


Abstract

Evidence Based Practice (EBP) abounds today in journals, books, conferences, courses, and in the mind of every practicing nurse or soon to be nurse. Most clinicians would agree with Melnyk and Fineout-Overholt (2015) that globally it is the “key to delivering the highest quality of healthcare and insuring the best patient outcomes...” and results in “...improved health, safety, and cost outcomes, including a decrease in patient morbidity and mortality” (p.3). While the initiative began with Dr. Archie Cochrane about 1972 it has exploded in the past 2 decades with many researchers, authors, and nurses on board. However the first evidence of the use of EBP and the first completed EBP project was documented many decades previous by Florence Nightingale (FN) in the 1850’s with practice or application in the 1860’s and later. All nurses are familiar with FN’s famous book, *Notes on Nursing: What It Is and What It Is Not* (1859/60), but most nurses have never heard of her earlier book, *Notes on Hospitals* (1859). When the 2 books are viewed together with the steps of inquiry, the research question, the record & blueprint reviews, the observations, the clinician & patient interviews, the analysis, the statistics, the morbidity & mortality outcomes, and finally the dissemination, it is one enormous EBP project. Granted there are limitations and freedoms that must be taken, and given, due to the early evolution of nursing and medicine, obvious lack of technology, an understanding of the knowledge of the day, and the restriction of most of the research being completed by only one very dedicated lady nurse, but it meets the definition of EBP. FN studied hospitals, their designs, and their patient outcomes throughout England, France, Belgium, and the battlefields of the Crimean War during the 1850’s. From her research she determined the best hospital design – the pavilion-style – and the best hospital environment for the best patient outcomes. Her extensive research and her design findings were detailed in her papers of 1858 and then the book *Notes on Hospitals* (1859). Her results detailing the best environment for optimal outcomes – light, ventilation, warmth, hygiene, food, cleanliness, and observation – were reported in her later book *Notes on Nursing* (1859/60). That later book was a best seller in the U.S. in the early 1860’s and was used by many lay persons and volunteer nurses to guide their nursing practice during the American Civil War. Equally noteworthy was the fact that most newly constructed hospitals built during the same war (1861-65) for the military were constructed using the pavilion-style that she praised in her earlier book. Large military hospitals containing thousands of beds on both sides including Chimborazo in Richmond, Satterlee in West Philadelphia, and Armory Square in Washington DC all utilized her recommended design. She would continue on to be a consultant/advisor on design for 50 hospitals mostly in the U.K. and one in the U.S. – Johns Hopkins in Baltimore MD (McDonald, 2012). Her work was often interdisciplinary.


Methodology

The methodology for this study was historical research. While all nurses are familiar with and are taught qualitative and quantitative research, there is a third often overlooked type: historical research. This study, as all good historical research, involved the use of only first person primary sources. In this study those were: *Notes on Hospitals*, 1859, and *Notes on Nursing*, 1859/60, both by FN. For comparison to modern day EBP a current widely accepted textbook on EBP was consulted, *Evidence Based Practice in Nursing & Healthcare*, 2015, by Bernadette Mazurek Melnyk and Ellen Fineout-Overholt. Evidence of FN’s research and best practices were sought in references of healthcare during the American Civil War a decade later.

Early Evidence-Based Practice (EBP): Florence Nightingale and the Pavilion-Style Hospital



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Results

The first primary source consulted was *Notes on Hospitals* (1859) which represents FN’s research into the best hospital design. She studied extensively hospitals in England, France, Belgium, and the Crimea. Touring, viewing designs, running statistics, comparing, analyzing, and evaluating the hospitals and their designs to arrive at the best design for a hospital based on their outcomes. Her conclusion: the pavilion-style hospital. This evidence and conclusion was published in her first major book in 1859. During that period of research she also evaluated the environment of these hospitals and how to improve patient outcomes, but stated little of her conclusions in this first book. This book was known to the Surgeon Generals of both the North and the South in the American Civil War and both wrote to her for her suggestions on designs for improved military hospital construction. The second source was *Notes on Nursing* (1859/60), her now famous nursing book, which was intended as a nursing guidebook for laypersons. This book detailed the interventions or best practices that a layperson delivering nursing care (later in the revised edition - a nurse or nursing student) should use to improve patient outcomes. This was based on her earlier research. These included: ventilation and warming, health of house [air, water, drainage], management, noise [control], variety [cheerfulness], food [nutrition], bed & bedding, light, cleanliness, chattering hopes & advices [false hopes], and observation. This book was a best seller in the U.S. in 1860 and after. The timing of publication (1860) related to the war (1861-65) was of key importance. When both of her books, first and second, are considered together as one large EBP project they meet most of the steps of EBP (see Table I below). The steps that are not met are limited by the time period, knowledge of the time, and the unique situation. A search of various American Civil War-era books, diaries, letters, and documents show that the pavilion-style hospital design was used for most new construction of general and/or convalescent hospitals later in the war. Post-1861 hospital examples can be found at Satterlee (4500 beds) and Mower (3600 beds) (see Photo 1 right) in Philadelphia, at Armory Square (1000 beds) (see Photo 2 below right) in Washington, DC, at Chimborazo (4000+ beds) in Richmond, at Hicks in Baltimore (~1300 beds), and at many others. These hospitals also used many of the interventions detailed by FN in her recommended best practices (see Table 2 below).

Table 1:
Comparison of EBP Steps to FN’s Actions of 1850’s

Steps of EBP (Mazurek Melnyk & Fineout-Overholt, 2015)	Step Met	FN’s Actions (Supporting that she used EBP)
1. Cultivate a Spirit of Inquiry	√	Went to Crimea and many European hospitals to tour and evaluate.
2. Formulate the PICOT Question	√	Had population, issue of interest, outcome, and time frame in mind. Her comparison was pre-intervention.
3. Search for Best Evidence	~	No other studies to review. Completed systematic review of all actual hospitals available.
4. Critical Appraisal of Evidence	~	Best validity and reliability are questionable, but certainly applicable, statistics were used.
5. Integrate the Evidence	n/a	There was no literature available, no pt involvement.
6. Evaluate the Outcomes	√	Outcomes in the Crimean War improved from a death rate of 10% to less than 1%.
7. Disseminate the Outcomes	√	Wrote 2 books to disseminate the design &outcomes throughout UK and the U.S.

Table 2:
FN’s Published Best Practices of Nursing Care to Improve Patient Outcomes

FN’s “Canons” or Best Practices from <i>Notes on Nursing</i> by Chapter (* Incorporated into the pavilion-style hospital)	
1. *Ventilation and Warming (windows, stoves, heat, air flow)	8. *Bed and Bedding (fever, cleanliness, tidiness, comfort, turning/positioning)
2. *Health of Houses (air control, water purity, drainage, sewers)	9. *Light (brightness, view)
3. *Petty Management (staffing, organization, critical thinking, service)	10. *Cleanliness of room and walls (dust control, cleaning, washing, floor & wall structure/finishes)
4. Noise (control)	11. *Personal Cleanliness (bathing, hand washing)
5. *Variety (design, flowers, mind-spirit, psycho-social)	12. Chattering Hopes and Advices (false assurances, incorrect facts)
6 & 7. Food (diet, nutrition, feeding)	13. *Observation (assessment)

Conclusions

The study supports that in the 1850’s FN used most of the steps of EBP, within limitations of the period, to identify and support her conclusion for the best hospital design: the pavilion-style hospital. Also in the 1850’s she researched and disseminated her best practices for improving patient outcomes. She used extensive and original research to arrive at these conclusions. These were used by her in the Crimean War (1850’s) and a decade later by both the North and South in the American Civil War (1860’s). Outcomes for the soldiers in both wars greatly improved. Many of her best practices, including hand washing, isolation, ventilation, light, diet, and warmth, would continue thru her writings (1850’s) to become accepted best practices (1860’s) which would in time become traditions (1900’s). “The gap between the publishing of research evidence and its translation into practice to improve patient care often takes decades” (Mazurek Melnyk & Fineout-Overholt, 2015, p.8).




Photo 1: Pavilion-style Design Hospital Wards (LOC)
Mower U.S. Army General Hospital
Philadelphia, PA

Nursing Implications & Historical Value

While many nurses see EBP as a new approach to improve patient outcomes utilizing systematic research, one example of this method of research and application was first presented by Florence Nightingale in the 1850’s and then used extensively in the U.S. in the 1860’s. Elements of her design(s) and best practices are still used today.




Photo 2: Pavilion-style Hospital (LOC)
Interior View, Ward K
Armory Square U.S. Army General Hospital Washington, DC

References

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