The North West London Hospitals
NHS Trust

Northwick Park Nursing Dependency Scale and Care Needs Assessment

NPDS/NPDS-H and NPCNA resources are freely available but please acknowledge the originators in any publications

Further information and advice can be obtained from

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Background

Providing cost-effective rehabilitation depends on being able to match staff provision to the care and rehabilitation needs of the client group treated. It is therefore pertinent to have valid and reliable measures of patient dependency in terms of their needs for nursing and therapy staff time. Ultimately, however, for rehabilitation to be cost-efficient, we have to be able to demonstrate that the initial investment in rehabilitation is offset by long-term savings in cost of care in the community. We therefore need a direct measure of care needs and costs in the community.

Widely used global disability scores such as the Barthel Index and the Functional Independence measure (FIM) have been shown to correlate with care needs, but cannot be used to assess them directly as they do not measure the number of people needed to provide help for tasks or the time taken to complete them. They have recognised floor and ceiling effects: for example, at the dependent end of the scale they do not differentiate between the need for one or two carers. Similarly, at the opposite end of the scale, they do not identify the need for constant supervision of a patient who functions automatically at a basic level but has poor safety awareness and tends to wander.

The Northwick Park Dependency Scale (NPDS) and Care Needs Assessment (NPCNA) *have been developed to provide an assessment of care and nursing needs in rehabilitation setting, which translates directly into an assessment of care hours and costs of providing care in the community.*

Brief outline of the NPDS

In development since the 1990s, the NPDS is an ordinal scale, designed to assess dependency of patients in a rehabilitation setting, in terms of impact on nursing staff time.

- It takes account of the increased time taken to stand back and supervise while a patient undertakes a task for themselves, rather than simply doing it for them.
- It also allows for the extra time needed to communicate with patients who may have language or cognitive difficulties.

The tool is divided into two sections: Basic Care Needs and Special Nursing Needs.

- **The Basic Care Needs (BCN)** section *(range 0-65)* includes 12 items associated with activities of daily living such as washing, dressing, eating and drinking - also safety awareness, behaviour and communication.
    - Each item is rated on a scale of 0-5.
    - The cut-off points between levels are determined by the number of nurses required to help and the time taken to complete each task. (See example in Table 1)
- **The Special Nursing Needs (SNN)** section *(range 0-35)* contains seven specific care items which would normally need to be undertaken by a qualified nurse, or a specially trained carer. These are rated on a dichotomous scale of 0 or 5.

Summation of the Basic Care Needs and Special Nursing Needs scores provides a total NPDS score ranging from 0-100. Lower total scores represent greater independence.

Table 1: Example of an item in the NPDS

7. DRESSING (Includes putting on shoes , socks, tying laces , putting on splint or prosthesis)	
Description	**Dependency**
a) Able to dress independently	**0**
b) Needs help to set up only (eg laying out clothes) **or** c) Needs incidental help from 1 (eg just with shoes)	**1**
d) Needs help from 1, and takes <1/2 hr	**2**
e) Needs help from 1, and takes more than 1/2 hr	**3**
f) Needs help from 2, and takes <1/2 hr	**4**
g) Needs help from 2, and takes more than 1/2 hr	**5**

Use of the NPDS

The NPDS was first published in 1998(1) together with evidence for its reliability. Since then it has been taken up quite widely in the UK(2), and has been explored in other countries including Sweden and Australia.

- Individual ratings may be scored prior to admission to quantify needs in advance of a patient's arrival on the ward.
- During admission, the NPDS may be recorded serially to monitor improvement in independence,
- NPDS scores for the whole ward may be summated to assess case mix in relation to staffing levels.

Computer programme

- A simple computer programme for data entry is available.
- This is written in Microsoft Excel and is available to anyone who has the Microsoft Office software on a PC.
- The programme facilitates data entry and automatically produces a single summary sheet for ease of reference / filing.
- It also computes the trabsliation to the NPCNA

Further information and copies

The NPDS/NPDS-H and NPCNA are feely available for use without restriction. Please acknowledge the originators in any publications.

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Brief outline of the NPCNA

The Northwick Park Care Needs Assessment (NPCNA) provides an assessment of care needs in the community.
It is derived from the NPDS by applying an algorithm based on a set of validated `rules' or assumptions, together with a small additional set of 5 questions about the community setting (3)

The rules are based on common habit, for example:

- If a person requires help from two people to dress and takes less then ½ hour, the NPCNA would allocate 1/2 from two carers in the morning (to get dressed) and in the evening (to get undressed) (See example in Table 2)
- If the person requires help from one person to eat their meals, and takes less than 1/2 hour, the NPCNA would allocated 1/2 from one carer in the morning (for breakfast), at Midday (lunch) and in the evening (supper).

In this way the NPCNA builds up into a timetable of care needs throughout the day

Table 2: example of algorithm for calulation of care needs for dressing

DRESSING

(Includes putting on shoes , socks, tying laces , putting on splint or prosthesis)

	Description	Dependency	**Care needs**		
			No. People	Time	Times/ day
a)	Able to dress independently	**0**	0	0	0
b)	Needs help to set up only (eg laying out clothes)	**1**	1	15 mins	2
c)	Needs incidental help from 1,(eg just with shoes)	**1**	1	15 mins	2
d)	Needs help from 1, and takes < 1/2 hr	**2**	1	30 mins	2
e)	Needs help from 1, and takes more than 1/2 hr	**3**	1	1 hr	2
f)	Needs help from 2, and takes <1/2 hour	**4**	2	30 mins	2
g)	Needs help from 2, and takes more than 1/2 hr	**5**	2	1 hr	2

The NPCNA therefore provides an estimation of care needs in the community represented by:

1. An individualised care timetable detailing the times care would be required throughout the day and by how many carers (see page 4)
2. A calculation of the total approximate care hours required per week
3. The type of care package required to meet those care needs on the basis of the number of carers required at different times of the day or night.
4. An estimation of the weekly cost of care (see page 5)

The NPCNA was published together with evidence of reliability and validity in 1999 (3, 4). Since then it has been used in several studies to demonstrate the stability of long-term gains(5) and the cost-efficiency of rehabilitation(6)

NPCNA Timetable of care needs

The day is divided into six sections or `time slots' of 2-3 hours each (morning, mid-morning, midday, mid-afternoon, evening, bedtime) and the NPCNA algorithm assigns tasks to these sections. (See Table 3 for example)

Certain assumptions are made about the timing of tasks - for example:

- meals are timed in the `morning', `midday' and `evening' slots.
- bathing (if help is required) is allocated to the morning slot.

The NPCNA is therefore a generic scale designed to give comparable information about care needs, regardless of the level of care actually provided or any individualised pattern in the timing of tasks.

Table 3: Example of a timetable of care from the NPCNA

1st carer	Morning	Mid-morning	Mid-day	Mid-afternoon	Evening	Bed-time	Night-time
Bed transfers	0.25					0.25	
Stairs	0					0	
Toileting: bladder	0.25	0.25	0.25	0.25	0.25	0.25	
Toileting: bowels	0.5						1
Washing and grooming	0.5					0.5	
Bathing/showering	0.5						
Dressing	0.5					0.5	
Self care tasks	**2.5**	**0.25**	**0.25**	**0.25**	**0.25**	**1.5**	
Meal preparation	0.25		0.25		0.25		
Eating	0		0		0		
Drinking	0		0		0		
Enteral feeding							
Feeding	**0.25**	**0**	**0.25**	**0**	**0.25**	**0**	
Skin pressure relief							
Safety awareness	0.25	0.25	0.25	0.25	0.25	0.25	
Medication							
Miscellaneous							
Total care hours	3	0.5	0.75	0.5	0.75	1.75	
Restricted care hours	2	0.5	0.5	0.5	0.5	1	

Total Care Hours (TCH) and Restricted Care Hours (RCH)

The daily and weekly care hours are recorded in two ways.

The total weekly care hours (TCH) represents the simple summation of the care times allocated for each task in each time slot of the day. It does not allow for the fact that, in real life, many care tasks are undertaken simultaneously and therefore the total time taken to deliver a morning care programme may be very much less than simple the sum of the individual care tasks.

The restricted weekly care hours (RCH) overcomes this by setting a minimum of 30 minutes and a maximum of 2 hours in any one time slot of the day. This is because 30 minutes is the minimum allocation of time that can be bought from most care agencies, and 2 hours is the maximum length of time within the time slot before it overlaps with the next section.

Field-testing of the NPCNA in a variety of community settings suggests that the RCH provides a more realistic prediction of actual care needs or care provided in the community, than does the TCH which tends to over-estimate care. Thus the RCH is currently used for most practical purposes.

Table 4: Example of the NPCNA-estimated care costs

Daily	**1st carer**	**2nd carer**	**Total**
Total care hours	7.25	0	7.25
Restricted care hours	5	0	5

Weekly	**1st carer**	**2nd carer**	**Total**
Total care hours	50.75	0	50.75
Restricted care hours	35	0	35

					Range (£)	
1st carer				AVERAGE COST (£)	Min	Max
Daily care	Yes	7	Live in carer and 4 hrs cover daily	1004	894	1156
Incontinence	No			0	0	0
Constant supervision	No			0	0	0
Night-time intervention	No			0	0	0

2nd carer				AVERAGE COST (£)	Min	Max
Daily care	No			0	0	0
Incontinence	No			0	0	0
Night-time intervention	No			0	0	0

Care package				AVERAGE COST (£)	Min	Max
1st carer	Yes	7	Live in carer and 4 hrs cover daily	1004	894	1156
2nd carer	No	0		0	0	0
Waking night care	No			0	0	0
Skilled care	Yes		2 hours a week	30	24	36
Domestic care	Yes		4 hours a week	32	26	40
Total weekly cost of care				**1066**	**944**	**1232**

Brief outline of the NPDS-H

The Northwick Park Dependency Score–H (NPDS-H) is designed to provide a measure of dependency on nursing care in a rehabilitation setting and an estimation of the nursing provision and skill mix required to meet individual patient need (NPRNA).

The NPDS-H is an extension of the NPDS and NPCNA (NPCNA) incorporating additional nursing activities and timings that more closely reflect the care provided in a hospital rehabilitation setting. The principles of the tool remain unchanged, in that an ordinal scale is used to assess the dependency of patients in a rehabilitation setting, in terms of impact on nursing staff time.

The tool is used in exactly the same way as the NPDS/NPCNA by recording individual ratings prior to admission to quantify needs in advance of a patient's arrival on the ward and during admission, to monitor improvement in independence, or to gain collective information of the whole ward to assess case mix in relation to staffing levels and skill mix.

The tool is divided into four sections:

Basic Care Need (BCN)	– 12 nursing interventions
Special Nursing Needs (SNN)	– 7 nursing interventions
In-patient Assessment (IPA)	- 8 in-patient nursing interventions
Care Needs Assessment (CNA)	– 5 community based questions.

Basic Care Needs (BCN)

This section is broadly unchanged – there are a few areas where additional questions have been added – these normally further explore the frequency of the activity and the time of day that it is most likely to occur. The total score in the Basic Care Needs Section remaina unchanged and ranges from 0 – 65.

Special Nursing Needs (SNN)

This section has not been changed. The total score for this section ranges from 0 – 35.

In-patient Nursing Needs

The first questions in the In-patient nursing needs section are dichotomous variables without scores attached. The questions explore the need for highly skilled staff to meet the increased complexity of needs.
The remainder of the In-patient nursing needs section re-visits many of the SNN interventions in the form of ordinal scores to establish the level of intensity/complexity of the activity. Some additional interventions relevant to the in-patient setting have been included. The total score ranges from 0 –35

Care Needs Assessment

This section is unchanged.

Completion of the tools

All sections need to be completed

NPDS & NPDS-H Total Scores

Two scores can be obtained from the tool.

1. The integrity of the original NPDS has been maintained so this score can be obtained by summating the ordinal scores from Section 1 (Basic Care Needs) and Section 2 (Special Nursing Needs). The range of scores is 0 -100
2. Secondly an NPDS-H score can be obtained.Addition of Section 1 (Basic Care Needs), and Section 3 (In-patient Nursing Needs) scores provides the total NPDS-H score. The range of scores is 0 – 100

NB Scores from Section 4 are not included in the total scores but *must be* completed for all assessments to obtain accurate care hours.

Completing the NPDS-H

- The term "nurse" is used to describe the level of assistance needed to meet care needs. "Nurse" may refer to any individual that provides care interventions. Where the intervention is considered necessary to be performed by a Registered nurse RN indicates this, if the intervention requires rehabilitation knowledge and a certain level of competence but not necessarily a RN then the term rehabilitation/skilled carer is used.

- When choosing the most appropriate item for each question it is important to remember that help may be interpreted as either physical assistance, supervision or verbal prompting and should reflect the approximate time that is required.

- The term "assistance" refers to help from a person and not the use of devices. For example, if the patient is able to mobilise on their own but uses a stick or frame this would be "independent". Similarly, if they can brush their hair with a long handled hair brush and clean their teeth with an electric toothbrush this too would be "independent"

- All scores should be chosen based on a nurse performing the intervention, even if a relative/friend provides help for some or all of the time.

- If a relative/friend or another health professional (including a supernumerary student) is providing the second pair of hands this needs to be captured as two people performing the activity.

- If a qualified nurse is supervising a student performing the nursing activity then this would only be one nurse required (the patient is dependent on one person, the qualified nurse is only present to assess the student nurses competence)

- Set-up is defined as help given only at the beginning or end of an activity either to get them started or to assist with positioning items within reach - e.g. cutting up food or laying out clothes, carrying toiletries to washroom.

- Scores should reflect time taken to ensure understanding, allow for patient communication (e.g use of Etran, alphabet board), mobility and behavioural issues.

- If in doubt about which level to score - score the highest that applies.

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