the sixty-five (29%) nurses lost to the profession in their first year of service shows that 70% had attempted an uncongenial vocation. It is suggested that vocation selection tests should be tried in attempting to lessen this costly drain of recruits. This figure of 29% is no higher than the peacetime figure found by the Lancet Commission (Athlone Report, 1938).

An analysis of the illnesses of the nursing staff at Westminster Hospital during 3 years from 1 July 1943 to 30 June 1946 is presented, nearly 60% of the illnesses being accounted for by respiratory tract infection and cutaneous sepsis. It has been shown that illness of more than 50 days in duration accounts for only 5% of attacks of illness, but practically 30% of the time lost through illness. It is suggested that such illness should be differentiated in analyses, from illnesses of shorter duration. A comparison of illnesses in staff nurses and student nurses follows; the figures suggest a lower morbidity rate in staff nurses, but the number of staff nurses is so small that the author cannot state that this has been demonstrated.

A comparison table between previous illness surveys and the present figures is presented which demonstrates a decreasing number of attacks of illness per nurse over the last 20 years in this country, probably due to better basic conditions of life.

A similar but international comparison applied to respiratory tract infection and cutaneous sepsis demonstrates that the former accounts for about 40% of all the attacks of illness in this country and internationally. The previous figures for Great Britain, however, are exceptional in showing a much higher incidence of sepsis than elsewhere; this has not been substantiated by the present survey.

Figures for the amount of time lost per year through sepsis, tonsillitis and catarrhal disease are compared with those of Branson (1933) of 20 years ago, and perhaps illustrate the beneficial effect of surgery in cutaneous sepsis, and of sulphonamides in tonsillitis, as against the negligible therapeutic advances in catarrhal disease. The amount of tonsillitis sustained by nurses in the children's ward is shown as being out of proportion to the number of nurses employed.

Finally suggestions are made for promoting the health of nurses, which include: (i) the provision of a 'welfare officer' in the nurses' home; (ii) illness allowance proposals; (iii) remarks on the technique of 'reporting sick'; (iv) staffing children's ward with senior nurses only.

CONCLUSION

This survey of the health of nurses in a general London teaching hospital at the end of the second world war is in accord with previous investigations carried out in more normal conditions, both in this country and abroad. It shows that about 60 % of all illness is accounted for by respiratory tract infection and cutaneous sepsis, and that about eleven working days per nurse are lost annually through illness.

It seems that the attack rate for nurses' illnesses in this country has decreased over the last 20 years, and, in particular, that the duration of the common illnesses, tonsillitis, and cutaneous sepsis has decreased whereas that for catarrhal affections remains unaltered.

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REFERENCES

- AFREMOW, M. L. & RHOADS, P. S. (1938). *Arch. Path.* **26**, 403.
- American Hospital Association and others (1938). *Study of the Incidence and Costs of Illness among Nurses*. N.Y.C.
- Athlone Report—Interdepartmental Committee on Nursing Services (Interim report) (1938). London: H.M.S.O.
- BEVINGTON, SHEILA (1943). *Nursing Life and Discipline*. London: H. K. Lewis.
- BORGNY, SELAND (1934). *Int. Nurs. Rev.* p. 75.
- BRANSON, W. P. S. (1933). *St Bart's Hosp. Med. Rep.* **66**, 125.
- COURT, D. M. (1943). *Lancet*, **2**, 753.
- DANIELS, M. (1944). *Lancet*, **2**, 165, 201.
- DAVIES, E. & FROST, H. (1940). *Amer. J. Nurs.* **40**, 1.
- DIEHL, H. S. (1935). *Amer. J. Nurs.* **35**, 1057.
- Health Program for Student Nurses. U.S. Public Health Services (1945). *Amer. J. Nurs.* **45**, 736.
- King Edward's Hospital Fund for London (1943). *Memorandum on the Supervision of Nurses' Health*. London.
- PIETZCKER, D. (1937). *Congress Papers; International Council of Nurses*, p. 56.
- Practices in Nursing School Health Programs, Report on 100 schools (1945). *Amer. J. Nurs.* **45**, 740.
- Rushcliffe Report. *First Report of Nurses' Salaries Committee* (1943). London: H.M.S.O.
- SOPER, W. B. & AMBERSON, J. B. (1939). *Amer. Rev. Tuberc.* **39**, 9.
- VERNON, H. M. (1939). *Health in Relation to Occupation*. London.
- WILLS, L., MCKAY, H. M., BINGHAM, K. & DOBBS, R. H. (1942). *J. Hyg., Camb.*, **42**, 505.
- WRIGHT, J. (1944). *Brit. Med. J.* **1**, 585.

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