

# Research methods and the use of evidence in practice essay sample



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An awareness of resources for evidence based practice is demonstrated. An explanation of the rationale for the choice of the topic is clearly presented. Evidence-based practice must lend credence to the evolution of research; a phenomenon that has formed the basis for acquiring knowledge and information. In the dynamic world that we live in, there is an urgent need for not only timely information but also for accurate and reliable information. Therefore, as Besley (2009) states the most exciting aspect of research is that it has been able to satisfy the urgent need of this accurate and reliable knowledge by the stakeholders in the medical field. In turn, this knowledge has led to the innovation of procedures and treatments that have made clinical practice safe and efficient. According to Besley (2009), innumerable research studies have been carried out over the last decade in the field of medicine ranging from experiments, observational studies as well as logical arguments from traditionally accepted postulate with an aim of improving the practice of medical professionals. In essence, research deals with the collection of data and then collating the raw information in order to make sense of it. It is from this collated data that inferences and recommendations are made that influence policy and practice. It is thus worth noting at this point in time that research forms an integral part in any clinical practice.

Research studies which contain published results of different studies; include mainly journals of reputable medical institutions. Secondly, there are clinical practice guidelines that contain standardized procedures that guide health practitioners on how to provide appropriate care to the patients. Normally, clinical practice guidelines are produced by reputable authorities, such as the World Health Organization, and are based on the most current and

relevant research. In most cases, research findings may be too long and unpublishable. For such cases, structured abstracts and evidence summaries have been used to present the best available results (Besley, 2009). Furthermore, other resources for evidence based practice are the systematic reviews and meta-analysis. In systematic reviews, different research studies are critically analysed and reviewed on the basis of their methodologies, results and relevance. In meta-analysis on the other hand, results from research are combined together for making inferences. The last resource for evidence based practice is meta-search engines which draw materials from updated online sources (Besley, 2009).

Having considered research in general as well as a preview of evidence based practice and the different resources for this practice, it is necessary to also consider other aspects of research. Firstly is reliability. In research, reliability is used to refer to the degree to which a study instrument can yield consistent data after numerous trials have been carried out (Silverman, 2006). This is always influenced by random error which is a deviation from accuracy due to factors that may not have been addressed effectively. In a randomised controlled trial for instance; the results within the intervention and control groups must be consistent throughout for the test to be considered reliable. However, an error may occur if there was a bias in selecting subjects and assigning treatment to them (Hulley et al., 2007). Another important aspect is validity. Hulley et al. (2007) have defined validity as “ simply the ability to distinguish who has and who does not have the disease in question and this is based on the results of the test” (Hulley et al 2007 p. 241). In research, results form the basis for making accurate and

meaningful inferences and it is from such inferences that the research can be said to be either valid or not.

In a randomised controlled trial for instance, the study can be said to be valid if the results clearly identify occurrence of disease in placebo and absence of disease in the control group and from this the treatment can be said to be efficacious (Cohen et al 2007). Moreover, any scientific study relies on empirical evidence that is rooted in object reality and gathered either directly or indirectly through the human senses (Cohen et al 2007). This ensures that the research results are grounded on reality and not the beliefs of the researcher. Empirical evidence is thus, in Besley's perspective, the observations made known by the way of our senses. Lastly, qualitative research is the type of research that yields data in the form of words and not numbers and these words are often grouped.

A classical example of this research is observational studies. This is contrary to the quantitative research that yields data which is in discrete numbers. A classical example is experimental studies (Besley, 2009). The rationale behind the two papers under review is to measure the efficacy of Human Papillomavirus (HPV) vaccines and screening in the management of cervical cancer. The first paper from the British Journal of Cancer compares HPV vaccines with screening methods to form a basis for deciding on which procedure to adopt. The second paper from the British Medical Bulletin explores the efficacy of HPV vaccines based on the randomised controlled trial to determine whether vaccines are the answer to cervical cancer management.

## Project Methods

The development and progress of the literature search is explained in detail. The discussion highlights the range of research used most appropriately to generate evidence. My topic choice is quite wide and varied, without using very specific search criteria I was left with thousands of articles to choose from. I initially just searched via Summon as a wide database for cervical screening and HPV vaccines; this resulted in some 58, 000+ articles! It picked up on single words only thus producing many articles not relevant to the search. Even by narrowing down my search criteria by reducing the search to the last two years I was still left with over 40, 000 articles. I searched via Summon for other databases for the same topic search. In total I used six different search engines for the study. These were: Pubmed - only found a small number of articles as this is predominantly a Biomedicine site; British Nursing Index (BNI) - very little choice and unable to narrow down the search; Nursing Reference Centre (NRC) - American site and articles based mainly on Southern American issues; the Cochrane Library - difficult to master your way through the search process and limited for my subject choice; Medline - an appropriate research engine, had a lot of material from other countries: CINAHL was the main search engine used, it had a wider choice and narrowed my search to 30 articles in the end using quite a broad search topic also.

I entered for all my preferred years of search 2005-2010, and the search topic favoured HPV vaccine. I narrowed my search even further by reading some of the articles, both full studies and synopses. Some were very American orientated, and others were geared towards the lack of screening

for cervical cancer in Third world countries. Given that I wanted to consider at whether the vaccine will have a positive effect on cervical screening in years to come these were discarded. I subsequently found the two recent articles dealing with randomised control trials in regard to the efficacy of the vaccine. On reading them both they were both reader friendly more importantly easily understood. I was able to draw my own conclusion with regard to the research so I choose these two.

The rationale for the choice of this topic was informed on my experience working as a practice nurse in primary care. Essentially, primary care brings promotion and prevention, cure and care together in a safe, effective and socially productive way. Importantly, this care incorporates aspects of counselling, patient education and diagnosis of acute and chronic diseases. Primary care thus forms a basis for measuring the effectiveness of vaccines for HPV and screening for cervical cancer. Screening for cervical cancer and the development of HPV vaccines has been based on the recognition of the similarities and differences in cells. Basing my topic choice on these two premises formed a foundation for getting more insights in the advances that have been in the prevention, treatment and management of cervical cancer with particular reference to HPV vaccines. Appraisal of Evidence

A clear explanation of ethical issues in the conduct and application of research supports the discussion. There is accurate consideration of relevant aspects of research methods / design - based on concepts for critical appraisal There is justification of strengths and limitations of the studies and consideration of the strength of evidence.

According to Gallin and Ognibene (2002), ethical issues in research have been classified into three categories i. e. those concerning the researcher, the participants and the research process. To begin with, the research has to maintain high standards of integrity while carrying out the research meaning that research should not be undertaken for personal gains. Secondly, the research must not pass another researchers ideas as his own original work (plagiarism) or fake another researcher's work (fraud). Lastly the researcher must be trustworthy and not misuse his privileges. With regard to study subjects, their confidentiality and privacy must first and foremost be observed at all times. Secondly, informed consent must be sought from the study subjects and their participation must be on a voluntary basis. Thirdly, their autonomy must be protected and this is best undertaken by assigning numbers or pseudo names. Importantly, vulnerable individuals such as children and the disabled must not be used unless prior consent is obtained from their guardians (Gallin and Ognibene, 2002).

Concerning the research process, the researcher should not ignore pertinent issues in research but should be honest to discuss any findings. In experimenting designs like RCTs, the treatment given to the intervention group and has proven efficacy must be also given to the control group after the study as it will help reduce the feeling of unfairness among the controls (Greenhalgh, 2010). Clinically relevant and ethically acceptable endpoints are important issues for the HPV Vaccine RCT's. Both virological and clinical endpoints were potential vaccine trial endpoints (a disease, symptom or sign that constitutes one of the target outcomes of a trial) (Cohn 2001). High grade intra-epithelial lesions (CIN 2/3) are recognized as the immediate

precursors of invasive cervical cancer and for vaccine licensure the endpoint of CIN 2/3 has been accepted widely as the ethically acceptable proxy for vaccine efficacy against cervical cancer. This endpoint can be evaluated among young women but in children or young adolescents, however, CIN as an endpoint is ethically unacceptable since cervical specimens would be required.

Bridging studies have therefore been conducted in children and young adolescents by comparing antibody responses in these cohorts with those in the women for whom efficacy has been evaluated using the CIN endpoint (Stanley, 2008). In summary, ethical review panels have been set up to review and pass protocols for research involving human subjects (Gallin & Ognibene 2002). Therefore, it is the responsibility of the researchers to submit their research proposals to the board so that it can be passed through a scientific peer review to assess its methodologies and implications in order to avoid exploitation of study subjects (Gallin & Ognibene, 2002). Once a research question has been identified, in this case whether the HPV vaccines are likely to help prevent incidences of cervical cancer or not, the next step is to choose an appropriate research design tool that will answer the question. In measuring the effectiveness of a vaccine, subjects will be required to be given the vaccine and those who will not so that an evaluation can be made based on the occurrence of a disease after the study.

For this purpose the RCT will be the appropriate study design to evaluate the effectiveness of the vaccines (Besley, 2009). Besley (2009) argues that RCT's involves the selection of subjects randomly and then assigning them again randomly to the intervention group or to the control group (placebo). The <https://assignbuster.com/research-methods-and-the-use-of-evidence-in-practice-essay-sample/>



process of selecting subjects and assigning them to particular treatment is always prone to bias and may affect the study results. Bias can be minimised by the use of a control group, randomisation and blinding all of which are elements of randomised controlled trials (Cohen 2007). The control group is given an ineffective vaccine while the intervention group is given the treatment a comparison is then made between the two groups. It is important to ensure that patients in both groups are similar in all aspects with the only difference being the treatment being tested. Therefore, the researcher has the obligation to check if any aspects that may lead to differences have been avoided. In order to achieve this, randomisation is employed to ensure that two groups are similar in that all important aspects have been selected by chance. In addition, it is important to blind the subjects to which treatment they receive and if possible the research staff to which treatment they assign.

This is crucial in avoiding unnecessary expectations that may influence the results (Besley, 2009). Critical to the research design is the composition of the groups. Besley (2009) insists that the researcher must ensure that the groups are uniform throughout the research and that no changes are made in the course of the study. Moreover, the researcher must also put into consideration the dropout rate, treatment withdrawal and the number of patients lost to follow-up as this will have a bearing on the results obtained (Meijer 2009). Having considered these aspects, another critical aspect is the analysis of the results. In RCT's, patients must be analysed in the groups in which they were assigned to. In practice, odds ratios, risk ratios and the number needed for treatment are methods of analysis that are used to

ascertain if an intervention is effective or not. In addition, the confidence interval (C. I) usually tested at 95% level of confidence is used to give the range where the truth must lie given the findings of the study. The measure of probability is also employed in the analysis (Besley, 2009).

Both articles chosen consider whether the HPV vaccine will be significant enough on its own to prevent the HPV virus or whether it will be best used in conjunction with cervical screening. HPV Vaccines Are They the Answer? Stanley (2008) asks the question as to whether the optimism surrounding HPV vaccine was justified and whether the vaccines have a public health benefit. The population studied were: in the quadrivalent vaccine test, women aged 16-24 years with less than 4 sex partners and naïve for  $\geq 1$  HPV vaccines genotypes at enrolment and in the bivalent vaccine test, women aged 15-25 years of age with  $\leq 6$  life time sex partners and DNA negative for the relevant oncogenic HPV type in the vaccine at trial entry The studies were RCTs as they had a control and intervention group and were thus appropriate to measure the effectiveness of the vaccines. The studies are worth continuing as the vaccines protect against only two of the 15 oncogenic genital HPV types and there is a need to develop multi-vaccines. In addition, there is need to generate cheap, thermostable and non-injectible vaccines as well as those immunogenic in immuno-compromised individuals. The participants were appropriately allocated to intervention and control groups.

The women in the specified age group who had no evidence of infection with the HPV genotypes in the vaccine at the beginning of the trial were given three doses of either the vaccine or placebo. The study does not specify how <https://assignbuster.com/research-methods-and-the-use-of-evidence-in-practice-essay-sample/>

the randomisation schedule was generated or how the participants were allocated to a study group. The groups were well balanced and no differences were reported that might have explained any outcome(s). Nor is it clear whether the participants, staff and the study personnel were blinded to participants' study group. In my opinion blinding matters as it checks incidences of prior expectations. All the participants were accounted for at the end of the study; 0.1% ceased the trial due to adverse consequences and 17 died mostly from motor accidents. The participants were followed with no loss to follow up. Quadrivalent vaccine group was followed for 3 years while the bivalent was followed for 14.8 months. In both cases participants were followed up and data collected in the same way as well as reviewed at the same intervals. There is no mention of whether the participants received the same attention from the researchers and health workers. Vaccine efficacy was calculated by comparing the incidence in women who received the vaccine and women who received a placebo.

Results were expressed as a percentage with the corresponding 95% confidence limits. Analysis was conducted in the per protocol (PP) or according to protocol groups. Both vaccines are immunogenic (evoking an immune response) and were well tolerated. They have been shown in the various RCTs to be very effective at preventing infection and premalignant disease related to the vaccine HPV genotypes in women who are DNA negative and sero-negative for the vaccine HPV types at base line. The results are precise and the efficacy of the vaccines has been presented at a higher confidence level and therefore the decision to use the vaccines will be based at the higher interval and will not be the same as that at the lower

interval. Since the confidence intervals have been used, there are no p-values. HPV and Cervical Cancer: Screening or Vaccination? (Bosch et al 2008) have considered the research involved with how HPV DNA testing may become the next area for development in identifying the HPV virus.

The decrease in HPV is also shown in their statistics regarding the use of the vaccine. (Bosch et al 2008). Both trials are valid, they are ongoing as this is a relatively new area of research, particularly with trialling the vaccines. It will be some years before any true results will be available to test the efficacy of the vaccines available. All the research and statistics are up to date are positive and show a very clear and positive way forward in the prevention in both males and females of the HPV virus. The benefits of the research far outweigh the risks that may be involved. These trials could be carried out in any area using the HPV vaccines. Implications for Practice

Understanding of ethics issues in applying findings to practice is demonstrated. Knowledge of the factors influencing barriers to research utilisation is demonstrated. Specific recommendations for change within the practice setting are explored. The feasibility for sustainable change is explored.

Suggestions and recommendations about facilitating change are offered. When a study has been completed, two pertinent issues arise: who owns the data and who should have access to the data and under what conditions should the data be accessed (Silverman 2006). Other issues that arise are who is the custodian of the data is and how the data can be shared or disseminated. We live in an era where we can be confident that virtually any

research data generated that deal with a controversial issue will be reanalyzed by the real or alleged experts who support different positions in their favour. The paramount ethical principle is to safeguard the collected data to curb incidences of misuse and manipulation (Besley, 2009). In today's rapidly changing healthcare environment in which we, as nurses are often confronted with a lack of time for training and education, staff shortages and hostility from management the implementation of change to evidence -based practice may be challenging (Self Unit 4 Week 1 forum).

Evidence-based practice according to Burns And Grove (2009) is the "Conscientious integration of best research evidence with clinical expertise and patient values and needs in the delivery of quality, cost-effective health care." This description recognises that the approach to practice is not passive- that the practitioner makes a conscious effort to identify and use the best available research. The evidence is used to enhance care, build on existing knowledge and apply this in the realistic context of a healthcare setting (EB Unit 1 Week 1). One important factor influencing barriers to research utilization is the lack of adequate support from the organization. According to Polit (2001) barriers in utilisation include research characteristics whereby results cannot be generalised by a nurse. Organisational problems, different settings and professional concerns all increase barriers (MP Unit 4 Week 1 forum). This can be demonstrated by the unwillingness of managers to give practitioners adequate time to use research findings and also to carry out research in the first place. (SL Unit 4 Week 1forum) Bosch et al. (2008) argue that developing countries already

have organized systems in place for Expanded Programs on Immunization (EPI) that are effective in child immunization.

It is therefore incumbent on stakeholders in the health system to come up with programs that will incorporate HPV vaccines into the EPI programs. This will include specifying the dosage for children as well as making provisions for adolescents. Ideally, HPV vaccines can be included in the school health programs in areas where primary health care programs for school children are effective. HPV vaccines have shown to be effective in preventing of HPV genotypes 16/18 among the sero-negative individuals (Stanley, 2008).

Therefore, new technologies for screening should be put in place that will adopt different protocols such as the check and treat protocol. This will be important in the sense that it will minimize the number of visits to for screening. Bosch et al. (2008) have suggested the development of simpler screening techniques that will minimize the frequency of screening, costs as well as accessibility by the larger populations. Moreover, Bosch et al. (2008) have noted the high costs involved in the production of HPV vaccines which cannot be attained by poor nations that are in most need of the vaccines.

Therefore to counter the cost of HPV vaccines, charitable health organizations have to be convinced to purchase large amounts of the vaccines, once they are licensed for testing and eventual general distribution. In addition, there should be the development of second-class vaccines that could be produced and delivered at lower costs. It is important to note at this point in time that the changes in the practice settings will only be effective if some considerations are met. Firstly, individuals react differently to change and secondly, everyone has a fundamental need that <https://assignbuster.com/research-methods-and-the-use-of-evidence-in-practice-essay-sample/>

has to be met (Hulley et al 2007). In addition, change may involve a loss in some way or the other. Nevertheless, expectations need to be managed realistically and fears of change need to be dealt with (Hulley et al 2007). People must want to make changes, move forward and make progress and to be aware that the smallest changes can benefit a lot of people (Self Unit 4, Week 2 forum). In this light, when introducing change, people have to be given information in an open and honest way paying more attention to not giving overoptimistic speculations.

For cases where larger groups are involved, a communication strategy should be put in place that ensures information is disseminated efficiently and comprehensively to everyone and if possible at the same time. Most importantly, people should be given choices and there must be a degree of honesty about the possible consequences of those choices (Potter 2009). Ideally, the incorporation of vaccines into the system while maintaining effective screening programs will require healthcare infrastructure, including investing in technology and manpower for. Health institutions do not operate in the vacuum. They co-exist in systems that rely on the government and external funding (Bosch et al 2008). Programs can only become self-sustaining if there is a political goodwill to support the programs and maintain it with governmental funding after external support ends. (Bosch et al 2008). Furthermore, without political support, it may be extremely difficult to cope with internal pressures to change decisions taken with regard to the programs since it is the politicians who pass policies that affect people's lives (Bosch et al., 2008).

In summary, for this change to be feasible, Bosch et al. (2008) have suggested that both professional and public need to renew and increase awareness on the burden of disease and the new opportunities for prevention achieved through education. Secondly, there is a need for financial support to continue the work initiated by a number of institutions. Funding agencies have to ensure that support is being directed to make full use of these new opportunities. Lastly, the arrival of a new vaccine is a complex interdisciplinary exercise requiring different social abilities and expertise will require collaboration at a wide range to achieve success. Phase 3 clinical trials have reported in the interim results that HPV vaccines are effective in the prevention of HPV infections. This has been observed to be effective in women between the ages of 14-26. Efforts are still underway to develop more multi-valent vaccines that will cover all of the HPV genotypes as well as measuring the efficacy of vaccines in women over 26 years. In addition, the vaccines have been suggested to be recommended for girls in their pre-puberty stages, prior to the onset of any sexual activity.

There are still considerations and trials to include boys in the vaccine programme to try and achieve herd immunity (Bosch et al 2008). It seems plausible that HPV vaccines will be, on the whole the answer to cervical cancer and likely answer to most of the other cancers of the female and male external genital tract (Bosch et al 2008). The challenges have clouded the fact that the vaccines can be addressed through testing and developing more vaccines. However, against the backdrop of HPV vaccine development, screening still remains the best alternative for women who are already HPV sero-positive especially in developed countries as HPV vaccines are



prophylactic and not cures and the fact that introducing vaccines in these countries where screening is effective will have various implications.(Stanley 2008). To this respect there are calls for improving the current screening techniques and developing new generation techniques that will handle the challenges of screening especially in low-income countries (Bosch et al 2008). In the future, vaccines and screening will be incorporated together in an effective program, and then the efficacy of the program will produce 100% protection from HPV infections.

## References

Hint: Please make sure you use Harvard referencing style (please read the Harvard Referencing Style Guide, University of Huddersfield. This is in your Blackboard Unit 1, session 1) Belsey, J., (2009) What is evidence based medicine? London: Hayward Medical Communications. Bosch, F. X., Castellsague, X., and Sanjose, S., (2008). HPV & Cervical Cancer: screening or vaccination? British Journal of Cancer (1998): 15-21.

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