



Historical Review

Florence Nightingale's Nursing and Health Care: The Worldwide Legacy, As Seen on the Bicentenary of Her Birth

Lynn McDonald ^{1*}

¹ *Department of Sociology & Anthropology, University of Guelph, Guelph, Canada.*

Received 23 November 2020; Revised 16 January 2021; Accepted 06 February 2021; Published 01 March 2021

Abstract

Aim: The aim of this article is to articulate the distinctive features on the Nightingale School of Nursing on the occasion of the 2020 bicentenary of her birth. *Design:* This is a historical study, based on all the available printed and archival sources of Nightingale's writing. *Methods:* The article draws on Nightingale sources (full books, articles, chapters, pamphlets and unpublished letters in more than 200 libraries and archives worldwide) published in *The Collected Works of Florence Nightingale*, 16 volumes, peer-reviewed; transcriptions are available on its website [1]. *Results:* Nine key findings are discussed in the article: (1) how different Nightingale's nursing was from what was called 'nursing' at the time; (2) that the central role of training allowed nursing to move from being a women's profession to being open to all qualified; (3) the evolution of Nightingale nursing as medical science and public health advanced; (4) the academic content in her training; (5) team building in her system; (6) her (often misrepresented) views on germ theory; (7) her late work on preventing cholera; (8) the worldwide influence of her work; (9) her work upgrading workhouse infirmaries and advocacy of what would be later called universal access to health care. *Conclusion:* Nightingale's ongoing relevance is evident in many of today's concerns, such as lack of access to quality health care; the shortage of nurses in the United Kingdom's National Health Service (and in some other countries) and inadequate wages and salaries of nurses and nurse practitioners; the ongoing dangers in nursing and the need to give nurses a safe working environment (the coronavirus is an extreme example); and inadequate data for health care planning purposes.

Keywords: Florence Nightingale; Nightingale School; Nursing; Universal Access to Health Care.

1. Introduction

In 2020, on the celebration of the bicentenary of Florence Nightingale's birth in 1820, it is timely to give an assessment of the significant long-term contribution she made to the creation of the modern nursing profession and to the advancement of health care more generally. The World Health Organization named 2020 the 'Year of the Nurse and Midwife' in recognition of Nightingale's enormous contribution to the founding of the modern professions of nursing and midwifery. Yet she continues to be misunderstood, misrepresented, and, in some places, attacked. The Commonwealth Nurses and Midwives Federation, for example, celebrates the Year of the Nurse and Midwife on its website, but declines to recognize the bicentenary. Nightingale, it says, was 'controversial.'

2. The Originality of Nightingale Nursing

While Nightingale is typically recognized as the 'founder' or 'major founder' of the modern nursing profession, some sources have her drawing on earlier sources, implying she was not so original:

* **Corresponding author:** lynnmcd@uoguelph.ca

 <http://dx.doi.org/10.28991/SciMedJ-2021-0301-7>

➤ This is an open access article under the CC-BY license (<https://creativecommons.org/licenses/by/4.0/>).

© Authors retain all copyrights.

- The Kaiserswerth Deaconess Institute is said to have given her nurse *training*, while her own diary and notes of 1851 [1] show that there was *no* nurse training there at all, and no instruction from, or even contact with, the doctor. Rather she, like other new deaconesses, was assigned to wards, then left to her own resources. Nightingale was so appalled by this that she ensured that, at her school, no nursing student would go into a ward without the supervision of an experienced ward sister. She did get experience in the wards and apothecary, but the only formal instruction at Kaiserswerth was in pedagogy and the Bible. She enjoyed actually working, and the camaraderie.
- The ‘Careful Nursing’ of the Irish Sisters of Mercy is also claimed as an influence by Dublin nursing academic Therese Meehan in papers from 2003 [2] and 2012 [3]. Their superior, Mother Bridgeman, is said to have informed Nightingale of this method, which was then used at her school. However, there is neither a note about any principles or practice of such in the massive holdings of Nightingale’s writing, nor any detail in Bridgeman’s, nor in that of any other Irish Sister of Mercy [4]. There are profound differences between their practices and Nightingale’s, notably that Nightingale required that *all* nurses, including the matron or superintendent, be fully trained nurses, while the Irish Sisters were late in requiring training for *any* nurses, and only required the matron to be trained when this became state law in the 1890s. The home visiting ‘nursing’ of the Irish Sisters, as set out in ‘Visitation of the Sick’ in the Rule and Constitutions of the Religious Sisters of Mercy, was spiritual care: saving souls, not nursing [5].
- The Anglican nuns at University College Hospital did provide some training before Nightingale’s school, but only for the lower ranks; full-fledged nuns were assumed not to need it. Moreover, the care they gave was more spiritual than physical [6]. As well, there is no information on what the training entailed: no books, lecture notes, or examinations.

The principles and key elements of Nightingale nursing came from the lessons she learned during the Crimean War (1854–56). *Notes on Nursing*, 1860, is a positive statement of all the things required to prevent and treat disease and promote health. Its chapters methodically set out the need for ventilation and warming, food, bed and bedding, light, cleanliness of rooms, and personal cleanliness, all defects in the war hospitals [7]. Nightingale had seen first-hand the terrible condition of the soldiers coming into her hospital from the camps, which themselves were grossly defective in lodging and sanitation, while the food provided was inadequate (many soldiers arrived with scurvy).

Then, with the massive renovations and cleaning up achieved by the Sanitary Commission, and camp conditions improved with the work of the Supply Commission, death rates declined to no more than those in peacetime army hospitals in England. This convinced Nightingale of the efficacy of what would later be known as ‘evidence-based nursing’ or health care [8]. That her nursing theory took environmental conditions into account stems from the horrendous environmental conditions she had to contend with in the Crimean War hospitals.

Death rates, it must also be realized, were then high even in the best teaching hospitals in London, roughly 10 percent of admissions [9]. While Nightingale insisted that all nurse training take place in hospital, she gave much attention to the development of ‘district’ or ‘home visiting’ nursing. Such nurses had to be trained in hospital to see an adequate range of cases (this applied also to army nursing). They then required supervision in the field by an experienced district nurse. District nurses had to be of a higher standard than hospital nurses, for they did not have a doctor close by to call on in an emergency. District nursing had another obvious advantage: the avoidance of hospitals, which remained dangerous places.

Notes on Nursing was written before Nightingale’s school opened, and was not intended to be a textbook, although it was assigned by the second medical instructor to the probationers at her school at St Thomas’ Hospital, John Croft. Moreover, nurses cannot do all the things set out as their duties in it. Obviously, if the windows of a hospital do not open, the nurse cannot open them. Nightingale published two later editions of *Notes on Nursing*, both of them reflecting the low state of the health sciences of the time. All pre-date Joseph Lister’s paper on antiseptic surgery (1867) [10] and Robert Koch’s publication of the four postulates of germ theory in 1879 [11]. The rudimentary level of medical practice must not be forgotten: leeches were still applied (from the ancient four humours theory), and cholera belts, to dry up sweat, were used by the army.

Nightingale’s vision of nursing was always holistic, featuring health promotion and disease prevention. She always factored in environmental conditions. How she incorporated motivation by religious faith into professional nursing also deserves attention. She was herself motivated by a religious ‘call to service,’ as were many of the nurses who trained at her school. However, she insisted on nursing being open to members of any faith or none at all. At that time nursing in many countries was provided by members of religious orders, and open only to them, not secular women. The Nightingale School was the start of professional nursing; that is, the creation of a profession—when women were allowed in no others—that provided decent salaries and opportunities for promotion, and did not require any specific religious commitment, let alone being a nun.

Nightingale was also firm that nursing itself was the goal with its object the physical body, albeit one that had a mind/soul interacting with it. She permitted nurses of religious faith to say a word 'in due season' about their faith, but did not want more. Chaplains were appointed to hospitals to deal in detail with patients who wanted to pursue faith issues.

3. Gender and Nursing

The fact that Nightingale nursing was based on training made it possible to incorporate men as nurses when improved education for women opened other professions to them and various social changes made nursing a good choice for men. Certainly, Nightingale's new profession was for women only, at a time when they were permitted in no other profession such as the armed forces, Parliament, civil service, or the clergy. However, she never considered that gender made anyone a nurse, and acknowledged the nursing skills (notably observation) of several men. The famous General Gordon claimed nursing skills and interests, and Nightingale said in a letter of 30 August 1886 that 'his love of the sick, his experience, made him of the same profession as I am' [1].

Ann Oakley argues, like many feminist commentators and nursing leaders, that if Nightingale 'had trained her pupils in assertiveness rather than obedience, perhaps nurses would be in a different place today' [12]. However, it is more likely that if Nightingale had encouraged assertiveness, doctors would not have accepted her nurses at all, and why should they have? The requirement to enter her training school was mere literacy and good character. There was no educational qualification at all, for few women then had the equivalent of secondary-school education, let alone university or medical school. It is remarkable that Nightingale went ahead when demographics provided such a challenge.

4. Nightingale's Revisions to Her Nursing Model

Nightingale's views on nursing evolved largely from contacts with professionally active nurses, for she herself did not nurse after 1856, apart from making referrals for her 'caseload' of relatives, friends, employees, and villagers. Beginning in 1872, Nightingale undertook systematic meetings with the senior staff of the school and probationers (some, not all) after their first year. She continued such meetings for nearly 30 years, all the while liaising with medical instructors on nursing, midwifery, and hospital care. Her writing in the 1880s and 1890s is scarcely known by academic nurses, even nursing historians, but it reflects advances in the health sciences and the consequent increase in requirements for nurse training.

Nightingale's famous definition of health appears only in these later writings, not in her 1860 *Notes on Nursing*: 'Health is not only to be well, but to be able to use well every power we have to use' [13]. The similarity with the definition of health adopted by the World Health Organization in 1948 is obvious: 'Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity' [14].

Nightingale continued to stress a holistic approach in her later writing. In 'Nursing the Sick,' in Quain's *Dictionary of Medicine*, she wrote, 'all that is wanted to enable Nature to set up her restorative processes, to expel the intruder disturbing her rules of health and life. For it is Nature that cures, not the physician or nurse.' The physician or surgeon gave the instructions for treatment, but 'the nurse carries them out' [13].

5. Academic Content in Nightingale Training

The secondary literature is often wrong on the academic content of Nightingale nursing; however, Seymer's book on the centenary of the School's founding (1960) remains a good source [15]. Nursing was basic at first, when nurses and nursing students were not allowed even to take a patient's temperature. The criticism of F.B. Smith, the highly inaccurate author of *Florence Nightingale: Reputation and Power*, was not off the mark when he called this no more than 'applied housekeeping' [16]. However, what was taught at the School was soon updated to include 'elementary instruction in chemistry, physiology, anatomy, surgery, medicine' [1]. Nightingale was sent information on potential medical appointees to St Thomas', and she met with some of them. We know what the probationers were taught, for the (second) instructor, John Croft, with a grant from the Nightingale Fund, published his lectures [17]. For no other school was there any comparable publication. Dr Joseph Bell published his lectures to probationers at the Royal Edinburgh Infirmary in 1887 [18] and dedicated the volume to Nightingale—the Edinburgh school was in effect a second Nightingale School. Only qualified medical doctors were allowed to teach the probationers at St Thomas' throughout Nightingale's lifetime. At other schools, the matron or superintendent began to give lectures from the 1890s at least.

6. Team Building in the Nightingale System

Nightingale was conscious of the need to change the culture at a hospital when bringing in trained nursing. A trained nurse should never be sent alone to a hospital, but go with a team of nurses, desirably trained at the same

school, with a matron from it as well. Otherwise, the lone nurse would likely succumb to the prevailing low standards rather than bring others up to hers. This was, in fact, done, at least for the early, carefully planned, endeavours: the Sydney Infirmary, Montreal General Hospital, Edinburgh Royal Infirmary, Royal Victoria Hospital, Netley, Liverpool Workhouse Infirmary, Highgate Infirmary, St Marylebone Workhouse Infirmary, St Mary's, Paddington, and St Bartholomew's.

7. Misinterpretations of Nightingale's View of Germ Theory

Contrary to much nursing secondary literature, Nightingale did not oppose germ theory all her life, but it appears only in her late writing. In a paper she published in an Indian public health journal in 1891, she called for slides to be included in village lectures to show 'the obnoxious living organisms in foul air and water,' which she thought would motivate people to clean up their water supply ('Sanitation in India,' [1]). Still, she preferred to emphasize dealing with the habitat of germs, the assault on them, as opposed to their identification, the task of bacteriologists. This seems not to have caused any offence at the time, as doctors understood that knowledge of bacteriology did not necessarily lead either to prevention or effective treatment. Clearly, such knowledge is essential for developing vaccines and assessing treatment results, but there was a long gap in the production of results. The eminent Russian bacteriologist Dr Waldemar Haffkine, later Nobel laureate for his vaccines for cholera and plague, notably wanted to meet Nightingale when he was in England on India work. They probably did not meet, but he sent her a copy of his book on inoculation for cholera, with a respectful dedication (1895), now housed at the Wellcome Library [19]. Koch's definitive work on the identification of cholera dates to 1883 and was published in 1884, but that did not make him an expert on prevention [20]. Nightingale learned of his research later, when Dr Sutherland bought 'a beautiful Vienna microscope' to show the cholera bacilli, and was convinced, as related by Cook [21].

8. Nightingale's Late Work on Cholera Prevention

Nightingale continued to be a source of practical information on disease prevention in times of epidemic. She was asked by the *New York Herald* to provide advice when a cholera epidemic was expected. Her 'Scavenge, Scavenge, Scavenge' (1884) was the result, reprinted in an American public health journal, *The Sanitarian, A Monthly Magazine Devoted to the Preservation of Health, Mental and Physical*, founded by a leading American public health expert, A.N. Bell [22]. 'Scavenge' gave some historical background and exploded several common myths about the disease, ending with: 'Vigorously enforce sanitary measures, but with judgment, e.g., scavenge, scavenge, scavenge; wash, cleanse and lime wash; remove all putrid human refuse from privies and cesspits and cesspools and dustbins.' Specifics she gave included 'stables and cowsheds and pigsties,' 'crowded places, dirty houses and yards.'

In the UK in 1892, when another epidemic was expected, Dr Ernest Hart (1892) quoted 'Scavenge' at a special meeting of the National Health Society [23]. The society would supply cheap handbills with directions, advice repeated in *The Times* (1892) [24]. It is not known whether Nightingale or someone else added the crucial advice: 'boil water.'

9. The Worldwide Influence of Nightingale Nursing

Nightingale's influence on the development of the modern nursing profession is generally well known, but probably what is not so familiar is the diversity of countries where it was felt. From her school at St Thomas' Hospital, the new system spread throughout England, Scotland, and Ireland (beginning in Belfast, then moving to Dublin), Australia, Canada, the United States, and Europe (related in *Florence Nightingale: Extending Nursing* [1]). She provided leadership in nursing to the end of her working life (roughly 1900), mentoring nurses from her own school, intervening with authorities when they were in trouble, sending them care packages when they were despondent, and receiving aspiring nurse leaders from other countries at her home for mentoring. This included protracted meetings with the first trained nurse in the United States, Linda Richards, who in turn shaped nursing in many hospitals/states in America and later in Japan. Nightingale mentored Isabel Hampton, later Robb, who became the most influential nursing leader in the late nineteenth and well into the twentieth century through her books [25]. Nightingale's influence was felt even when she was not directly involved, such as with the earliest Cuban nurses. She was the inspiration for the nurse who led in the establishment of professional nursing in Nigeria, Kofoworola Abeni Pratt. Pratt trained at the Nightingale School in London and was the first black nurse in the NHS [26].

What Nightingale did to introduce and support nursing beyond her own hospital is abundantly clear in letters sent to her from nurses around the world. Nightingale kept their letters, as she did letters from inquiring would-be nurses and their mothers, as well as vicars and their wives looking for a trained nurse or midwife for their parish, and hospital authorities wanting trained nurses from her school. Very often Nightingale's reply is not extant, but there is a wealth of social and public health history in the material she kept, all available on the website of the Collected Works [1].

Nightingale's influence on the introduction of professional nursing in Australia has been given much negative coverage, as evident in a major journal article by Judith Godden, 'A Lamentable Failure: The Founding of Nightingale

Nursing in Australia' [27]. The title of Godden's full-length book treatment of the first matron, *Lucy Osburn, a Lady Displaced* [28], is misleading, given that Osburn had held the post for 17 years, when she was replaced by an Australian nurse she had trained. Newspaper accounts of Osburn's departure show that she left with full honours.

It became fashionable to assert that the Nightingale School did not have much influence on the development of nursing. Yet, while it is true that the numbers it trained were not large, and other schools, like the London School, were much larger, its actual influence was enormous, by its sending out nursing leaders who inaugurated trained nursing in so many hospitals, in many countries. Table 1 presents a list of hospitals, of various kinds, that got a matron or superintendent from the Nightingale School between 1861 and 1899, the effective end of Nightingale's supervisory role.

Table 1. Hospitals receiving a Nightingale School matron or superintendent, 1861–99

England:

General Hospitals: St Thomas' Hospital, Westminster Hospital, Stafford Infirmary, Bradford Infirmary, Brighton Infirmary, Royal Northern Hospital, Berkshire, Blackburn (Royal) Infirmary, Hampshire County Hospital, Gloucester Royal Infirmary, Kent and Canterbury, Nottingham, St Mary's Paddington, York County Hospital, Northampton Infirmary, Wolverhampton Infirmary, Queen's Hospital, Birmingham, St Bartholomew's Hospital, Manchester Southern Infirmary, Newcastle-upon-Tyne Infirmary, Radcliffe Infirmary, Addenbrooke's Infirmary Cambridge, Newcastle General Hospital, Great Northern Hospital, Salisbury Infirmary, Ipswich Hospital, Charing Cross Hospital, Kidderminster Infirmary, Northern Hospital Liverpool, Chichester Infirmary, Queen's Hospital Birmingham, Worcester Hospital, Cheltenham Royal Infirmary, Portsmouth Hospital, Folkestone Hospital, Devon and Exeter Hospital, Mill Road Infirmary Liverpool, Birkenhead Infirmary, St George's Hospital, Lowestoft Hospital, Haverstock Hill Hospital, Stoke-on-Trent Infirmary, Cheshire Infirmary, Suffolk Hospital, Richmond General Hospital, Ashton-under-Lyme Infirmary, Chester General Infirmary, Coventry Hospital, Middlesex Hospital.

Workhouse infirmaries: Liverpool, Hampstead, Highgate Infirmary, Birmingham Workhouse Infirmary, Bolton Workhouse Infirmary, Fulham Workhouse Infirmary, Kidderminster Workhouse Infirmary, Whitechapel Workhouse Infirmary, Holborn Workhouse Infirmary, Lewisham Workhouse Infirmary, Paddington Workhouse Infirmary, Barrow-in-Furness Workhouse Infirmary.

Other Hospitals: Bradford Eye and Ear Hospital, Royal Hospital for Incurables Putney, Gordon Boys' Home, Liverpool Infectious Diseases Darenth Asylum, Brompton Consumption Hospital, Chartham Asylum East Sussex, Brookwood Asylum, Royal Sea Bathing Hospital Margate, Rugby Sanatorium, Southend-on-Sea Sanitarium, Central Eye Hospital, Royal London Ophthalmic Hospital, Royal London Ophthalmic Hospital, Bradford Nursing Home, Royal Orthopedic Hospital Birmingham, British Hospital for Incurables, Royal Ear Hospital Soho, Bath Eye Infirmary, Meath Home for Epileptics, Godalming, Middleton Sanatorium, York, St Agatha's Convalescent Home.

Fever Hospitals: Homerton Fever Hospital, Fever Hospital Blackburn, Monsall Fever Hospital.

Convalescent: Banbury Fever Hospital, City of London Fever Hospital, Fever and Isolation Hospital Wainwright, Barrington Isolation Hospital, Farnham Isolation Hospital, Middleton Sanatorium Ilkley York, Ebbow Vale Accident Hospital, St Luke's Hospital, Fitzroy Square, Ear and Throat Hospital, Gray's Inn Road, The Mount Auxiliary Hospital, Torquay.

Children's Hospitals: Kirkdale, Children's Hospital Shadwell, Children's Hospital, Newcastle, Children's Hospital, Gt. Ormond St., Hospital for Children, Chelsea, Convalescent Home for Sick Children, Bradford, Children's Hospital, Pendlebury, Queen's Hospital for Children, Roehampton.

Women's/Maternity Hospitals: Soho Sq. Hospital for Women, New Hospital for Women and Children Euston Rd., Hospital for Women and Children, Liverpool, Hospital for Women, Waterloo Rd., Women's Hospital Bristol, Lying-in Hospital Manchester, Garrison Hospital for Women Weston, Hospital for Women and Children, Leeds.

Military: Royal Victoria Hospital (Netley), Naval Hospital Haslar, Hospital for Paralyzed Soldiers Nottingham, Empress Eugénie's Hospital for Officers, Farnborough.

Lock Hospitals: Soho, Magdalene Hospital, Liverpool.

Cottage Hospitals: Broad Oaks, Hatfield., Darlington, Dawlish, Cray Valley, Luton, Lancashire, North Wales, Butterfield, Upper Norwood, Warminster, Wallingford, St Albans Thames Ditton, Wallingford, Grantham, Moreton.

Scotland: Edinburgh Royal Infirmary, Glasgow Royal Infirmary, Aberdeen Royal Infirmary, City Hospital Aberdeen, Inverness Infirmary, Western Infirmary, Glasgow, St Andrew's Hospital, Fife, Auchter House Sanatorium, Dundee, Gartloch Lunatic Asylum, Glasgow.

Wales: Cardiff Infirmary, Swansea Infirmary, Anglesey Infirmary, Cardiff Hospital, Swansea Children's Hospital.

Ireland: Children's Hospital-Belfast, Dr Steevens's Hospital, Dublin, Royal Hospital for Incurables, Dublin, Thompson Memorial Home, Convalescent Home for Children. Belfast, Belfast Lying-in Hospital, The Hospital, Belfast, Rotunda Hospital, Dublin, St Lawrence's District Home, Dublin.

Canada: Montreal General Hospital.

United States: Blockley Hospital Philadelphia, Massachusetts General Hospital, Boston City Hospital, New England Hospital for Women and Children, Methodist Episcopal Hospital Boston, University of Maryland Hospital, Fort MacPherson Hospital. Atlanta, Salt Lake Hospital.

Australia: Sydney Infirmary, Gladesville Hospital for the Insane, Alfred Hospital-Melbourne, Brisbane Infirmary, Adelaide and Perth Colonial Hospital, Melbourne Hospital.

Europe: Uppsala University Hospital, Sabbatsbergs Hospital, Stockholm, City Hospital, Berlin, Ruffi Hospital, Nimes, Nursing Home, Rome, Surgical Hospital, Helsinki.

Other Countries: Mission Hospital, Kyoto, English Hospital, Buenos Aires, Eden Hospital, Calcutta, Albany Hospital, Grahamstown (South Africa), Yokohama General Hospital, Nizam's Hospital, Hyderabad, General Hospital, Colombo, General Hospital, Calcutta, Government Hospital, St Vincent, Tomba Hospital, Cottage Hospital, St Lucia, Government Hospital, Suez, Civil Hospital Transvaal, Cottage Hospital Vryburgh Cape Colony, Gray Hospital King Williams Town, South Africa, Government Hospital, Mafeking.

10. From the Reform of the Workhouse Infirmaries to Universal Access to Health Care

Nightingale's concerted efforts at transforming the workhouse infirmaries into regular hospitals is arguably her greatest contribution to health care. At the time, workhouse infirmaries had only rudimentary medical attendants and nursing only by 'pauper nurses,' untrained and notorious for drinking their meagre wages. Bed sharing was common, soap was not provided, and towels were shared. Thanks to the support of Liverpool philanthropist William Rathbone and the leadership given by Nightingale nurse Agnes Jones, Liverpool made the crucial breakthrough in 1865 in providing trained nurses. Other improvements were brought in gradually. The Highgate Infirmary, London, became in 1870 the second to get trained nurses, a development made possible by the passing of the Metropolitan Poor Act in 1867. Nightingale wrote a brief for the committee studying the issue (1: CW 6:367–90). Thanks to an amendment made by her brother-in-law, Sir Harry Verney, who chaired the Nightingale Fund, the law also made it possible for workhouse infirmaries to form training schools. Trained nurses were gradually employed at them, and nursing schools were established; some even got state-of-the art, pavilion-style buildings.

The establishment of the National Health Service in 1948 would not have been possible without these improvements, for more than 80 percent of the 'hospitals' of the United Kingdom were those dreaded workhouse infirmaries. Name changes also helped to remove the workhouse stigma when the 'Poor Law Board' became the 'Local Government Board' and the Metropolitan Asylums Board was formed with no association with the old workhouses. Nightingale fully understood the stigma of the Poor Law, obvious especially when most of the workhouse infirmaries were physically located on the same premises as the workhouse itself. Gradually, top trained nurses took positions at them, such as Elizabeth Vincent at St Marylebone Workhouse Infirmary. Edith Cavell was night superintendent at the St Pancras Workhouse Infirmary.

Baly suggested that if Nightingale's advice on the Poor Law been taken, 'there might have been a universal health service before 1948.' Further, 'had health been taken out of the "hideous system," preventive medicine would not have been tarred with the Poor Law brush.' She noted also that 'Nightingale was a prime mover in the reform of midwifery services' [29] Certainly no one else had as bold a vision as had Nightingale, who had to bring along allies whose aims were limited to *visiting* the sick in workhouses, as were Rathbone's initial motivation and Louisa Twining's. Changes in names of reform organizations show Nightingale's influence: Twining founded the Workhouse Visiting Society in 1858, the Workhouse Infirmary Nursing Association in 1879. Doctors initially concerned to get drugs provided to workhouse patients formed the Poor Law Medical Relief Association. Then, when Nightingale showed, in Liverpool in 1865, how much further reforms could go, they upped their goal to form the Association for the Improvement of the Infirmaries of the London Workhouses.

The National Health Service Act, adopted in 1946, provided for the first single-payer system in the world, to establish what would later be called 'universal access to health care.' It provided, right in the first paragraph, 'a comprehensive health service designed to secure improvement in the health of the people of England and Wales and the prevention, diagnosis and treatment of illness.' In other words, health promotion and disease prevention are right up there with treatment services themselves, as Nightingale had always advocated. Those provisions, of course, have been modified over time, and a large measure of private care brought in. As well, advances in the health sciences and related technological developments have massively increased the demands made on the system. So many more diseases and injuries can now be successfully treated than Nightingale ever anticipated, but the tough work of providing for treatment, health promotion, and prevention, with budget cuts and environmental challenges, make her a useful model, and indeed one that continues to inspire.

11. Conclusion

Given the great gap in time between Nightingale's period of writing and today, her core principles are remarkably relevant. Medical science, public health, and nursing practice itself have all changed radically, but the coronavirus pandemic, which emerged in early 2020, shows how many of the problems she had to confront have reappeared: the need for timely, accurate, data for responding; the principle of access to quality care for all, including the poorest; the importance of housing as it affects disease and death, for how can the homeless 'go home and stay home'? Nurses, since Nightingale's time, have become the largest health care profession in the world, yet there are serious shortages in some countries, notably the UK. She, from early on, called for better measures to ensure the safety and well-being of nurses as well as of doctors, clearly an ongoing issue.

12. Declarations

12.1. Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

12.2. Ethical Approval

Not applicable.

12.3. Conflict of Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

13. References

- [1] McDonald, L., ed. (2001–12). *Collected works of Florence Nightingale*. 16 vols. Waterloo, ON: Wilfrid Laurier University Press. Items cited as CW, with volume and page number. 1: Life and Family. 2: Spiritual Journey. 3: Theology. 4: Mysticism and Eastern Religions. 5: Society and Politics. 6: Public Health Care. 7: European Travels. 8: Women. 9: Florence Nightingale on Health in India. 10: Social Change in India. 11: Florence Nightingale's Suggestions for Thought. 12: The Nightingale School. 13: Extending Nursing. 14 The Crimean War. 15: Wars and the War Office. 16: Florence Nightingale and Hospital Reform. Available online: <https://cwfn.uoguelph.ca/volumes/> (accessed on September 2020).
- [2] Meehan, T. C. (2003). Careful nursing: a model for contemporary nursing practice. *Journal of Advanced Nursing*, 44(1), 99–107. doi:10.1046/j.1365-2648.2003.02772.x.
- [3] Meehan, T. C. (2012). The Careful Nursing philosophy and professional practice model. *Journal of Clinical Nursing*, 21(19pt20), 2905–2916. doi:10.1111/j.1365-2702.2012.04214.x.
- [4] McDonald, L. (2014). Florence Nightingale and Irish nursing. *Journal of Clinical Nursing*, 23(17-18), 2424–2433. doi:10.1111/jocn.12598.
- [5] Sullivan, M. C., & Macauley, C. (1995). *Catherine McAuley and the tradition of mercy*. Notre Dame, IND: University of Notre Dame Press.
- [6] Summers, A. (1988). *Angels and citizens: British women as military nurses, 1854-1914*. Taylor & Francis.
- [7] Nightingale, F. (1860). *Notes on nursing: What it is and what it is not*. Lippincott Williams & Wilkins..
- [8] McDonald, L. (2001). Florence Nightingale and the early origins of evidence-based nursing. *Evidence-Based Nursing*, 4(3), 68–69. doi:10.1136/ebn.4.3.68.
- [9] Turner, T. (1862). Statistics of the general hospitals of London, 1861. *Journal of the Statistical Society*, 25(3), 384–388.
- [10] Lister, J. (1867). On the antiseptic principle in the practice of surgery. *The Lancet*, 90(2299), 353–356. doi:10.1016/s0140-6736(02)51827-4.
- [11] Koch, R. (1880). The etiology of traumatic infectious diseases. *Investigations into the Etiology of Traumatic Infective Diseases*. Trans. W. Watson Cheyne. London: New Sydenham Society.
- [12] Oakley, A. (1993). *Essays on women, medicine and Health*. Edinburgh: University of Edinburgh Press.
- [13] Quain, R., ed. (1883). *A dictionary of medicine*. London: Longmans, Green.
- [14] World Health Organization (1948). Preamble to the Constitution of WHO as adopted by the International Health Conference, New York, 19 June –22 July 1946; signed on 22 July 1946 by the representatives of 61 States (Official Records of WHO, no. 2, p. 100) and entered into force on 7 April 1948. Available online: <https://www.who.int/about/who-we-are/frequently-asked-questions> (accessed on September 2020).
- [15] Seymer, L. (1960). *Florence Nightingale's nurses: The Nightingale School 1860–1960*. London: Pitman Medical.
- [16] Smith, F.B. (1982). *Florence Nightingale: Reputation and power*. London: Croom Helm.
- [17] Croft, J. (1873). *Notes of lectures at St Thomas' Hospital*. London: St Thomas/Blades, East & Blades.
- [18] Bell, J. (1887). *Notes on surgery for nurses*. Edinburgh: Oliver & Boyd.
- [19] Haffkine, W.H. (1895). *Anti-cholera inoculation: Report to the government of India*. Calcutta: Thacker, Spink.
- [20] Koch, R. (1884) Sechster Bericht der deutschen wissenschaftlichen Commission zur Erforschung der Cholera. (Sixth report of the German scientific commission for research on cholera), *Deutsche medizinische Wochenschrift (German Medical Weekly)*, 10(12): 191–192.
- [21] Cook, E.T. (1914). *The life of Florence Nightingale*. 2 vols. London: Macmillan.
- [22] Nightingale, F. (1884). Practical advice in view of the rapid spread of cholera: 'scavenge, scavenge, scavenge.' In A.N. Bell, ed., *The Sanitarian: A Monthly Magazine Devoted to the Preservation of Health, Mental and Physical*, 114–15.
- [23] Hart, E. The cholera: Cholera and our protection from it. (1892). *BMJ*, 2(1653), 562–567. doi:10.1136/bmj.2.1653.562.
- [24] Cholera and our protection from it. *The Times* (2 September 1892), 9.

- [25] Robb, I.H. (1893). *Nursing: Its principles and practice for hospital and private use*. Philadelphia: W.B. Saunders.
- [26] Nightingale Society (n.d.). Kofoworola Abeni Pratt: From the first black nurse in the NHS to Minister of Health for Lagos State. Available online: <http://nightingalesociety.com/backgrounders/8-kofoworola-abeni-pratt/> (accessed on September 2020).
- [27] Godden, J. (2001). A 'lamentable failure'? The founding of Nightingale nursing in Australia, 1868–1884. *Australian Historical Studies*, 32(117), 276–91. doi.org/10.1080/10314610108596165.
- [28] Godden, J. (2006). *Lucy Osburn: A lady displaced: Florence Nightingale's envoy to Australia*. Sydney: Sydney University Press.
- [29] Baly, M.E. (1980). *Nursing and social change*. 2nd ed. London: Heinemann.