

A Systematic Review of Knowledge and Practices of Administration of Intramuscular Injection by Clinical Nurses

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ABSTRACT

Background: Medical treatment is intended to save life and improve health and all health workers have a responsibility to prevent transmission of health care associated infections adherence to safe injection practices and related infection control is part of responsibility it protects patients and health workers.

Aim: The study aimed to review and synthesize current evidence on the impact of a systematic approach of knowledge and practices in administration of intramuscular injection by clinical nurses

Methods: A comprehensive search for primary research articles was conducted using the Medline and PubMed databases, ProQuest, using the keywords Knowledge, Practice, 'Administration', 'Intramuscular Injection', 'Clinical Nurse', the reference lists of retrieved articles were also examined as a potential source. Data were extracted by sample and setting, study design, methodological quality and reported outcomes.

Discussion: As per the nine studies reviewed on knowledge and various practices by clinical Nurse on administration of IM injection, the suggestions given are as follows.

- ✚ Najma, in her study she clearly reveals among 200 Nurses, 90% of Nurses are aware of knowledge in administering IM injection whereas lacking in skill of administration.
- ✚ Arif Valliani reveals among 156 Nurses, more than 50% are in need of intensive training for administration of IM injection
- ✚ Srividya BN, reveals more than 75 % of nurses are having good knowledge on administration of IM injection but they are in need of clinical practice in administration.
- ✚ Mimi, Mackwey et al, reveals among 250 Nurses, 46.4 % nurses are selecting Dorso gluteal site for injection whereas rest nurses use other sites for injection. They conclude saying injection site also plays a major role in administration of IM injection safely.
- ✚ Wayden and Diana reveals that 74 % of Nurses select appropriate size of the needle and site to improve the safer IM injection practices
- ✚ Farida and Safia reveals that nursing students need to be given a competent training in administration of IM injection to improve the safe technique and for further scope.
- ✚ Helen reveals Aspiration also plays a major role in giving safer IM injection technique especially in children.

Conclusion: Performing any procedures would be considered as one of the legal issue by any personnel working in the hospital. Considering this Nursing have come up with various evidence based practice, so to empower it our clinical nurses should follow proper skill and have improvement in quality of knowledge as mandatory for any sort of clinical procedures. In this study especially clinical nurses must follow the proper skill in administering IM injection. This in turn will improve the clinical practice and to improve the quality of care.

Keywords: Knowledge, practice, Administration, Intramuscular Injection, Clinical Nurse

INTRODUCTION

“Nurses serve their patient’s with most important capacity and we know they work as first line warriors and here their skill matters to make a patient believe in the patient care”.

- Lois caps

Medical treatment is intended to save life and improve health and all health workers have a responsibility to prevent transmission of health care associated infections adherence to safe injection practices and related infection control is part of responsibility it protects patients and health workers. An Intramuscular injection is the safest easiest and best tolerated of the injection routes. Intramuscular injections are a common technique used to deliver medication deep into the large muscles of the body. More than 12 billion intramuscular injections are administered annually throughout the world. (2018). Safe injections do no harm, but unsafe injection practices are plague of many health systems each year unsafe injections causes an estimated 1.3 million early deaths. A loss of 20 million years of life and an annual burden of US is 5.3 million in direct medical costs. Injections are one of the most common medical procedures. Each year some 60 billion injections are administered in developing and traditional countries. The use of injectable medication has many healthcare benefits for patient. The complexities associated with the prescription, preparation and administration of injectable medicines means that there are greater potential risks for patient than for other routes of administration. Safe system of work is required to minimize these risk (NPSA 2007). The administration of intramuscular injection has been a fundamental nursing skill since the 1960s and there is evidence that upgrading clinical nurses on injection technique will lead to improved and safer practice.

NEED FOR STUDY:

Nurses to administer intramuscular injections in a safe, effective and patient-centred manner. Following administration of an intramuscular injection, the patient should be observed for a period of time to reduce any risk of harm. Nurses should possess the knowledge, skill, professional judgement and accountability to administer intramuscular injections safely. Nurses should ensure the correct drug is prepared using the correct method at the correct dose for administration to the correct patient. Clinical skills articles can help update your practice and

ensure it remains evidence based Local and national protocols should be adhered to the nursing skills. Dianne Wayden *et.al* (2001) did a systematic review on best practice guidelines for the administration of intramuscular injections developed after the identification of 300 abstracts and a review of 150 articles on the subject area. While the administration of medication via the intramuscular route is a daily occurrence for nurses working in both hospitals and community settings. Techniques delivering medication to the correct site will facilitate efficacious outcomes for the client and ensure the delivery of quality nursing care in all health care settings.

Mac Gabhann (1996) outlined that there were few developed policies or procedures on administering injections to which nurses could refer, and suggests that the technique and preparation of IM injections may not be substantiated by research evidence. Rodger & King (2000) suggest that despite some discrepancies in the literature, there is sufficient consensual evidence for the establishment of clinical guidelines regarding the drawing up and administration of IM injection. Small Regan (2004) highlights that for a routine procedure, it is surprising that there is so little research evidence to support the practice of IM injection. The importance of safe injection administration cannot be underestimated, as once a medication is administered via IM injection, it is irretrievable (Quinlan 2000).

IM injections are administered on a daily basis by nurses in mental health settings, the authors of this review have perused the literature of Beyea & Nicoll (1995), Rodger & King (2000), Mc Garvey (2001) and Nicholl & Hesby (2002) to develop the evidence-based guideline which may apply to nurses administering injections.

With all the above reviews, investigators found thorough search for this particular study and identified there is a need in creating awareness on knowledge and practice in administering IM injections followed by clinical Nurses by various reviews.

PROBLEM STATEMENT

A systematic review of knowledge and practices of administration of intramuscular injection by clinical nurses

OBJECTIVES

- To identify evidences for knowledge in administration of intramuscular injection by clinical nurses.
- To identify evidences for practice in administration of intramuscular injection by clinical nurses.

OPERATIONAL DEFINITIONS

□ **SYSTEMATIC REVIEW:** According to oxford dictionary done or acting according to a fixed plan or system; methodically looking for the various action plan in instituting changes

- In this study systematic review means the search of various studies on knowledge and practices of administration of IM injections by Clinical Nurses

□ **KNOWLEDGE:** According to oxford dictionary awareness or familiarity gained by experience of a fact or situation.

- In this study knowledge means the awareness in administration of IM injection by clinical nurses

□ **PRACTICE:** According to oxford dictionary the actual application or use of an idea, belief, or method as opposed to theories relating to it.

- In this study practice means the clinical nurses will perform IM injection administration using their skills, application and methods.

□ **ADMINISTRATION:** According to Oxford dictionary the act of giving a drug to somebody.

- In this study administration is process of injection medicines into selected muscle of patient by a clinical nurse of selected hospital.

□ **INTRAMUSCULAR INJECTION:** According to oxford dictionary, injection of medicines into the selected muscle site is called as IM Injection.

- In this study, IM injection is process of injecting prescribed medicines into selected muscles Of patients by a clinical nurse of selected hospital.

□ **CLINICAL NURSES:** According to Oxford dictionary a nurse who has a degree in nursing and

who has passed an exam to be allowed to work in a particular state.

- In this study the clinical nurse who is administrating the intramuscular injection to the patient according to the knowledge and practices.

CONCEPTUAL FRAMEWORK

The development of specific nursing-based conceptual frameworks helps to define and link ideas when performing studies involving a number of different concepts. Through the use of nursing models and frameworks, knowledge gained from nursing research can be more readily disseminated into nursing practice.

Kenny's open system model was adopted for conceptual framework. This theory was introduced by Jennet W. Kenny. The open system model was formulated in the year 1999. The open system enumerates various aspects of system and interaction. She formulated various theories based on management. Open system theory is useful in breaking the whole process into sequential tasks to ensure goal realization. The three major aspects of the systems are:

Input

Throughput

Output

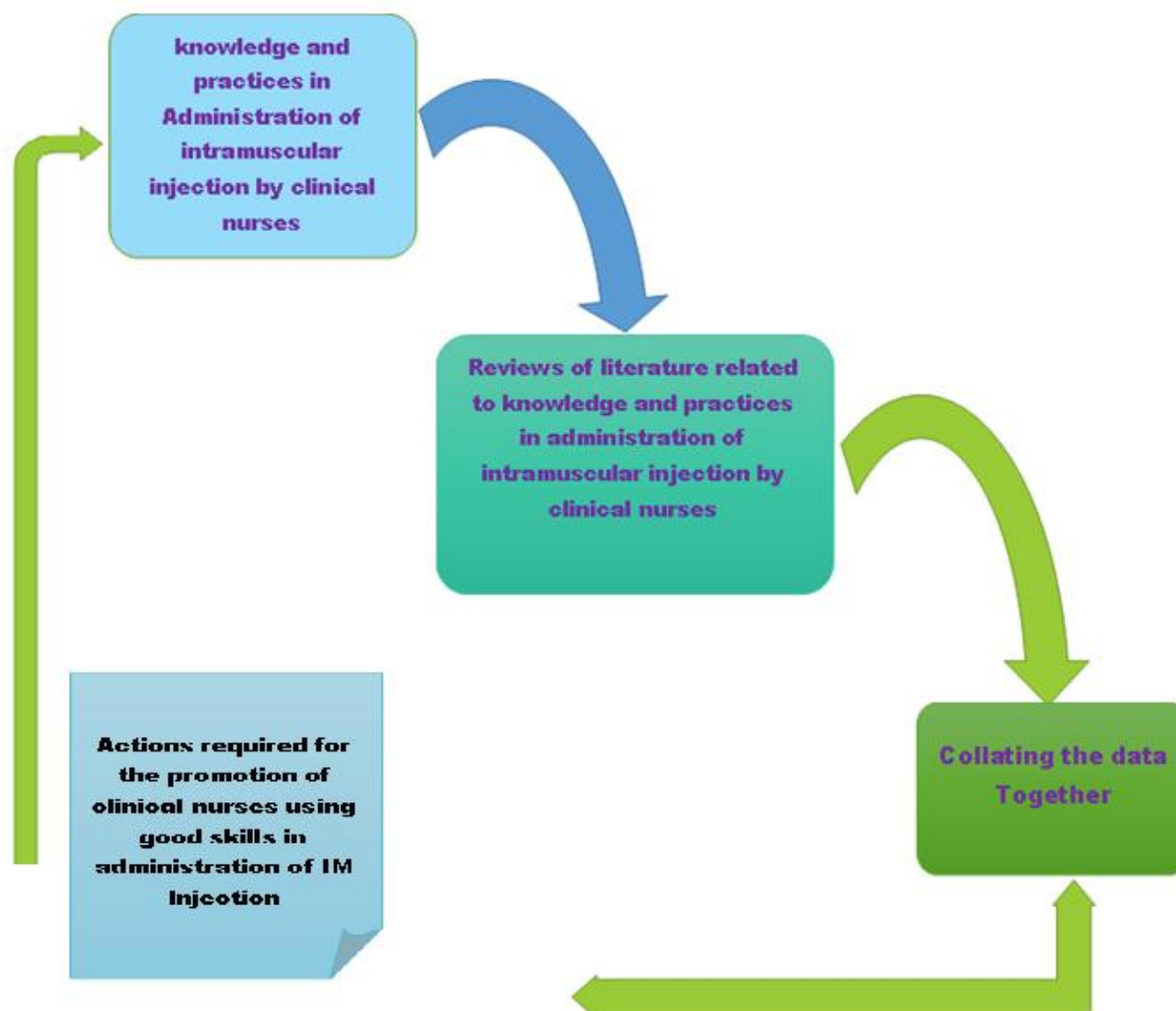
In this study input it refers to the effect of administration of intramuscular injections.

Throughput, in this study, is assessment of literature related to administration of intramuscular injection by clinical nurses with standard protocol techniques.

In this study, output is comparing and evaluating the studies reviewed.

The feedback for the system refers to actions required for the promotion of nurses following standard protocols during Intramuscular Injection.

The graphical representation of conceptual framework based on the Open System Model Theory is shown in figure no. 1:

FIGURE NO: 1 CONCEPTUAL FRAMEWORK: OPEN SYSTEM MODEL THEORY INPUT

RESEARCH METHODOLOGY

Research methodology is a science of studying how research is done scientifically. In other words, it is a way to systematically solve the research problem by logically adopting various steps. Methodology helps to understand not only the products of scientific inquiry but the process itself.

SEARCH STRATEGY

A comprehensive search for primary research articles was conducted using the Medline and PubMed databases, ProQuest, using the keywords 'Administration', "Intramuscular Injection", "Clinical Nurse", The reference lists of retrieved articles were

also examined as a potential source. Data were extracted by sample and setting, study design, methodological quality and reported outcomes. The present study was conducted to review and assess the administration of intramuscular injection by clinical nurses with standard protocol techniques. Nine articles were chosen for detailed review of the full text and were included in our review.

INCLUSION CRITERIA

Primary studies were included if they met the following criteria:

- Researches published in English language.

- Studies which implemented effect of knowledge and practice in administration Intramuscular injections by clinical Nurses.

EXCLUSION CRITERIA

- Studies published before 2010
- Studies concentrating on aspects of complications during Intramuscular Injection
- Studies in which clinical outcomes were not measured. For example, studies which examined the

effectiveness of an education intervention targeted at health care personnel but did not investigate clinical outcomes.

FINDINGS AND INTERPRETATION

A systematic review draws together the results of several primary research studies. A systematic review seeks to provide an overview of the finding of factual evidences for assessment of the administration of intramuscular injection by clinical nurses with standard protocol techniques.

STUDIES REVIEWED ON THE FOLLOWING HEADINGS:

TABLE 1: Studies on Administration of Intramuscular injections by clinical Nurses

Sr.no	Author	Research Design	Sample	Year of Study	Abstract of the study
1.	Najma Praveen, Muhammad et.al	A cross sectional descriptive study	200 nurses which are selected from Punjab institute of cardiology	2019	To assess the knowledge of nurses regarding safe administration of IM medication Methodology: A cross sectional descriptive study design was used in this research project to assessing the knowledge of nurses about safe administration of IM, the sample size was 200 nurses which are selected from Punjab institute of cardiology sampling technique data was collected from the participants through self-administered questionnaire It is portrayed from my study that 90% of the nurses are well aware from the proper site, route and time of medicine to be administered and recommended for Safe administration of IM is very important and every nurse should know about the safe administration . Nurses have sufficient

					knowledge regarding the administration of IM but there is lack of proper practice.
2.	Mimi M Mekkawy, Shaymaa et.al	Cross sectional design	250 nurses who are working in medical and surgical department.	2018	<p>The study aimed to: assess nurses' practice for selection the site and painless intramuscular injections. Subjects and Method: data were collected from all available nurses (250) working in medical and surgical departments at Upper Egypt university Hospitals. Two tools were utilized; 1.interview questionnaire 3. Painless injection practice observational check list. Dorsogluteal site to administer intramuscular injections was preferred for use by 116 (46.4%) nurses, as regard safe injection; there was highly significant difference between Upper Egypt Universities hospitals and most of them avoid the patient to look to the needle, inject the medication slowly. Regarding safe injection Sohag was the highest government where the nurses change needle after aspiration. Increased incidence of abscess in Aswan and Sohag Universities. Conclusions: The research revealed a significant difference between Upper Egypt universities hospitals regarding safe and painless technique. Recommendations: The</p>

					<p>choice of site must be based on good clinical judgment and using an evidence based. Additional research on the safety and painless intramuscular injection covering all aspects including site and needle selection is needed.</p> <p>.</p>
3.	Helen Sisson	A systematic literature review.	50 Abstracts	2015	<p>To review the available evidence on aspirating when administering intramuscular injections and suggest recommendations for practice. The process of aspiration has been ingrained in the intramuscular injection procedure and whilst many policies no longer recommend this practice it often continues to be taught and practiced. The result is a variation in this procedure not always consistent with an evidence based approach.</p> <p>A systematic literature review is used and approach in searching the literature was undertaken using identified academic databases from inception to May 2014. Citation searching identified additional data sources. Six studies met the search criteria.</p> <p>The majority of health professionals do not aspirate for the recommended 5-10 seconds. Administering an injection faster without aspiration is less painful that injecting slowly and</p>

					<p>aspirating. The main influences on the decision of whether or not to aspirate are based on what health professionals are taught and fear of injecting into a blood vessel.</p> <p>In the paediatric vaccination setting, the practice of aspirating during the administration of an IM injection is unnecessary and there is no clinical reason to suggest that these principles may not be applied when using the deltoid, ventrogluteal and vastus lateralis sites in other settings. Owing to its proximity to the gluteal artery, aspiration when using the dorsogluteal site is recommended. Nurses must be supported in all settings, by clear guidance which rejects traditional practice and facilitates evidence based practice.</p> <p>Educators need to ensure that their knowledge is up to date so that what they teach is based on evidence. This may be facilitated via regular educational updates</p>
4.	Wynaden D, Tohotoa et.al	A descriptive cross sectional study	336 Nurse / Age average 41.92 years	2015	<p>The study concludes that The site selection changed significantly where 69 nurses (74.2%) selected the dorsogluteal whilst 210 (86.1%) selected ventrogluteal in reduction of pain while giving injection but the protocols followed were the same.</p>

APPRAISAL OF STUDIES

STUDY DESIGN

Out of the 9 studies included on Intramuscular injections by clinical Nurses 3 descriptive cross

sectional, 1 descriptive correlation 1 comparative study, 1 Quasi experimental study 1 systematic review and 1 cross-sectional study 1 systemic review studies and explains on the ways clinical nurses use to administer IM injections for patients with adequate knowledge and skill.

SAMPLE

The description of study participation setting sample selection and size should be reported. The authors state that descriptions of study participants' characteristics and setting in which they were studied are necessary so that readers can assess generalizability of the results of the study. The authors also explain that description of sample selection and size helps the readers to detect internal validity associated with ascertaining statistically significant and clinically important differences of a given size if such differences exist. Investigators for all the 9 studies reported participants, setting and sample size in their studies. Sample size for all the reviewed study is 50 and over 50 Nurses are studied on knowledge and skill in administration of IM injection .

DATA COLLECTION

Relevant data for the selected studies were collected from different database like Medline, PubMed databases, ProQuest and Research gate.

RESULTS

Out of 9 studies, 3 studies revealed the nurses are having good knowledge in administering IM injection whereas they are lacking in skill, which has to improve by intensive training session, 3 studies reveal on how significant for nurses to select site and size of needle to improve the skill before administering IM injection. 1 study revealed aspiration before IM injection is also a skill especially for children where nurses can avoid harming blood vessels. 2 Studies revealed on nursing students to be trained to improve the quality in knowledge and skill in administration of IM Injection.

DISCUSSION

As per the nine studies reviewed four studies on knowledge and five studies on various practices by clinical Nurse on administration of IM injection, the suggestions given are as follows.

Najma, in her study she clearly reveals among 200 Nurses, 90% of Nurses are aware of knowledge in administering IM injection whereas lacking in skill of administration.

Arif Valliani reveals among 156 Nurses , more than 50% are in need of intensive training for administration of IM injection

Srividya BN, reveals more than 75 % of nurses are having good knowledge on administration of IM injection but they are in need of clinical practice in administration.

Mimi, Mackwey *et al* , reveals among 250 Nurses , 46.4 % nurses are selecting Dorso gluteal site for injection whereas rest nurses use other sites for injection. They conclude saying injection site also plays a major role in administration of IM injection Safely.

Wayden and Diana reveals that 74 % of Nurses select appropriate size of the needle and site to improve the safer IM injection practices

Farida and Safia reveals that nursing students need to be given a competent training in administration of IM injection to improve the safe technique and for further scope.

Helen reveals Aspiration also plays a major role in giving safer IM injection technique especially in children.

CONCLUSION

Performing any procedures would be considered as one of the legal issue by any personnel working in the hospital. Considering this Nursing have come up with various evidence based practice, so to empower it our clinical nurses should follow proper skill and have improvement in quality of knowledge as mandatory for any sort of clinical procedures. In this study especially clinical nurses must follow the proper skill in administering IM injection. This in turn will improve the clinical practice and to improve the quality of care.

RECOMMENDATIONS

The choice of site and size of the needle will give a good clinical judgement for clinical nurses in practicing better skill for administration of IM injection

Improvement in training the clinical nurses for further scope

Every organisation should have quality of education in utilising the nurses with proper knowledge and skill in performing all nursing care

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