ISRCTN12307968 https://doi.org/10.1186/ISRCTN12307968

Using the Safer Nursing Care Tool to identify nurse staffing requirements in hospitals

Submission date	**Recruitment status**	[X] Prospectively registered
25/05/2016	No longer recruiting	[X] Protocol
Registration date	**Overall study status**	[_] Statistical analysis plan
08/06/2016	Completed	[X] Results
Last Edited	**Condition category**	[_] Individual participant data
04/07/2024	Other	

Plain English summary of protocol

Background and study aims
Guidance on "safe staffing for nursing in adult inpatient wards in acute hospitals" from the National Institute for Health and Care Excellence (NICE) (the organisation that issues standards for the NHS), recommends a systematic approach to determining the staffing requirements of hospital wards. The recommended approach to setting the number of nurses employed in order to meet patient needs 24 hours per day, seven days per week, is based on one toolkit endorsed by NICE used to assess average patient needs on a particular ward: the Safer Nursing Care Tool (SNCT). This tool is widely used within the NHS. In this study on acute medical wards in 4 hospitals the aim is to determine the feasibility, likely costs and consequences of using the SNCT to set safe nurse staff levels.

Who can participate?
Wards providing inpatient care for 7 days per week

What does the study involve?
The SNCT tool is used to assess daily staffing requirements for all patients in each ward over a period of 1 year. In a sub-sample multiple daily observations are undertaken periodically in order to assess variation throughout the day. For each shift the nurse in charge is asked to complete a brief report of perceived staffing adequacy, reports of significant delayed or missed care, estimated staffing requirement (professional judgment), and reasons for any mismatch between available and required staffing. These nurse-reported assessments of staffing adequacy provide a way to assess the SNCT accuracy. In order to assess the validity of SNCT staffing predictions, the perception of staffing adequacy is measured using a 'micro survey' for the nurse in charge on each shift. The nurse in charge reports staffing adequacy based on three items: ("on this shift, do you have enough nurses to provide quality patient care"); reports of significant delayed or missed care ("on this shift was necessary nursing care left undone because staff lacked time to complete it"); and estimated staffing requirement (estimated number of RNs and HCSW required).

What are the possible benefits and risks of participating?
As this study only involves the use of data there are no risks to individuals from changes in care. Daily SNCT assessments on patients are undertaken by nurses in charge of the shift. Using the

supporting material developed for the SNCT, all nurses making assessments are trained in the use of the tool. All data gathered (SNCT and staffing adequacy assessments) is anonymous and no personal nurse or patient identifiers are transferred to the research team.

Where is the study run from?
1. Poole Hospital NHS Foundation Trust (UK)
2. Portsmouth Hospitals NHS Trust (UK)
3. Royal Marsden NHS Foundation Trust (UK)
4. University Hospital Southampton NHS Foundation Trust (UK)

When is the study starting and how long is it expected to run for?
May 2016 to October 2018

Who is funding the study?
Health Services and Delivery Research Programme (UK)

Who is the main contact?
Prof. Peter Griffiths
Peter.Griffiths@soton.ac.uk

Contact information

Type(s)
Scientific

Contact name
Prof Peter Griffiths

ORCID ID
http://orcid.org/0000-0003-2439-2857

Contact details
University of Southampton
University Road
Southampton
United Kingdom
SO17 1BJ
+44 (0)2380 597877
Peter.Griffiths@soton.ac.uk

Additional identifiers

EudraCT/CTIS number
Nil known

IRAS number

ClinicalTrials.gov number
Nil known

Secondary identifying numbers
HS&DR 14/194/21

Study information

Scientific Title
Identifying nurse staffing requirements using the Safer Nursing Care Tool: modelling the costs and consequences of real world application to address variation in patient need on hospital wards

Acronym
INSTRUMENT (Identifying Nurse STaffing ReqUireMENts in hospiTals)

Study objectives
NICE guidance “safe staffing for nursing in adult inpatient wards in acute hospitals” recommends a systematic approach to determining the staffing requirements of hospital wards. The recommended approach to setting the number of nurses employed in order to meet patient needs 24 hours per day, seven days per week, is based on the use of an endorsed toolkit to assess average patient needs on a particular ward. The only toolkit currently endorsed by NICE, which is widely used within the NHS, is the Safer Nursing Care Tool (SNCT). In this study we aim to determine the feasibility, likely costs and consequences of using the SNCT to setting safe nurse staff levels.

Translating patient dependency and acuity into staffing requirements, the SNCT sets the ward establishment based upon staff required to meet the average care requirements, with allowances for sick leave, holidays and study leave. However, we do not know whether this approach gives an efficient or effective solution to ward staffing, given fluctuations in patient need. It is unclear how often the average staffing levels match daily requirements or how often wards are over or under staffed when these averages are used to plan staffing. Modelling studies suggest that staffing based on average requirements can lead to critical shortfalls in the face of variable need. International studies indicate considerable daily variation in workload intensity for nurses and empirical evidence suggests that substantial mismatches between workload and available staff are common even where formal staffing methodologies are in use. However, we have no equivalent data from the UK to determine the efficiency or efficacy of the SNCT tool to set the ward establishment based on patient need.

Ethics approval required
Old ethics approval format

Ethics approval(s)
University of Southampton Ethics Committee, 18/04/2016, ethics ID:18809

Study design
Observational study

Primary study design
Observational

Secondary study design

Study setting(s)
Hospital

Study type(s)
Other

Participant information sheet
Not available in web format, please use contact details to request a participant information sheet

Health condition(s) or problem(s) studied
Adult inpatient general wards in four acute care NHS hospital trusts

Interventions
In this study we will use the SNCT tool to assess acuity/dependency for all patients in each ward daily, over a period of 1 year. In a sub-sample we will undertake multiple daily observations periodically in order to assess variation throughout the day. For each shift we will also ask the nurse in charge to complete a brief report of perceived staffing adequacy based on a single item from our RN4CAST survey, reports of significant delayed or missed care, estimated staffing requirement (professional judgement), and reasons for any mismatch between available and required staffing. These nurse-reported assessments of staffing adequacy provide an external criteria for assessing SNCT accuracy and have been validated by relationships with patient care outcomes.

SNCT scores are designed to identify the required nursing establishment (employed workforce in WTE). From this, the daily staffing requirement can be inferred in nursing hours per day (NHPD). We will compare the establishment and daily NHPD as predicted using the SNCT scores with the actual establishment and staffing deployed on the ward. In order to assess whether the tool accurately predicts required staffing we will assess associations between deviations from planned staffing and measures of staffing adequacy. Using mathematical models we will attempt to identify if there is an optimal approach to planning ward staffing using the tool and whether this varies across settings.
Using a range of criteria, we will determine the proportion of days that wards are critically under /over staffed if staffing/establishment were based on a range of policies for using the SNCT results. The policies to be considered will include:
1. Setting staffing to meet the mean patient acuity/dependency determined from 20 days observation (the SNCT standard approach)
2. Staffing to meet the maximum commonly observed acuity/dependency observed during baseline observation (maximum staffing approach)
3. A flexible staffing approach with ward establishments set to meet the minimum commonly observed dependency from baseline (and deficits filled by temporary staffing)
4. Other staffing policies, as determined by an expert/patient and public reference group

We will assess the extent to which adding allowances for factors not incorporated into the tool (e.g. variability in admissions/discharge rates) changes daily staffing requirements.
Critical understaffing will be defined as 25% or 8 nursing hours per shift below the required level or a patient to nurse ratio exceeding 8:1 (whichever is reached first), as described in NICE safe staffing guidance.
Using evidence on potential adverse outcomes associated with understaffing derived from robust observational studies, we will create dynamic models of the costs and consequences of the staffing policies for meeting the fluctuations in demand considering:

1. Establishment costs
2. Availability and costs of bank/agency staff to be employed to fill critical staffing deficits
3. Opportunities to redeploy staff from overstaffed wards to understaffed wards
4. Relative efficiency of permanent vs temporary staff
5. Adverse outcomes associated with residual staffing variation

In a sub-sample we will undertake multiple daily observations (three times per day over one week) in order to assess within day variation measures.

In order to assess the validity of SNCT staffing predictions, we will measure the perception of staffing adequacy using a 'micro survey' for the nurse in charge on each shift to assess professional judgement. Professional judgement remains a leading alternative approach to determining nurse staffing requirements and is seen as an essential adjunct to measurement systems, as recognised by NICE. The nurse in charge will report staffing adequacy, based on a single item of the RN4CAST survey ("on this shift, do you have enough nurses to provide quality patient care"); reports of significant delayed or missed care ("on this shift was necessary nursing care left undone because staff lacked time to complete it"); and estimated staffing requirement (estimated number of RNs and HCSW required). These nurse-reported assessments of staffing adequacy provide an external criteria for assessing SNCT accuracy and have been validated by relationships with patient care outcomes.

Intervention Type
Other

Primary outcome measure
1. Associations between deviations from required staffing (measured by the SNCT) and measures of staffing adequacy (nurse-reported)

Secondary outcome measures
1. Perception of staffing adequacy
2. Proportion of days that wards are critically under/over staffed based on 4 policies for using SNCT results (SNCT standard approach; maximum staffing approach; flexible staffing approach; policies established by expert patient/public reference groups)

Overall study start date
01/05/2016

Completion date
01/10/2018

Eligibility

Key inclusion criteria
1. Wards providing inpatient care for 7 days per week
2. Adult somatic health population/medical or surgical
3. Appropriate for SNCT according to the SNCT resource pack

Participant type(s)
Other

Age group

Adult

Sex
Both

Target number of participants
Approximately 20 eligible wards (general medical/surgical) with approximately 10 members of staff who can act as nurse in charge each [200 nurses] will make 2 returns of data per day over 1 year in 4 Trusts

Total final enrolment
81

Key exclusion criteria
1. Wards that are assessed as providing highly specialised services (e.g. maternity, paediatric units) with atypical staffing requirements (as determined by local chief investigator, with documented reason)
2. Day case, weekday wards
3. ICU

Date of first enrolment
01/01/2017

Date of final enrolment
31/12/2017

Locations

Countries of recruitment
England

United Kingdom

Study participating centre
Poole Hospital NHS Foundation Trust
Longfleet Road
Poole, Dorset
United Kingdom
BH15 2JB

Study participating centre
Portsmouth Hospitals NHS Trust
Southwick Hill Road
Cosham
United Kingdom
PO6 3LY

Study participating centre
Royal Marsden NHS Foundation Trust
Fulham Road
London
United Kingdom
SW3 6JJ

Study participating centre
University Hospital Southampton NHS Foundation Trust
Tremona Road
Southampton
United Kingdom
SO16 6YD

Sponsor information

Organisation
The University of Southampton (UK)

Sponsor details
University Road
Southampton
England
United Kingdom
SO17 1BJ
+44 (0)2380 595058
D.Galpin@soton.ac.uk

Sponsor type
University/education

Website
http://www.southampton.ac.uk

ROR
https://ror.org/01ryk1543

Funder(s)

Funder type
Government

Funder Name
Health Services and Delivery Research Programme

Alternative Name(s)
Health Services and Delivery Research (HS&DR) Programme, NIHR Health Services and Delivery Research (HS&DR) Programme, NIHR Health Services and Delivery Research Programme, HS&DR Programme, HS&DR

Funding Body Type
Government organisation

Funding Body Subtype
National government

Location
United Kingdom

Results and Publications

Publication and dissemination plan
A range of dissemination approaches will be used to target different audiences for the research. Key outputs include:

1. A final research report for the NIHR journals library detailing all the work undertaken which will include supporting technical appendices, an abstract and an executive summary focused on results/findings and suitable for use separately from the report as a briefing for NHS managers.

2. At least three academic papers and publish these open access, in high impact journals. The focus of these will be:
2.1. Variation in SNCT acuity dependency by time of day and day of week
2.2. Variation in staffing/staffing adequacy between wards/specialities and over time
2.3. The costs/consequences of different staffing policies.

Intention to publish date
01/05/2019

Individual participant data (IPD) sharing plan
The datasets generated during and/or analysed during the current study are not expected to be made available

IPD sharing plan summary
Not expected to be made available

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Basic results		02/10/2019	03/10/2019	No	No
Other publications	literature review	01/09/2019	03/10/2019	Yes	No

Results article	results	17/05/2020	22/06/2020	Yes	No
Results article	results	30/06/2020	06/07/2020	Yes	No
Results article	results	01/12/2020	28/07/2020	Yes	No
Other publications	simulation and economic modelling results	11/02/2021	08/03/2021	Yes	No
Protocol file	version 1	13/01/2016	12/08/2022	No	No
Results article		15/05/2020	04/07/2024	Yes	No