**CM3134- SOCIAL AND HUMAN FACTORS IN CYBERSECURITY**

1. **Legal, Ethical and Human Factor Feasibility** 
   1. **Introduction**

NEOAPP is a proposed digital clinical communication application designed to foster and aid communication and interactions between parents of neonates and healthcare providers in a Special Baby Care Unit (SBCU) of a hospital. The purpose of this feasibility study is to examine the ethical, legal, and human factor implications of the trial of NEOAPP as a digital clinical communication tool for family-centred care.

* 1. **Legal Considerations**

NEOAPP critically relies on the ability to collect, store, access, and share health data as well as sensitive personal data of patients such as photographs and videos. These are considered confidential information which must be protected under the General Data Protection Regulation (GDPR), the Data Protection Act (DPA) 2018, and the common law duty of confidentiality.

As it relates to collecting and processing the data of children specifically, the GDPR (Article 8) and the DPA (Section 9) impose advanced conditions that must be adhered. These laws require that processing of child data is only lawful if parental consent is obtained, and the controller must make reasonable efforts to ensure such consent has been given. Consent must be- freely given without pressure, for a specific and clearly defined purpose, informed, unambiguous and withdrawable. (Protecting Patient Data, 2022) Failure to comply with these requirements can result in significant legal fines and penalties. It is therefore essential that personal information and health data are collected, stored, and used in a manner compliant with these laws. Appropriate technical and organizational measures must be taken to prevent unauthorized access or disclosure as well as obtaining consent before collecting or processing data.

There are also legal implications arising from the use of open-source software (OSS). Firstly, the OSS license should permit the kind of purpose for which NEOAPP is intended. Some licenses may contain specific restrictions which limit how the OSS may be used and failure to comply may result in legal action. (Gatto, 2022)

Furthermore, some OSS licenses may require that any software which contains or is derived from code in the OSS must be licensed under the same terms as OSS. Consequently, NeoNateSolutions Ltd may need to make the source code for NEOAPP available to the public who would have the right copy, modify, and redistribute the source code without cost.

Finally in some cases, OSS could contain bugs or vulnerabilities that could expose NeoNateSolutions to some legal liability if they are not adequately addressed and cause harm to users. In addition, using OSS may result in exposure to third party legal claims of intellectual property rights infringement against the OSS.

* 1. **Ethical Considerations**

The ethical domain of proportionality requires balancing the good that can be achieved against the harm that may be caused by technology. It therefore becomes essential to consider whether the trial of NEOAPP will be safe for stakeholders involved. Beauchamp and Childress (2012) advocate for four principles as a theoretical guide for analysing ethical situations in the field of medicine. While these four principles have been debated, they are widely accepted as a fundamental theoretical framework for all medical ethics issues generally and not just in a clinical setting. These four principles are:

1. Autonomy- respect for the ability of an individual to make their own choice.
2. Beneficence- acting in the best interests of patients by balancing benefits against risks.
3. Non-maleficence - the obligation to avoid causing harm to patients.
4. Justice- distributing benefits, costs and risks based on the concept of fairness and justice among individuals. (Ethical Issues)

NEOAPP has the potential to empower parents of neonates and foster their increased involvement in their baby’s care as it would enable timely and accurate communication of information for decision-making. This promotes autonomy as it enables parents to choose their level of participation, the means of communication and control the pace, timing, and style of conversations. Frequent updates on the medical condition of their baby and visuals could alleviate parental stress, fear, and concern. The application also provides an opportunity for parents to build a more personal relationship with the clinical team.

Conversely, the autonomy of the clinical team may be affected by frequent contact. Healthcare providers involved may have less control over the time and style of communication as the application may create high expectations regarding the timeliness and adequacy of information provided to parents. Clinical teams may not always be available to fulfil these needs of parents particularly during periods of emergencies, increased workload or where the unit is undermanned. (Riskin et al, 2022)

The trial of NEOPAPP could impact and disrupt clinical workflow. The additional responsibility of utilizing the system may increase workload conditions of clinical personnel as they would be required to devote time to the system consequently impeding patient interaction. Extracting necessary information from electronic patient records and prescription systems could be difficult and fitting them to the context of the queries of a parent could take considerable time to complete. A poorly designed and difficult to navigate interface for inputting information into the application, as well as inefficient and delayed access to tablets or workstations could all constitute a burden. Decreased time efficiency and effectiveness within the unit may lead to inadvertent adverse consequences for patient care and safety (Ozair et al, 2015). This negates the core ethical principle of medical care to do no harm.

The clinical team are expected to provide information to parents assisted by an interface with electronic patient records and prescription systems. However, there are concerns on the reliability of data in electronic records. There is a risk that some information may be missing where for instance the electronic record only contains mandatory information without nuance on a particular patient. Inaccuracies may also occur due to clinical personnel copying and pasting details from a previous exam or patient history which may have become outdated and undermines the integrity of electronic records (Balestra, 2017). Difficulty in finding information due to the design of the interface increases the risk of missing important clinical information. Issues can further arise where only partial data of a patient is available for instance due to a system downtime or where patient data is contained in a hybrid of electronic and paper records. Time-constraints within the unit may also result in personnel copying and pasting from previous diary entries. Misleading information could affect trust and confidence of parents in the relationship with the clinical team.

Potential breaches of privacy and confidentiality is a key ethical concern for the trial of NEOAPP. While NEOAPP could improve clinician-parent communication there are associated risks of security breaches occasioned by internal threats such as carelessness or negligence, disgruntled employees, or external threats like theft of portable devices containing health information and hacking. Security breaches threaten the autonomy and right to privacy of individuals to determine who can access their data. Parents may lose confidence in the security of system. Thus, data shared in the application needs to be stored in a manner that prevents unauthorized access and disclosure of confidential information.

Finally, the ethical principle of justice requires equity and fairness for all parents accessing the application. However, the trial of NEOAPP can give rise to inequalities based on individual capability of parents to understand and engage with the application. For instance, parents with low digital literacy and special needs or those with low-English proficiency may not be disposed to the application if the application is not easy and intuitive for their use or if information provided is hard to understand.

* 1. **Human Factor Considerations**

it is imperative that the application is easy to use and intuitive for the clinical team who will be using it. This requires conducting user testing and evaluations to identify potential problems and design solutions before the trial is commenced as poor design could result in unintended consequences for patient safety.

The trial of NEOAPP may be met with hesitation and resistance by the clinical team due to its potential to impact their work environment. While they may view the need to foster communication with parents favourably, the clinical team may be unwilling to adopt new technology. As previously discussed above, the additional steps required to input and obtain information from the application during the trial may be considered a burden and an increase in workload. This creates potential for errors due to time pressures and disruptions to routine and procedures within the unit. Concerns for the potential of errors particularly at the start of the trial may be aggravated by the awareness of the clinical team of the implication these errors may have for patient safety.

Personnel with low digital literacy may have a negative attitude as the introduction of the system could raise their concerns over their potential for errors or miscommunications due to limited digital skills and experience. This could result in some staff abandoning the application and transferring workload onto others. (Clarke et al, 2016) In addition, the use of the application may be perceived as interfering with the development of face-to-face relationships. The lack of interest or enthusiasm in the trial of the application could result in carelessness and negligence in the handling of data which may result in a security breach.

Finally, different healthcare professionals are typically involved in the management of an individual patient within the unit. There is a risk that personnel will use the application differently increasing the risk of missing information. (Clarke et al, 2016) In addition, the application may affect the way professionals interact and collaborate to discuss patients’ treatments together. Reliance and trust will also be placed on all team members inputting information and extracting information correctly.

1. **Persona**

**2.1 Persona data analysis**

The persona (Sheila) is a neonatal nurse in the neonatal unit of a maternity hospital. As a neonatal nurse she will be expected to use NEOAPP and is therefore a stakeholder. In developing this persona, nine publicly available online sources were identified and selected as qualitative data sources. These data sources provided insight and detail into the daily activities and motivations of neonatal nurses. Upon identifying the data sources, they were coded to obtain factoids and build the archetypical character description of a neonatal nurse.

Factoids elicited from these data sources include the duties and responsibilities of a neonatal nurse, the skills and educational qualifications required for the role, attitudes, character traits necessary for success in the role, challenges such as dealing with unfavourable outcomes and working conditions within a neonatal unit. Subsequently, an affinity diagram was drawn up to group similar factoid themes into categories that inform the persona’s characteristics. This process revealed duplicate factoids that needed to be eliminated. Factoid groups were further categorized into behavioural characteristics namely- activities, attitudes, aptitudes, motivations, and skills.

The persona characteristics of a neonatal nurse identified from the analysis is summarised as follows:

* A neonatal nurse must be knowledgeable about providing medical care for new-borns.
* There are three levels in the unit depending on the complexity of the care required and neonatal nurses work different units on a daily.
* Supporting parents/families of patients is a major part of this role.
* Neonatal nurses are the primary healthcare givers in the unit and responsible for critical first-hand observations and vital documentation.
* The role is highly specialized. Degree education and professional qualification is an obligatory requirement to work in this role.
* They need to have a broad range of knowledge to spot alarms and respond quickly.
* Working with neonates can be fulfilling as it gives a sense of accomplishment.
* The neonatal unit is usually team-oriented, and teamwork is vital for consistency and progression of care.
* Neonatal nurses need to work efficiently to provide high quality care.
* Quality and safety consciousness is necessary to handle complications.
* Interpersonal skills such as effective communication, character traits such as empathy and patience are important for success in the role especially in dealing with parents of patients.
* Working in the neonatal unit can be very challenging as it tends to be fast-paced, unpredictable and sometimes emotionally draining due to unfavourable outcomes.
* Working hours can be long, shifts are on a rotating schedule and neonatal nurses sometimes work outside of their unit.

The above characteristics informed the persona description of Sheila as contained in the Appendix.

**2.2** **Persona Trust Expectations**

Sheila may have the following trust expectations:

* She enjoys developing relationships with parents and families so she will view the ability of the application to foster communication and maintain a relationship with parents favorably.
* She is used to working efficiently and prioritizing tasks to provide high-quality care. This includes expecting that the application will be deployed in a way that is safe and effective for patients, and that it will not be used to compromise her workflow and negatively impact the quality of care provided to patients.
* Sheila may also expect that the application will be used in a way that is consistent with the professional standards and guidelines for the use of technology in clinical settings. This includes the expectation that the application will have robust security measures in place to protect patient information and prevent unauthorized access, as well as expecting the application to be easy to use and intuitive.
* She recognizes the vulnerability of patients in the neonatal units. She may therefore have trust expectations related to the privacy and confidentiality of patient information. She will expect that NEOAPP will be compliant with relevant privacy laws and regulations, and that it will be used in a manner that is consistent with patients' rights and interests.
* Her working conditions and working hours are already difficult. She may struggle with effectively balancing her tasks and responding promptly to messages from parents.

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1. **Value Scenario**

At the start of the trial, Sheila utilizes NEOAPP to communicate with the parents of a premature baby who is being treated in the neonatal unit. The baby, who was born at just 26 weeks gestation, is receiving round-the-clock care from Sheila and other healthcare providers.

Sheila uses the application to keep the parents informed about their baby's condition, as well as to provide them with updates on the baby's progress and any changes in their treatment plan. The application allows Sheila to share information easily and quickly with the parents, especially when they are not physically present in the hospital. The parents are grateful for the regular updates and feel reassured that their baby is receiving the best possible care. They are also able to use the application to ask questions and to provide information about the baby's medical history and other relevant details.

As the trial expands and there are more parents to communicate with on the application, Sheila begins to struggle to balance her tasks in ensuring she provides high quality care for her patients with handling numerous parents’ requests. Due to time-constraints, she sometimes needs to hurriedly relay information to parents. Parents begin to complain that information are either not explained at all or too little is explained.

Overall, the use of NEOAPP enhances the Sheila's ability to provide support to families, and it helps to build trust and improve communication between her, the parents, and other healthcare providers in the clinical team.

1. **Security and Privacy Recommendations**

As previously discussed, it is essential that the application complies with legislations and guidelines for the protection of personal data and preserves confidentiality. To protect confidentiality, access to information should be granted only to authorized individuals. Access controls should be based on pre-determined role-based privileges and the level of information required to carry out responsibilities. (Ozair et al, 2015) In addition, users should be made aware of their responsibilities for misuse of information they access.

Security policies and procedures should also be implemented. Staff should be assigned usernames and password to log on to the application. These details must not be shared with anyone. Staff must be made to log off when they have completed a task on the application and must use their own username and password to access the application. Staff usernames could be useful to track access and examine activity on the application. (Ozair et al, 2015).

Mobile devices can be misplaced or stolen. Attention should be given to ensuring the encryption of mobile devices that can be used to access patient information. Password protection and two factor authentication using security tokens are also beneficial in ensuring security. (Ozair et al, 2015)

The application should be regularly monitored for potential security threats and vulnerabilities. Security measures such as firewalls and intrusion detection system must also be adopted.

Another key recommendation is to obtain consent from patients before collecting and using their personal data. This may include providing clear and concise information to patients about how their data will be collected, used, and shared, and obtaining their explicit consent before collecting and using their data. Furthermore, there must be specific guidance for nurses on obtaining consent for taking photographs and videos.

Additionally, it is important to have clear policies and procedures in place for the collection, storage, and use of patient data. This may include establishing guidelines for how data will be collected, stored, and used, as well as training healthcare professionals on the proper use of the application and the handling of patient data.

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2. **Conclusion**

There are several legal, ethical, and human factor considerations which ought to be adequately addressed before the implementation of NEOAPP. Failure to do so may result in waste of resources, loss of trust and confidence by parents and compromise to patient safety.

Engagement with the clinical team to test usability and workflow design is essential to ensure that the trial is conducted in a manner that is safe and effective for patients.

**APPENDIX A**

**PERSONA DESCRIPTION**

**SHEILA**

**Activities**

Sheila primary duty as a neonatal nurse is to provide specialized and high-quality care for babies(neonates) who are born earlier than expected, who have become unwell or who need close observation. This involves, performing physical assessments, attending deliveries, administering medication, preparing food, resuscitation where necessary, placing lines, taking lab values, understanding the physiological and psychological needs of the new-born.

Another key aspect of Sheila’s role is providing support to the families of her patients. She enjoys developing a relationship with the parents and enabling a suitable environment for them to attach to their new-born. Sheila speaks to families of patients and educates them on the new-born’s care and treatment plan. She is also responsible for educating them on care of the patient post-hospital discharge.

Sheila works with a multidisciplinary team for the provision of high-quality care of patients. As the primary care giver, her role in the team is very crucial as she undertakes critical first-hand observations, records observations, and reviews vital documentation necessary to develop and maintain a patient’s treatment and care plan. She is also responsible for obtaining information on the new-born’s medical record and maternal history.

**Attitudes**

The neonatal unit is a team- oriented environment, shifts begin with a group meeting to share information on safety and what is happening in the unit. Sheila works effectively with her team. She always ensures to give reports of how her shift went, any emergencies she had to manage, and where she left off in a patient’s care when handing over to the incoming team at the end of her shifts to ensure consistency and progression of care.

Working in the neonatal unit can however be challenging. The days are highly unpredictable. The neonatal unit has three levels namely- special care, high dependency, and intensive care. Sheila finds out what unit she will be working for the day at the start of her shift. This is when she is also allocated the babies to work with. She sometimes can be called to work outside of the neonatal unit. For instance, she may be called to the Labour ward to attend a delivery. In addition, the role requires her to be emotionally strong to prepare for negative outcomes in the treatment of her patients. Despite the unpredictability of her role, she tries to work with babies she has looked after before to enable her to get to know them better and understand their needs.

Working in the neonatal unit can tend to be fast paced as there are different health needs and babies’ health by nature can change dramatically. As a result, the role requires Sheila to be flexible and sometimes work under pressure which can make providing quality care more difficult. Sheila also works long hours of at least 10 hours and her schedule rotates from early morning shifts to late and overnight shifts. She must remain mentally agile all through her shift to use her vast knowledge base to spot alarms, make decisions on the best course of action and take immediate action.

**Aptitudes**

Sheila is qualified as a Children’s Nurse with a Bachelor of Nursing(Hons). She also has specialist qualifications in special and high dependency care and intensive care which enables her to understand the requirements of the role across all levels of a neonatal unit.

**Motivations**

Sheila enjoys the variety and diversity involved in her role despite the challenges. There are varied tasks and assignments which are intellectually stimulating and encourages learning daily. Her employer also encourages her to engage in continuous professional development opportunities.

Sheila is motivated by providing high quality care. Sheila recognizes that caring for babies is very complex given their fragility. She has high attention to detail and follows work protocols especially procedures on safety. She takes precautions by preparing for emergencies in case of complications.

Sheila loves working with babies. Working in the neonatal unit is fulfilling and gives her a sense of accomplishment as she can make a difference in a baby’s life by helping them get healthy enough to go home. Although this may not always be the outcome, she considers her role a privilege

**Skills**

Sheila is detail-oriented and highly organised. She plans for the day ahead and ensures to know all about the patients she has been allocated. She is excellent with working with families of patients as she has empathy, understanding for their emotions and effective communication skills. Sheila works efficiently by staying flexible with an ability to prioritize.

Sheila has developed a good knowledge of drugs and calculations over the years. She possesses a high level of knowledge of the diverse illnesses and complications a neonate could encounter. She is highly observant and able to take immediate action in case of emergencies.

**Data Sources**

|  |  |
| --- | --- |
| **Name** | **Description** |
| The Life of a Neonatal Nurse Practitioner (NNP) | https://dailynurse.com/life-neonatal-nurse-practitioner-nnp/ |
| A day in the life of an advanced neonatal nurse practitioner | https://www.southwales.ac.uk/courses/bsc-hons-nursing-child/3066/a-day-in-the-life-of-an-advanced-neonatal-nurse-practitioner/ |
| A Day in the Life of a Neonatal Nurse | https://www.nbt.nhs.uk/our-services/a-z-services/neonatal-intensive-care-unit/a-day-life-a-neonatal-nurse |
| What Does a Neonatal Nurse Practitioner Do? (15 Daily Typical Duties & Responsibilities) | https://www.nursingprocess.org/neonatal-nurse-practitioner-duties.html |
| Neonatal nurse | https://www.healthcareers.nhs.uk/explore-roles/nursing/roles-nursing/neonatal-nurse |
| A Day in the Life of a NICU Nurse: Primary Duties and FAQs | https://www.indeed.com/career-advice/finding-a-job/day-in-the-life-of-nicu-nurse |
| How To Become A Neonatal Nurse (NICU) | https://www.nurses.co.uk/blog/how-to-become-a-neonatal-nurse-nicu/ |
| BEING A NEONATAL NURSE | https://nna.org.uk/being-a-neonatal-nurse/ |
| My Story as a NICU Nurse | https://www.filipinouknurse.com/post/my-story-as-a-nicu-nurse |

**Factoids**

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| --- | --- | --- |
| **Factoid** | **External Document** | **Excerpt** |
| Days are unpredictable | The Life of a Neonatal Nurse Practitioner (NNP) | The only certainty is the start and end to the day. |
| Allocated patients on a daily | The Life of a Neonatal Nurse Practitioner (NNP) | Our day traditionally starts with getting sign-out from the on-call team, dividing up our patient load based on acuity, |
| Review documentation | The Life of a Neonatal Nurse Practitioner (NNP) | obtaining pertinent stats from the medical record and reviewing notes. |
| Works with multi-disciplinary team | The Life of a Neonatal Nurse Practitioner (NNP) | Next, we join the multidisciplinary team for daily rounds. |
| Firsthand observation is critical | The Life of a Neonatal Nurse Practitioner (NNP) | Rounds provide us with critical first-hand observations, vital feedback from nursing staff, and inclusion of the family if present. |
| Writes vital documentation | The Life of a Neonatal Nurse Practitioner (NNP) | After rounds, we pursue the downhill trajectory of our concrete tasks of entering orders, connecting with consults, writing notes, and updating the problem list. This is not the most glamorous part of our role, but vital for consistency and progression of care. |
| High level of knowledge required | The Life of a Neonatal Nurse Practitioner (NNP) | The diversity of illness and complications these infants possess challenge us as nurse practitioners to have a high level of knowledge specific to the neonatal population. |
| Intellectually stimulating | The Life of a Neonatal Nurse Practitioner (NNP) | there is constant intellectual stimulation. |
| Establishes rapport with families | The Life of a Neonatal Nurse Practitioner (NNP) | We need to establish a sense of rapport with the families. |
| provides support to families | The Life of a Neonatal Nurse Practitioner (NNP) | Typically, we remain present with the family afterwards to provide empathy, clarity, and support. |
| Works outside of NICU | The Life of a Neonatal Nurse Practitioner (NNP) | The role of a NNP extends beyond the NICU. At any time, the ringing of phones signal to us that our presence is needed in Labor and Delivery. |
| broad knowledge and resources | The Life of a Neonatal Nurse Practitioner (NNP) | The knowledge and resources we need to provide the care to our patients and families are vast. |
| job is rewarding | The Life of a Neonatal Nurse Practitioner (NNP) | But the rewards of seeing infants make progress and parents evolving from being hopeless to feeling empowered and connected makes every day worth it! |
| Works long shifts and unsociable hours | A day in the life of an advanced neonatal nurse practitioner | I have a fantastic career, truly rewarding every shift. Yes, there can be long shifts and unsociable hours but how many roles allow you to make a difference to a person’s life each and every day? |
| Loves caring for children | A day in the life of an advanced neonatal nurse practitioner | I always knew I wanted to work with children but it wasn’t until I completed a diploma in childhood studies and got a feel for caring for children across schools, nurseries and hospital environments that I was certain a career in nursing was for me. |
| Varied tasks and assignments | A day in the life of an advanced neonatal nurse practitioner | I could be caring for critically ill babies in intensive care - intubating, performing blood tests and making changes to their ventilation, fluids and medications and so forth. In contrast, I may be working in the special care setting, performing head scans, assisting mothers to breast feed and planning an infant’s discharge. |
| Provides high quality care | A day in the life of an advanced neonatal nurse practitioner | When the baby is well, it's lovely to be part of their birth experience, and when the baby does need help it’s rewarding to be there to ensure they can get high quality care to ensure the best outcome. |
| Qualified to practice as Nurse | A day in the life of an advanced neonatal nurse practitioner | I qualified as a Children's Nurse (BN Hons) and a Postgraduate Certificate in Education. |
| Specialist qualification for neonatal units | A day in the life of an advanced neonatal nurse practitioner | then took specialist qualifications in special and high dependency care and intensive care and Postgraduate Certificate in Education |
| follows team protocols | A Day in the Life of a Neonatal Nurse | Our shift starts at 7.30am where 12 colleagues and I meet in the ward office |
| Safety discussed | A Day in the Life of a Neonatal Nurse | to be informed of important safety and unit information for the day. |
| Works different units on a daily | A Day in the Life of a Neonatal Nurse | It is here that we find out where we will be working– Intensive care, High Dependency or Special Care. |
| Handover from previous nurse | A Day in the Life of a Neonatal Nurse | A typical day for me working in intensive care begins with handover of care of the babies from the previous nurse. |
| Develops relationship with parents | A Day in the Life of a Neonatal Nurse | This also enables me to develop a relationship with the baby’s parents. |
| Highly detailed | A Day in the Life of a Neonatal Nurse | I always ensure that I know all I need to about the babies I am caring for |
| Takes precautions | A Day in the Life of a Neonatal Nurse | and then I check their resuscitation equipment is set correctly. |
| Highly Organized | A Day in the Life of a Neonatal Nurse | I plan the day ahead considering the feeding times and when nappy changes and drugs are due for the babies. |
| Immediate action | A Day in the Life of a Neonatal Nurse | so my ears are always open for the alarms and immediate action is taken to help them. |
| Provides a suitable environment | A Day in the Life of a Neonatal Nurse | I really enjoy supporting parents to provide the care for their newborn baby and assist in providing an environment that encourages their attachment process |
| Provides care for neonates | What Does a Neonatal Nurse Practitioner Do? (15 Daily Typical Duties & Responsibilities) | This type of unit provides care to neonates who require close observation after birth, those infants who are ill or premature. |
| Rotating schedule | What Does a Neonatal Nurse Practitioner Do? (15 Daily Typical Duties & Responsibilities) | Neonatal Nurse Practitioners (NNP) will usually have a 40-hour workweek. This 40-hour workweek may not always be the Monday thru Friday 8-hour day that other professions have. You may have a schedule that is rotating, meaning some days and some nights working 12-hours. Or you may work four 10-hour days. |
| Performs physical assessment | What Does a Neonatal Nurse Practitioner Do? (15 Daily Typical Duties & Responsibilities) | One of the key Neonatal Nurse Practitioner duties will be to perform a head-to-toe physical assessment of their patients. |
| Manages recommendations from team | What Does a Neonatal Nurse Practitioner Do? (15 Daily Typical Duties & Responsibilities) | The Neonatal Nurse Practitioner responsibilities may include managing all the other disciplines' recommendations to formulate one concise treatment plan for their patient. |
| Obtaining information | What Does a Neonatal Nurse Practitioner Do? (15 Daily Typical Duties & Responsibilities) | Obtaining a detailed maternal, obstetric, and newborn history on their patient and their mother will be included in the Neonatal Nurse Practitioner responsibilities. |
| Placing lines | What Does a Neonatal Nurse Practitioner Do? (15 Daily Typical Duties & Responsibilities) | the Neonatal Nurse Practitioner may be placing peripheral, central, arterial, or umbilical lines on the Neonatal Intensive Care patient. |
| Patient resuscitation | What Does a Neonatal Nurse Practitioner Do? (15 Daily Typical Duties & Responsibilities) | the Neonatal Nurse Practitioner duties will include overseeing the patient's resuscitation efforts. This can consist of various degrees of resuscitation from ordering the delivery of fluids to assisting in bedside surgical procedures. |
| Educate patient’s family | What Does a Neonatal Nurse Practitioner Do? (15 Daily Typical Duties & Responsibilities) | Another one of the Neonatal Nurse Practitioners responsibilities will be to educate the family of the patient. |
| Post-hospital education | What Does a Neonatal Nurse Practitioner Do? (15 Daily Typical Duties & Responsibilities) | The Neonatal Nurse Practitioner will also provide education for the family who can finally take their baby home from the Neonatal Intensive Care Unit which can also be scary. |
| Assist with caregiver bonding | What Does a Neonatal Nurse Practitioner Do? (15 Daily Typical Duties & Responsibilities) | the Neonatal Nurse Practitioner duties include assisting with caregiver bonding. |
| Role is crucial | What Does a Neonatal Nurse Practitioner Do? (15 Daily Typical Duties & Responsibilities) | they are a primary healthcare provider with so many critical duties and responsibilities within the health care environment. |
| professional development opportunities | Neonatal nurse | After a period of six months of relevant experience, you’ll be encouraged to undertake professional development. |
| Flexibility and ability to prioritize is vital | Neonatal nurse | You might be responsible for babies with a range of health needs so being highly organised, flexible and able to prioritise effectively will be vital. |
| Highly observant | Neonatal nurse | You'll also be highly observant |
| Takes responsibility | Neonatal nurse | able to assess patients and take responsibility for determining the best course of action. |
| Empathy is important | Neonatal nurse | You’ll also need empathy and understanding for the families of the babies you are working with. |
| Understanding psychological needs | Neonatal nurse | You’ll also need a good understanding of the physiological and psychological needs of the new-born |
| Everyone starts shifts with a group meeting | A Day in the Life of a NICU Nurse: Primary Duties and FAQs | It's common for NICU staff members, including doctors, nurses, therapists and support personnel, to start their shift with a group meeting. |
| Highly specialized position | A Day in the Life of a NICU Nurse: Primary Duties and FAQs | These nurses work in a highly specialized position, as they're responsible for using specific medical equipment and tools |
| Attend deliveries | A Day in the Life of a NICU Nurse: Primary Duties and FAQs | Since NICU nurses care for newborns, they often attend deliveries for babies that doctors believe will require a NICU stay. |
| Administer medications | A Day in the Life of a NICU Nurse: Primary Duties and FAQs | Most NICU babies need specialized medications to become stable enough for another treatment or surgery or to improve their condition. Nurses in this department have this responsibility and often need to monitor a baby's reaction to a medication or adjust the dosage per the doctor's instructions. |
| Change patient’s position | A Day in the Life of a NICU Nurse: Primary Duties and FAQs | NICU nurses must rotate and reposition babies to prevent pressure sores on their fragile skin, promote healthy muscle tone and mimic the feeling of a womb for the child. |
| Take lab values | A Day in the Life of a NICU Nurse: Primary Duties and FAQs | NICU nurses may gather labs multiple times during their shift depending on any changes in patient status or lab values a doctor requests. |
| Consult with doctors | A Day in the Life of a NICU Nurse: Primary Duties and FAQs | Another key part of any nurse's day is meeting with doctors to discuss their patients' statuses and make recommendations. |
| Doctors rely on NICU nurses | A Day in the Life of a NICU Nurse: Primary Duties and FAQs | Doctors often rely on the work of the NICU nurses to develop a treatment plan, so it's important they can describe any concerns they've seen with the babies in their care. |
| Prepare food | A Day in the Life of a NICU Nurse: Primary Duties and FAQs | It's common for NICU nurses to be responsible for feeding the babies and securing the food each child needs throughout their shift. |
| Stock supplies | A Day in the Life of a NICU Nurse: Primary Duties and FAQs | As a team, NICU nurses support one another, and one way they do this is by stocking the supply room for the next shift. |
| Give reports | A Day in the Life of a NICU Nurse: Primary Duties and FAQs | At the end of their shift, NICU nurses typically report to the incoming nurse and care team, |
| Share information with team | A Day in the Life of a NICU Nurse: Primary Duties and FAQs | Each nurse may share how their shift went, any emergencies they had to manage, what the next nurse can expect and where they left off in the patient's care. |
| Reports essential for high quality care | A Day in the Life of a NICU Nurse: Primary Duties and FAQs | These reports are important for providing a high level of continuous care when nurses change shifts. |
| Role has benefits | A Day in the Life of a NICU Nurse: Primary Duties and FAQs | Working as a NICU nurse offers many of the same benefits you may expect from working in other health care roles, including job satisfaction and security, a flexible schedule and the ability to engage in professional development opportunities. |
| Gives a sense of accomplishment | A Day in the Life of a NICU Nurse: Primary Duties and FAQs | This career can also give you a sense of accomplishment as you provide care for a baby and help them get healthy enough for discharge home. |
| Role is challenging | A Day in the Life of a NICU Nurse: Primary Duties and FAQs | While being a NICU nurse may have its own challenges, it can be a fulfilling and rewarding career that provides you with the chance to make a difference. |
| Advanced level need additional training | A Day in the Life of a NICU Nurse: Primary Duties and FAQs | Nurses who wish to work at a more advanced level may need additional training and gather more experience before getting a position. |
| Fast-paced | A Day in the Life of a NICU Nurse: Primary Duties and FAQs | The NICU can be a fast-paced department. |
| Team oriented environment | A Day in the Life of a NICU Nurse: Primary Duties and FAQs | Often, the NICU has a team-oriented environment. |
| Making a difference | How To Become A Neonatal Nurse (NICU) | Knowing that you've made a difference, you've made an impact. |
| Enjoys variety | How To Become A Neonatal Nurse (NICU) | I'm somebody who really enjoys variety and you get that within neonates. |
| Considers role a priviledge | How To Become A Neonatal Nurse (NICU) | And I find it a massive privilege actually. It's really exciting seeing patients getting well and seeing them grow and change and seeing them develop personalities |
| Unfavourable outcomes challenging | How To Become A Neonatal Nurse (NICU) | one of the main challenges of being a Neonatal Nurse is when the outcomes are not always favourable. |
| Patience | How To Become A Neonatal Nurse (NICU) | someone who is very patient. |
| Works well under pressure | How To Become A Neonatal Nurse (NICU) | Someone who works well under pressure, |
| Attention to detail | How To Become A Neonatal Nurse (NICU) | somebody who has got great attention to detail. |
| Three levels in the NICU | My Story as a NICU Nurse | it is important to understand the 3 levels of care in a neonatal unit which is ITU intensive care (ITU/ICU), high dependency (HD), and special care (SC). |
| 2-4 babies | My Story as a NICU Nurse | 2-4 babies if they are in SC (special care) level. |
| Cases are more complex | My Story as a NICU Nurse | cases tend to be more complex thus requiring more attention and care.). |
| Level of care depends on complexity | My Story as a NICU Nurse | it goes on and on depending on how complex the situation of the baby is. |
| Babies’ health can change dramatically | My Story as a NICU Nurse | Babies are very fragile. Their health can change dramatically in an hour to two. |
| Quick response | My Story as a NICU Nurse | I need to focus and respond quickly, if needed. |
| Good knowledge of drugs | My Story as a NICU Nurse | you need to know the basics including good knowledge of drugs and its calculations. |
| Right attitude and behaviours | My Story as a NICU Nurse | having the right attitude and exhibiting the right behaviours are important to successfully do the role. |
| Emotionally strong | My Story as a NICU Nurse | You also need to be emotionally strong. |
| Effective communication | My Story as a NICU Nurse | Effective communication is also beneficial in this line of work. |

**Persona Characteristics**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Characteristic** | **Behavioural Variable** | **Modal Qualifier** | **Grounds** | **Warrant** |
| Highly Specialised Care for Neonates | Activities | Certain | Provides high quality care, performs physical assessment, attend deliveries, administer medications, prepare food | using specific medical equipment and tools and must be knowledgeable about providing medical care for new borns. |
| Support the Parents of Neonates | Activities | Certain | Establishes rapport with families, educate families, post-hospital education  Assist with care-giver bonding | Develops a relationship with parents |
| Specialized knowledge/education | Aptitudes | Certain | Qualified to practice as a nurse, advanced level need additional training, specialist education for neonatal unit | Highly specialized role |
| Work is Challenging | Attitudes | Probably | Works long shifts and hours, emotionally strong, unfavourable outcomes possible, quick response | Ability to work under pressure |
| Uncertainty of Work Schedule | Attitudes | Probably | work different units on a daily, allocated patients on a daily, works outside of unit sometimes, rotating schedule | Days are unpredictable |
| Team-work is essential | Attitudes | Probably | Works with multidisciplinary team, stock supplies, gives reports, team-oriented environment. | Everyone starts shift with a group meeting |
| Role critical for patient care | Activities | Probably | Review documentation, Writes vital documentation, manages recommendations from teams, obtaining information | Doctors rely on Nurses |
| High knowledgeable | Skills | Probably | High level of knowledge required and good knowledge of drugs | quick response required |
| Work efficiently | Skills | Probably | Highly detailed, organized, observant, effective communication | Flexibility and ability to prioritize is vital |
| Job satisfaction | Motivations | Probably | Making a difference, role has benefits | Gives a sense of accomplishment |
| Working with neonates | Motivations | Probably | Loves caring for children, considers role a privilege, |  |
| Career Growth | Motivations | Probably | Diverse role, enjoys variety, varied tasks, and assignments, intellectually stimulating | Professional development opportunities |
| Dynamic environment | Attitudes | Probably | Fast-paced, broad level of knowledge, immediate action, works well under pressure | Babies’ health can change dramatically |
| Quality and Safety driven | Motivations | Probably | Follows work protocols, highly observant, attention to details, safety discussed | Takes precautions |

**APPENDIX B**

**AFFINITY DIAGRAM**

Graphical user interface, text, application

Description automatically generated

Graphical user interface, text, application

Description automatically generated

Graphical user interface, application

Description automatically generated

**APPENDIX C**

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