Nurses' Adherence to Safe Sleep Position Recommendation for Preterm and Term Neonate

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Abstract: Safe sleep position for infant and neonate can play an important role for prevention of sudden infant death syndrome. Aim of the study was to assess nurses' adherence to safe sleep position of preterm and term neonate. Setting this study was conducted at Neonatal Intensive Care Units (NICU) in menoufia university hospital, Shebin El-Kom Teaching Hospital and Elgameyaa Elshreyaa NICU center, in Shebin El-Kom- Menoufia Governorate. Design A descriptive design was used. Sampling: a convenience sample of 84 nurses was obtained from the selected Neonatal Intensive Care. Instrument: 1) A structured interview questionnaire to assess nurses adherence to recommended safe sleep position. Results. More than two third of nurses (70.9%) and (68%) in university and teaching hospitals select (supine and side) as recommended safe sleep position in neonatal intensive care unit, as well as, 73% of them disapproved cobedding of multiple in NICU, also there no discharge plane for parent about appropriate safe sleep position. Conclusions majority of nurses select (supine and side) as recommended safe sleep position for premature and full term infant. Also they disapproved cobedding of multiple in NICU, in addition, less than half of nurses didn't advice parent about recommended safe sleep position after discharge. Recommendation: In-service training education programs are needed to upgrade nurses' knowledge and practices about recommended safe sleep position

Keywords: Nurses adherence, Safe sleep, Preterm, Term Neonate.

1. INTRODUCTION

Sudden infant death syndrome (SIDS) is the third cause of infant death, it causes about 4000 death annually in United States. There is a relationship between sudden infant death syndrome and prone sleeping position[1].Safe sleep position for infant and neonate can play an important role for prevention on of most risk complication sudden infant death syndrome, so it consider one of important concern for health care provider and parent [2.]

The risk for sudden infant death syndrome is greater with hospitalized infants who admitted neonatal intensive care units. In addition, low birth weight and preterm infant is greater risk than that for full-term infant, the preterm less than 37 week of gestation is more exposed 4 times than full-term infant. Also, low socioeconomic stander, in adequate prenatal care, exposed to nicotine during intrauterine and lake of knowledge about safe sleep position are increased risk for sudden infant death syndrome[3]. It consider that prone or side laying sleep positions increases risk for sudden infant death syndrome six times more for premature infants than term infants [4.]

Some health care provider adopted and recommending prone sleep position[5]. Also, some caregivers, including parents, relatives, child care providers, continue to use unsafe sleep environment such as smoke exposure, infant bed sharing, and soft bedding such as blankets, pillows[6].

The American Academy Of Pediatric recommended the following measures for safe sleep environment" includes placing newborn infant in supine sleep position on a mattress with fitted sheets, encourage breastfeeding, avoid bed sharing between twines, avoid soft objects in the crib, avoid loose bedding, using pacifier, prevention of overheating, and avoid using of swings or seats to sleep in the hospital and home[7].

The United States sustained declines in the number of sleep related deaths up to 50% by promoted backs sleeping (National Institute of Child Health And Human Development[8]. Premature infants should be placed in safe sleep position before discharge from the (NICU), and care giver should receive specific instruction about appropriate sleep position that reduces the risk factors for sudden infant death syndrome[2, 9]. Establish a safe sleep environment in the hospital setting and in the home is important to prevent and reduce risk sleep-related deaths.

HealthCare provider who work with infants, and children act as role models for implementation all the recommendation for safe sleep position, "the hospital setting provides an opportunity for health care workers to model risk reduction behaviors" [10] . All healthcare providers, especially nurses, should receive appropriate education and training on a safe sleep environment and safe sleep position, which reduce risk for sudden infant death syndrome[11]. Neonatal intensive care units and pediatric units should also have written policies to provide nursing staff with evidence-based practices information on a safe sleep environment. Also this recommendation should typically introduced to parents by nurses before discharge[12,13,14] .

2. AIM OF THE STUDY

The aim of this study was to assess nurses' adherence to safe sleep position of preterm and term neonates.

2.1-Research Question:

-What are neonatal safe sleep positions?

-Do nurses follow recommended safe sleep position for preterm and term neonate?

-Were nurses advice parent about safe sleep position post hospitalization?

2.2-Operational Definition:

-Safe sleep: it operationally defined as the supine sleep position in which place neonates on back

-Sudden Infant Death Syndrome (SIDS) is "the sudden and unexpected death of an infant under one year of age

3. SUBJECTS AND METHOD

3.1-Research design:-

A descriptive design was used.

3.2-Settings:-

This study was conducted at Neonatal intensive care units in Menoufia Governorate: NICUs AT (Menoufia university hospital and Shebin El- kom Teaching Hospital. NICU AT Elgameyaa Elshareyaa private center.

3.3-Sample:-

A convenience sample of 84 staff nurses was obtained from the selected NICUs in Menoufia Governorate, Egypt. (31 nurses from Menoufia university hospitals, 29 nurses from Shebin Elkom teaching hospital and 24 nurses from Elgameyaa Elshareyaa NICU center).

Inclusion Criteria

-Nurses provide care for preterm and full term infant at NICU

-Nurses who had Experience more than one year in neonatal intensive care unit

3.4-Instrument of Data Collection:

One instrument was used to assess nurse's adherence to recommended safe sleep position at NICU. It was developed by [12] and modified by the researcher after reviewing related literature, it consist the following parts.

a-Part one:

Social characteristics of nurses: It included questions about the age and sex, level of education, years of experience.

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b- Part two:

A questionnaire about safe sleep position: it contain 16 question about: Best sleep position for preterm infants, reason if selected prone position , rational for other position, Typical sleep position(s) of premature infants in the NICU, When should premature infants begin to sleep supine , cobedding of multiples practiced in NICU, written policy on cobedding multiples , opinion on cobedding multiples in the NICU ,reason for approved cobedding, reason for disapproved cobedding, Typical sleep position of term infants in NICU, prone in certain cases for full term infant ,reason for prone position for term infant, instructions that was given to parents about infant sleep position after discharge , a policy on infant sleep positioning in the unit , use written discharge instructions in the unit .

3.5-Data Collection Procedure

- Study period: Data collection was started on the first of December 2016 and lasted until April 2017.

- Approval: an official permission to carry out the study was obtained from the responsible authorities; faculty of Nursing, Menoufia University by the researcher to the administrators of the of study setting.

- Ethical Consideration**:-**An official permission was obtained from the directors of (NICU) studied setting after submitting official letters from Faculty of Nursing about the purpose of the study. Protection of nurse rights, oral consent was obtained from the participant to share in the study. The researcher initially introduce herself to all participants, they was informed about aim of the study and what was expected , each nurse was notified about the right to refused to participated in the study before taking her verbal consent.

- Validity: instrument were reviewed and tested for content validity by 3 pediatric nursing   professor and medical experts.

- Reliability: the internal consistency of the questionnaires was calculated using Cronbach's co-efficiency alpha. Test retest was used, the Cronbach's of alpha of the questionnaire was ($\alpha = 0.90$) indicate good reliability.

- Pilot study: - A pilot study was carried out on 10 nurses to assess the clarity, feasibility, of the study tools, and the time needed to fill each tool. The necessary modifications were done as revealed from the pilot study. The sample of pilot study was excluded from the total sample to assure the stability of the results**.**

- This study was conducted 2 days per week at afternoon shift.

- The time taken for every questionnaire to be completed was about 20-30 minutes nurses were provided with information about the purpose of the study before data collection. Nurses who accepted to participate in the study were interviewed, nurses were individually interviewed to fill the data collection instrument about preterm and term sleep position in NICU. Data collection for each nurse lasted about15-20 minutes.

4. DATA ANALYSIS

Data was coded and transformed into specially designed form to be suitable for computer entry process. Data was entered and analyzed by using SPSS (Statistical Package for Social Science) version 22. Quantitative data were presented by mean (X) and standard deviation (SD). It was analyzed using ANOVA test for normally distributed quantitative variables to measure mean and standard deviation.   Qualitative data were presented in the form of frequency distribution tables, number and percentage. It was analyzed by chi-square (χ2) test

5. RESULTS

Table (1): it shows social characteristics of studied nurses. The mean age of nurses in Menoufia university hospital, Shebin El kom Teaching Hospital. And Elgameyaa Elshareyaa NICU .was (27.45±6.3; 29.72±3.9; 24.2±4.2) respectively, regards level of education   near half of nurses (41.6 %) had a diploma degree

Figure (1): it shows years of experience in NICU of studied nurses : it reflects that majority of nurses (87.5%) had less than 2 years of experience in Elgameyaa Elshareyaa NICU

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Table (2): Clarifies reported sleep position for preterm neonate. This result represents. That the (70.9%) and (68%) in university and teaching hospitals select supine and side as recommended safe sleep position. Also there was statistical significant regarding typical sleep position for premature infant.

Table (3): it shows that cobedding of multiples in NICU. There was no statistical significant difference between three NICU regarding co bedding practices. Also the majority 73% dis approved cobedding .

Table (4): it reported sleep position for term neonate. This study represents. That the majority of nurses in Menoufia university hospital, Shebin Elkom Teaching Hospital (77.4%,75.9%) respectively used side and supine position compared to 33.3 % in Elgameyaa Elshareyaa NICU. Also, there was statistical significant difference between three NICUs regarding using prone position in certain cases.

Table (5): it shows discharge plane of recommended sleep position. It reflect that, 32.3% & 48.2% of nurses in Menoufia university hospital & Shebin Elkom teaching hospital NICUs instruct parent about using supine position as recommended safe sleep position, meanwhile 12.5% of studied nurses in Elgameyaa Elshareyaa NICU instruct parent about safe sleep position.

Table (1): Social Characteristics of Studied Nurses.

Characteristics of Studied Nurses	Hospitals name				ANOVAs
	Menoufia university N=31	Shebin Elkom Teaching N=29	Elgameyaa Elshareyaa N=24	Total N==84	
Age	27.45±6.3	29.72±3.9	24.2±4.2		8.09*
Education Diploma degree	7 22.5	12 41.4	16 66.6	35 41.	$X^2$11.07 .02*
Associate degree	13 42	10 34.5	5 20.8	28 33.4	
Bachelor degree	11 35.5	7 24.1	3 12.5	21 25	

NB:*p< 0.05
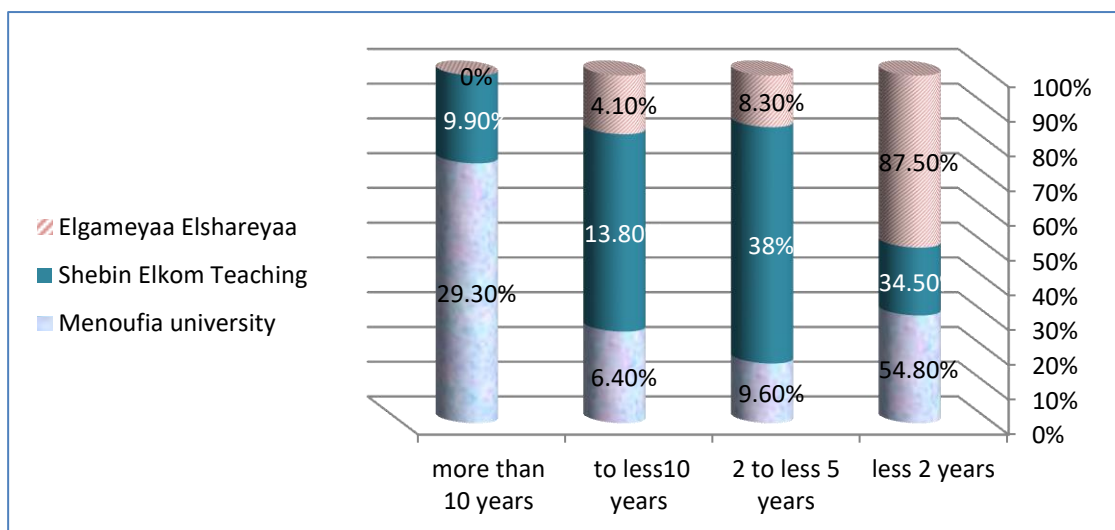
Figure (1): Years of Experience in NICUs of Studied Nurses

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Table (2): Reported Sleep Position of Preterm Neonate

Recommended sleep position	Hospitals name								X^2	P Value
	Menoufia university		Shebin Elkom Teaching		Elgameyaa Elshareyaa		Total			
	N=31 100 %		N=29 100%		N=24 100 %		N=84	100 %		
The Best Sleep Position For preterm neonate									16.9	.03*
• Supine	4	12.9	4	13.7	3	12.5	11	13		
• Prone	2	6.4	1	3.4	1	4.1	4	4.7		
• Side	3	9.6	4	13.7	10	41.6	17	20.2		
• Side or supine	22	70.9	20	68	8	25.8	50	59.5		
• Side or prone	0	0.0	0	0.0	2	8.3	2	2.3		
Reason for selected prone									50.8	.001*
• Improved oxygenation	3	9.6	4	13.7	0	0	7	8.3		
• Feeding tolerance	1	3.2	0	0.0	5	20.8	6	7.1		
• Comfort of breathing	3	9.6	1	3.4	2	8.3	6	7.1		
• Developmental	2	6.4	1	3.4	4	16.6	7	8.3		
• Less apnea	1	3.2	0	0	10	41.6	11	13		
• Improved respiratory' mechanics	3	9.64	1	3.4	1	4.1	5	5.95		
• Other(abdominal distention)	18	58	22	75.86	2	8.3	42	50		
Typical sleep position(s) of preterm neonate used in the NICU									17.50	.02*
• Supine	5	16.1	1	3.4	4	16.6	10	11.90		
• Prone	3	9.6	4	13.7	3	12.5	10	11.90		
• Side	0	0	2	6.2	6	25	8	9.52		
• Side or supine	23	74.1	22	75.86	10	41.6	55	65.4		
• Side or prone	0	0	0	0	1	41	1	1.1		
Best time for preterm neonate begin to sleep supine • Anytime with proper positioning	29	93.5	27	93.1	9	37.5	65	77.3	38.65	.001*
• Between 34 to 36 weeks	0	0.0	0	0.0	2	8.3	2	2.3		
• After 37 weeks	0	0.0	0	0.0	7	29.1	7	8.3		
• When placed in open crib, maintaining temperature	0	0.0	0	0.0	1	4.1	1	1.1		
• When good head control is developed	2	6.45	1	3.4	2	8.3	5	5.9		
• When weight reaches 1800 grams	0	0.0	0	0.0	2	8.3	2	2.3		
• Other	0	0.0	1	3.4	1	4.1	2	2.3		
Total	31	100	29	100	24	100	84	100		

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Table (3): Cobedding of Multiples in NICU

Items	Hospitals name							X^2	P Valve
	Menoufia university N=31 100 %		Shebin Elkom Teaching N=29 100%		Elgameyaa Elshareyaa N=24 100 %		total N=84 100 %			
Cobedding of multiples practiced in your NICU • Yes	3	9.6	4	13.7	3	12.5	10	11.9	.235	.8ns
• No	28	90.3	25	86.2	21	87.5	74	88.1		
NICU have a written policy on cobedding multiples • Yes	0	0.0	0	0.0	5	20.8	5	5.9		
• . No	27	87.1	28	96.5	18	75	73	86.9	15.494	.004*
• . Don't know	4	12.9	1	3.5	1	4.1	6	7.1		
Nurses opinion on cobedding multiples in the NICU • Approve	26	83.8	24	82.7	23	95.8	73	86.9	2.370	.30ns
• Disapprove	5	16.2	5	17.3	1	4.2	11	13.1		
Reasons for approve of cobedding, • Calming/comforting for infants	10	32.2	13	44.8	16	66.6	39	46.4	8.953	.06ns
• Most parents will cobed infants at home	4	12.9	3	10.3	4	16.6	11	13.1		
• Other	17	54.8	13	44.8	4	16.6	34	40.5		
Reasons for disapprove of cobedding, • Difficult to provide care	4	12.9	4	13.7	4	16.6	14	16.7	6.880	
• Increases risk for SIDS	0	0.0	0	0.0	1	4.1	1	1.1		.5ns
• Increased risk for infection	15	48.3	1	3.5	13	54.1	40	47.6		
• Errors (medication, equipment, feeding)	9	29.1	7	24.1	2	8.3	18	21.4		
• parents didn't prefer	3	9.6	4	13.7	4	16.6	11	13.2		
Total	31	100	29	100	24	100	84	100		

NB: **p< 0.001*p< 0.05   : [ns] p>0.05

Table (4): Reported Sleep Position for Term Neonate

Recommended sleep position	Hospitals name							X^2	P Value
	Menoufia university N=31 100 %		Shebin Elkom Teaching N=29 100%		Elgameyaa Elshareyaa N=24 100 %		total N=84 100 %			
Typical sleep position of term neonate used in NICU										24.48	.005**
• Supine	5	16.2	1	3.5	2	8.3	8	9.5		
• Prone	0	0.0	0	0.0	1	4.1	1	4.1		
• Side	0	0.0	2	6.9	4	16.7	6	25		
• Side or supine	24	77.4	22	75.9	8	33.3	54	64.3		
• Side or prone	0	0.0	0	0.0	2	8.3	2	2.4		
• All position	2	6.4	4	13.8	7	29.1	13	15.5		
Should term neonate be placed prone for sleep in certain cases?										7.171	p.02*
• Yes	10	32.2	11	37.9	16	66.7	37	44.1		
• No	21	67.8	18	62.1	8	33.3	47	55.9		
If answered yes to question 12, choose any of the following reasons:										8.753	P .5ns
• Reflux	3	30	4	36.4	4	25	11	29.7		
• Respiratory distress	0	0.0	0	0.0	3	18.75	2	5.40		
• Spinal defects	4	40	1	9	4	25	9	24.3		
• While awake	0	0.0	2	18.2	2	12.5	5	13.5		
• Other_	3	30	4	36.4	3	18.75	10	27.1		
Total	31	100	29	100	24	100	84	100		

NB: **p< 0.001*p< 0.05   : ns p>0.05

Table (5): Discharge Plane For Parent About Recommended Sleep Position

	Hospitals name								X^2	P Value
	Menoufia university N=31 100 %		Shebin Elkom Teaching N=29 100%		Elgameyaa Elshareyaa N=24 100 %		Total N=8 100 %			
Instructions that you give to parents about infant sleep position after discharge? • Always place on supine	10	32.2	14	48.2	3	12.5	27	32.1	43.127	.00**
• Back or side	15	48.3	11	37.9	1	4.1	27	32.1		
• most comfortable sleeping position	4	12.9	3	10.3	5	20.8	12	14.2		
• Side with positioning rolls	0	0.0	1	3.5	10	41.6	11	13.2		
• other instructions	2	6.4	0	0.0	5	20.8	7	8.3		

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Does your unit have a policy on infant sleep positioning? • Yes	19	61.3	7	24.1	3	12.5	29	34.5	17.807	.001**
• No	4	12.9	12	41.4	12	50	28	33.4		
• Don't know	8	25.8	10	34.5	9	37.5	27	32.1		
Do you use written discharge instructions ns for infant sleep positioning on your unit? • a. Yes	1	3.22	1	3.5	8	33.3	10	11.9	16.823	.002**
• No	27	87.1	24	82.8	16	66.7	67	79.8		
• Don't know	3	9.7	4	13.8	0	0.0	7	8.3		
Total	31	100	29	100	24	100	84	100		

NB: **p< 0.001

6. DISCUSSION

Sudden infant death syndrome (SIDS) can be prevented by adopting safe sleep position recommendation for infant and neonate. Health care professional play an important role for prevent sudden infant death syndrome by following this recommendation[15],this study was done to assess nurses assess nurses' adherence to   safe sleep position of preterm and term neonate.

Regarding characteristics of studied nurses in the present study, it was noted that the mean age of studied nurses in Menoufia University hospital was 27.45±6.3. Also, the mean age in Teaching hospital was 29.7±3.9. While in Elghmeyaa Elshareyaa was 24.4±4.2. This reflect the nurses in Elghmeyaa Elshareyaa was younger age instead of the other two hospital, this can related to they deal with newly graduate nurses as additional work.

Regarding years of experience in NICU. The current study shows that the 29.3% of nurses in Menoufia University hospital had more than 10 years of experience. Also 38% of nurses in Teaching hospital had 2 to 5 years of experience instead of 87.5% in Elghmeyaa Elshareyaa had less than 2 years of experience.

Regarding nurses reported to recommended sleep position of preterm neonate. The current study revealed that only 11% of the three hospitals used supine position as best sleep position for preterm neonate instead of 50% use side& supine. Also, less than 5% selected prone as best sleep position, which reflect nurses didn't adhere to recommended sleep position guideline, this study come in agreement with[16] who reported that more than three quarter of nurses used side lying & supine as perfect sleep position. Also,[17] found that nurses had a knowledge about AAP recommendations of safe sleep position and few areas of knowledge deficit were identified. While, [12] found that 65% of studied nurses select prone as best sleep for preterm infant.

The reason of selected prone, the current study found that more than half of studied nurses in Menoufia university hospital 58% and more than three quarter 75.8% of Teaching hospital used prone for abdominal distention instead of only 8.3% in Elghmeyaa Elshareyaa. This reflect variation between three hospitals in care provide and guideline line followed, this study come in agreement with [18] who mention nurses used prone for improve air way problem .

In relation to the time of preterm neonate begin to sleep supine position. The current study shows that 93.5% Menoufia university hospital and Teaching hospital use it at any time with proper position. This indicates unawareness about important of using supine as safe sleep position.

The recommended sleep position for term infant. The current study showed that majority 77.4% in Menoufia university hospital and 75.9% Teaching hospital use supine and side as atypical sleep position for full term infant instead of 33.35 of Elghmeyaa Elshareyaa, which reflect that deficit in knowledge regarding sleep position , this study come in agreement with[19] who mention that more than half of nurse use supine position as best sleep position. Also, [2] found that 67% of nurses use supine position as sleep position, while , [20] stated that 63.6% of nurses recommended side position during the day and 74.1% at night, also [21] reported that significant increase in nurses knowledge regarding safe sleep position recommendation.

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For using prone position in certain cases. The present study revealed that less than 15% of three hospitals used prone in certain cases and define their reason. In Menoufia university hospital 40% used prone position for respiratory distress and 30% for reflux. In Teaching hospital 36.4% used prone for reflux and abdominal distention, while Elghmeyaa Elshareyaa 25% for reflux and 18.75% for abdominal distention, this reflect that most of nurses had the same idea about the benefit of prone position, this study come in agreement with [12] who reported that the most frequent rational for using prone position was reflux and upper air way anomalies

Cobedding of multiples in NICU, the current study showed that majority of Menoufia university hospital, Teaching hospital and Elghmeyaa Elshareyaa (90.3%; 86.2; 74.8) respectively didn't co bedding of multiples in NICU. Also, 86.9% of total three hospitals didn't have policy of cobedding, which indicate their no specific guideline about co bedding. This study come in Agreement with [22] they mention that there is no effectiveness of cobedding for preterm twins in the neonatal nursery in reducing morbidities and promoting growth and neurodevelopment.

Discharge plane of recommended sleep position, the present study revealed that 48.3 % in Menoufia university hospital instruct parent's about back and side as safe sleep position after discharge, Also, 48.2% in Teaching hospital instruct parent's about must place neonate in supine, while 41.6% of Elghmeyaa Elshareyaa instruct parent's about side with position role. This result indicate the three hospital didn't' had clear policy about international recommendation of safe sleep position. This study come in agreement with [23] who reported more than two third of parent was advice about safe sleep position and 42% told by nurses to place infant in supine position. Also [11] reported that parent and caregivers are very important member in care team , and must be aware safe sleep practices. In addition[24] reported that the importance post discharge plane for parent about safe sleep practices in the NICU.

6.1-Conclusions:

Based on the findings of this study, More than two third of nurses in Menoufia university hospital and teaching hospitals select supine and side as recommended safe sleep position for premature and full term infant. Also majority of nurse disapproved cobedding of multiple in NICU, in addition, less than half of nurses didn't advice parent about recommended safe sleep position after discharge.

6.2-Recommendation:

In-service training education programs are needed to upgrade nurses' knowledge and practices about recommended safe sleep position

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