Equality and Health Inequalities Assessment for

The Improving NIV care Project

1.	Name of Document/Policy:	Non-Invasive Ventilation and Health Inequalities Impact Assessment
2.	Name of Division and title of lead member of staff, including contact details	Megan Kirbyshire, Senior Project Manager megan.kirbyshire@nhs.net Service and System Transformation West of England AHSN
3.	Objectives of strategy/ policy/ plan/ procedure/ service	The need to improve NIV care is clear but an approach that consistently delivers improved practice has not been found. This project proposes monitoring both the delivery of care and outcome from NIV using 'live' information presented in time series charts rather than annual audit. The provision of 'live' performance feedback is likely to lead to more rapid improvement than the approach taken to date. The most common indication for acute NIV is COPD. Improving the outcomes of patients with COPD is a key priority within the NHSE Southwest Respiratory Network. The delivery of this project will work to support this priority given that NIV is a core treatment in patients admitted with an acute exacerbation of COPD; it has been demonstrated that using NIV improves outcomes and mortality rates in these patients. The purpose of *Improving NIV care* is to reduce mortality rates to 10% or lower for patients who require acute NIV. This will be achieved through the implementation of a regional standardised care bundle.
4.	Evidence and background information considered.	A series of national audits run by the British Thoracic Society (BTS) have shown progressively worsening outcomes from Non-Invasive Ventilation (NIV) delivered acutely in NHS hospitals. This resulted in a National Confidential Enquiry into the care of patients treated with NIV (NCEPOD 2017). The BTS developed quality standards for acute NIV (2018) as a result of this review. There has been a slight improvement in mortality rates in a further BTS audit published in 2019. Mortality rates however remain higher than in other countries. Prior to Covid-19, a group of NIV doctors, nurses and physiotherapists met to plan an improvement collaborative, however this proved unsuccessful due to a lack of project

		management support, ring-fenced time and administrative support. The West of England AHSN involvement will address these barriers. Other indications for NIV such as obesity, neuromuscular disease and chest wall deformity are not specifically mentioned but have been considered when describing the data in relation to NIV use in patients with COPD.
5.	Who will be affected by the strategy/ policy/ plan/ procedure/ service?	The project will impact patients who are admitted to hospital with acute Type II Respiratory Failure.

EHIA / How will the strategy, policy, plan, procedure and/or service impact on people?

How will the strategy, policy, plan, procedure and/or service impact on:-	Commenting on and assessing the Equality and Health Inequalities provisions. *For each protected characteristic describe how equality and health inequalities considerations have impacted on the content of the strategy/ policy/ plan/ procedure/ service*
6.1 Age For most purposes, the main categories are: • under 18; • between 18 and 65; and • over 65	Chronic respiratory diseases (CRDs) affect the airways and other structures of the lungs. Some of the most common are chronic obstructive pulmonary disease (COPD), asthma, occupational lung diseases and pulmonary hypertension. In addition to tobacco smoke, other risk factors include air pollution, occupational chemicals and dusts, and frequent lower respiratory infections during childhood. CRDs are not curable; however, various forms of treatment that help open the air passages and improve shortness of breath can help control symptoms and improve daily life for people living with these conditions[1]. One of these forms of treatment include non-invasive ventilation. Non-invasive ventilation can be used for any age group; however, it is frequently used for the management of acute respiratory failure (ARF) in frail, and often elderly patients (≥ 80 years), often in the context of a do-not-intubate order (DNI)[2]. One of the key findings from the last British Thoracic Society's audit was that an increased proportion of patients treated with acute non-invasive ventilation (NIV) had COPD, the indication with the strongest evidence[3]. The chronic nature of COPD and that it is often related to smoking means that it is more common in middle years and particularly older people. Most people receiving an initial diagnosis of COPD are over the age of 40[4]. Based upon the British Thoracic Society's audit, the average age for patients to receive NIV was 72 years old[5]. Paediatrics do receive NIV for other conditions. Paediatrics are out of scope of this project and are therefore not discussed in this document. The demographics and the outcomes of patients receiving NIV will be explored as part of the *Improving NIV care* project. Findings may influence project delivery with a potential additional focus on a specific demographic. In England, the percentage of people over the age of 65 is 51.8%. In comparison, Gloucestershire is 50.8%, BNSSG is 51.7% and BSW is 51%[6].

[1] Chronic respiratory diseases (who.int)
[2] Results of noninvasive ventilation in very old patients - PMC (nih.gov)
[3] Adult NIV Audit report 2019 (1).pdf
[4] British Lung Foundation COPD Statistics (online)
[5] Adult NIV Audit report 2019 (1).pdf
[6] Office for National Statistics, 2020, Median age of population for local authorities in the UK, mid-2001 to mid-2019 (online dataset)

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6.2 Persons with a disability as defined in the Equality Act 2010 Those with physical impairments, learning disability, sensory loss or impairment, mental health conditions, long-term medical conditions such as diabetes	(1) Many people with COPD may also have smoking-related comorbidities such as coronary heart disease, and systemic problems such as osteoporosis, cardiac failure and muscle wasting[7]. (2) Around 40% of people with depression and anxiety disorders also have a long-term physical health condition[8]. (3) Trials have also occurred to determine whether the mortality rate of patients with amyotrophic lateral sclerosis was affected by NIV care. Conclusions of this study were that there was a 26% reduction in the rate of death compared with non-NIV subjects[9]. Information used within bundle of care should, where at all possible, conform to the Accessible Information Standard. This aims to make sure that people who have a disability, impairment or sensory loss get information that they can access and understand, and any communication support that they need from health and care services. The Standard tells organisations how they should make sure that patients and service users, and their carers and parents, can access and understand the information they are given. Through *Improving NIV care*, the development of a patient-facing video will be explored. If successful, this video will be in lay language, with BSL and will be appropriate for patients with learning difficulties/disabilities. We plan to explore whether this video can be co-produced with the charitable sector and will seek PPI input. As this is outside of the scope of the project and is not in budget, this is subject to securing additional funding.
6.3 People of different genders	COPD, which is the leading indication for NIV treatment, is more prevalent in men than in women[10], (although this gap may be reducing, with increasing incidence in women). The incidence of COPD attributable to workplace environmental pollutants (including vapours, gases, dusts, fumes) is estimated to be higher for men (18.7% for men, 8.0% for women)[11]. However, nationally in 2019, 56% of the patients treated using NIV were women[12]. This does not correlate with a higher prevalence in men. The demographics and the outcomes of patients receiving NIV will be explored as part of the *Improving NIV care* project. Findings may influence project delivery with a potential additional focus on a specific demographic.

[7] NHS, 2012, An Outcomes Strategy for COPD and Asthma: NHS companion Document, 2012
[8] NHS, 2018, The Improving Access to Psychological Therapies (IAPT) Pathway for People with Long-term Physical Health Conditions and Medically Unexplained Symptoms
[9] Noninvasive Ventilation Use Is Associated with Better Survival in Amyotrophic Lateral Sclerosis - PMC (nih.gov)
[10] British Lung Foundation COPD statistics (online)
[11] Hutchings S, Rushton L, Sadhra S, et al, 2017, Estimation of the burden of chronic obstructive pulmonary disease due to occupation in Great Britain, Occupational and Environmental Medicine 2017;74:A114.
[12] Adult NIV Audit report 2019 (1).pdf

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6.4 People who are married or who have a civil partner.	N/A: This characteristic is not impacted by NIV or their care provision.
6.5 Women who are expecting a baby, who are on a break from work after having a baby, or who are breastfeeding.	Pregnancy is a relative contraindication to acute NIV due to the increased risk of aspiration. NIV is also delivered mostly to people who are no longer of child-bearing age. Pregnant patients will not be actively excluded if NIV treatment is considered to be clinically appropriate.
6.6 People of a different race, nationality, colour, culture or ethnic origin including non-English speakers, gypsies/travellers, migrant workers	Research from Asthma UK states that there are significantly higher rates of COPD in black and minority ethnic (BAME) groups in England and Wales. When subdivided into those born in the UK and those outside, there was a further divide. People from BAME groups born outside the UK had a lower incidence than those born in the UK, suggesting that second and third generation descendants of South Asian and Afro-Caribbean migrants are a group experiencing high rates of asthma incidence[13]. Similarly, research has also indicated that black people (in London) are less than half as likely as white people to have a diagnosis of COPD when age, sex, smoking, deprivation, and practice clustering considered. Diagnosis of COPD was less common in all non-white ethnic groups compared to white people[14]. Although the proportion of the regional population who cannot speak good English is typically lower than for England, there is potential to improve outcomes on some ethnic minority groups that do not have good spoken (and/or written) English. Cultural differences between ethnicities may also cause barriers to management, adherence and access which need to be considered. Impact is likely to be higher in urban areas (Bristol and Swindon) which have a higher proportion of the population that cannot speak English well, than rural areas. Information given should where at all possible account for people with poor English by: • Ensuring good access to translation services. • Seeking opportunities for use of digital technologies for translation.

[13] auk-health-inequalities-final.pdf (asthma.org.uk)
[14] Gilkes A, et al, 2016, Does COPD risk vary by ethnicity? A retrospective cross-sectional study International Journal of COPD 2016:11 739–746

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	This may require further investment and collaboration with commercial and third sector (charity) partners, to identify existing resources and potential for expanding the pool of languages covered. Local initiatives should further explore the proportions of people with poor English in their area and identify the most common primary languages. Census data for areas within the West of England AHSN region and for England as a whole, indicates the following ethnicity and language indicators: The proportion of the population identifying as Black and Minority ethnic is lower than the national average in all areas in the West of England except for Bristol – *Gloucestershire (4.6%), Bristol, (16.0%), North Somerset (2.7%), South Gloucestershire (5.0%) Swindon (10.2%), Wiltshire (3.4%), BaNES (5.4%) England (14.6%)* The proportion of the population whose ethnicity is not 'White UK is lower than the national average in all areas in the West of England except for Bristol' – *Gloucestershire (8.4%), Bristol (22.1%), North Somerset (5.9%), South Gloucestershire (8.1%), Swindon (15.4%), Wiltshire (6.6%), BaNES (9.9%) England (20.2%)* The proportion of the population who cannot speak English well or at all is lower than the national average in all areas in the West of England – *Gloucestershire (0.6%), Bristol (1.5%) North Somerset (0.4%), South Gloucestershire (0.5%), Swindon (1.1%), Wiltshire (0.4%), BaNES (0.5%) England (1.7%)*[15] The demographics and the outcomes of patients receiving NIV will be explored as part of the *Improving NIV care* project. Findings may influence project delivery with a potential additional focus on a specific demographic. The development of a patient-facing video will support communication of patients who have limited English.
6.7 People with a religion or belief or with no religion or belief.	N/A: This characteristic is not impacted by NIV or their care provision.

[15] Local Health - Public Health England - Indicators: maps, data and charts

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People who are attracted to other people: heterosexual, lesbian, gay, bisexual	N/A: This characteristic is not impacted by NIV or their care provision.
Health Inequality factors ***NB: (this may not be required for all strategies/policies – for instance if completing an EHIA for a staff policy, but consideration should be given where appropriate).***	
6.9 Consider any other groups and risk factors relevant to this strategy, policy, plan, procedure and/or service.	**Homeless people** Incidence of a diagnosis of COPD is higher in this population (4.9% compared to 1.9% in the general population). In addition, this population are twice as likely to have asthma than the general population[16]. Suggested causal factors include higher incidence of smoking (both nicotine and drugs) and environment (including traffic fumes, mould and pigeon droppings). Homeless people are more likely to be admitted to hospital with exacerbation, use an inhaler and contract influenza. Access to medical services and smoking cessation services is often problematic and a homeless person is less likely to have a personal management plan[17]. Finding a housing solution for this group remains the best opportunity improving health and reducing inequalities in this area; however, it is out the scope of this project, although admission to hospital is a potential opportunity for social services intervention. **People involved in the criminal justice system** People in or at risk of being in temporary detention, custody or secure and detained settings experience a disproportionately higher burden of illness (including infectious diseases, long term conditions and mental health problems) and poorer access to treatment and prevention programmes as well as problems with substance misuse (drugs, alcohol and tobacco)[18]. 34% of the UK prison population is aged 40 or above. The proportion of prisoners aged over 50 increased from 7% in 2002 to 17% in March 2020[19]. Creating better healthcare access within detention centres will undoubtedly prevent prisoners from becoming unwell enough to need NIV care, however, this is outside the scope of this project. **People with addictions and/or who use substances** Patients treated for opiate drug addiction have high asthma and COPD prevalence rates[20]. Heroin smokers experience a high and increasing burden of chronic respiratory symptoms and a decline in forced expiratory volume that exceeds the normal age-related

[16] Talking to homeless people about their breathing | Asthma + Lung UK (blf.org.uk)
[17] Groundswell Charity, 2020, Room to breathe report (online)
[18] NHS England, 2016, Strategic direction for health services in the justice system: 2016-2020
[19] Sturge G, 2020, House of Commons Briefing Paper - UK Prison Statistics
[20] Mehta S et al, 2020, COPD and asthma in patients with opioid dependency: a cross-sectional study in primary care. npj Prim. Care Respir. Med. 30, 4 (2020). https://doi.org/10.1038/s41533-019-0161-7

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	decline observed among tobacco smokers with COPD and healthy non-smokers[21]. Out of all people in treatment, 54% identify problems with opiates, crack or both. All substance abuse is inked to higher levels of nicotine smoking, housing problems and mental health needs[22]. Rate of opiate use is higher than the England average of 7.4/1000 in Bristol (13.1), North Somerset (9.4) and BaNES 7.9 but is lower in the rest of the West of England; Gloucestershire 6.2, South Gloucestershire 4.6, Swindon 6.1, and Wiltshire 3.9[23]. Intervention has the potential to impact positively on this population; however, this is outside the scope of this project. With mixed incidence of opiate use is across most of the West of England AHSN region, this remains a very high-risk group for COPD and other respiratory illnesses. Local providers should be encouraged to signpost to local drug treatment services. **People or families on low income** The less well-off a person is, the more likely they are to have been diagnosed with a respiratory illness. These differences are the largest, in relative terms, for any of the major lung diseases[24]. In comparison to England, 'Income Deprivation' and 'Older People in Deprivation' are better within the West of England AHSN area. Bristol, however, is significantly worse in both 'Income Deprivation' and 'Older people in deprivation'[25]. No specific measures are identified, it is expected that people would be captured through standard NIV protocol, regardless of (low) income levels. **People with poor literacy or health literacy** 16.4% of adults in England, or 7.1 million people, can be described as having 'very poor literacy skills.' They can understand short straightforward texts on familiar topics accurately and independently, and obtain information from everyday sources, but reading information from unfamiliar sources, or on unfamiliar topics, could cause problems[26]. This is mirrored in another study suggesting that 15% of the English working-age population have literacy skills lower than those expected of an 11-year-old schoolchild, and 43% of the less than or equal to 13–14-year-old schoolchildren[27]. Reduced health literacy is associated with reduced compliance and poor health outcomes. Literacy skills in patients are difficult to assess. Tools to assess literacy can highlight reduced literacy but can be an embarrassing procedure for patients[28].

[21] Nightingale R. et al. 2020. Screening Heroin Smokers Attending Community Drug Clinics for Change in Lung Function: A Cohort Study. Chest, 157(3), 558–565. https://doi.org/10.1016/j.chest.2019.11.006
[22] Public Health England, 2020, Adult substance misuse treatment statistics 2019 to 2020: report (online)
[23] Hay et al 2019, Estimates of opiate and crack cocaine use prevalence: 2016 to 2017, Public Health Institute-John Moores University
[24] British Lung Foundation COPD Statistics (online)
[25] Local Health - Public Health England - Indicators: maps, data and charts
[26] Organisation for Economic Co-operation and Development, 2016, OECD Skills Studies - OECD Skills Studies: A Review of England (Policy Insights from the survey of adult skills)
[27] Department for Business Innovation and Skills, 2012, The 2011 Skills for Life Survey: a survey of literacy, numeracy and ICT Levels in England. London: Department for Business Innovation and Skills, 2012
[28] Roberts NJ., Ghiassi, et al 2008, Health literacy in COPD. International journal of chronic obstructive pulmonary disease, 3(4), 499–507. https://doi.org/10.2147/copd.s1088

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	Follow-up written information should be provided in easy read texts where at all possible[29]. Written materials should ideally meet a Flesch Reading Ease test score of ≥60 which indicates that it is easy to follow (this test uses a 100-point scale, where the higher the score, the easier it is to understand the document). Up to 75% of patient information pamphlets may fail to meet this standard and be written at a level too complex for 15% of the English population[30]. Web-based materials should use short sentences (≤12 words). Other assessment tools such as Hemingway should also be considered as an alternative/complementing tool[31]. **People living in remote, rural or island locations** England's population density is 432/square mile. Gloucestershire (242), Bristol (4248), North Somerset (577), South Gloucestershire (579), Swindon (969), Wiltshire (155), BaNES (568)[32]. People living in lower population density areas (outside urban/metropolitan), may have less immediate access to healthcare and are likely to need to travel further. Following the Covid-19 pandemic, a study written by Nuffield Trust, indicates that rural hospitals are at a higher disadvantage in comparison to urban hospitals, on subjects such as recruitment and retention difficulties, higher overall staff costs, higher travel costs and some resources are more expensive or difficult to access, for example telecommunications, training and consultancy services[33]. However, another study conducted in 2021, saw that NIV mortality rates, did not differ between the rural and urban hospitals[34]. **Refugees, asylum seekers or those experiencing modern slavery** Asylum seekers may have higher prevalence of COPD and other comorbidities, due to access to diagnosis and treatment. This could mean that their prevalence for NIV may be higher than the general population. This may be compounded by language barriers and deprivation[35]. The highest proportions of Asylum seekers originate from Iran (12%), Iraq (9%), Albania (9%), Eritrea (7%) and Sudan (6%). However, the SE region of England has the lowest level of asylum seekers and resettled refugees[36].

[29] Many guides and information pamphlets are freely available, often through third sector provision, for example, https://www.easyhealth.org.uk/pages/24-about-easy-health
[30] Protheroe J et al. 2015, Patient information materials in general practices and promotion of health literacy: an observational study of their effectiveness, British Journal of General Practice; 65 (632): e192-e197. DOI: https://doi.org/10.3399/bjgp15X684013
[31] Office for National Statistics, (webpage) Writing for the web, accessed May 2021
[32] Office of National Statistics, 2020, Population estimates: Population density for local authorities in the UK, mid-2001 to mid-2019 (online)
[33] covid-19-rural-health-services-final.pdf (nuffieldtrust.org.uk)
[34] Noninvasive Ventilation Use for AECOPD in Rural vs Urban VA Hospitals - Pulmonology Advisor
[35] Midlands and Lancashire Commissioning Support Unit, 2017, Guidance for considering the needs of Asylum Seekers and Refugees in commissioning health services (online PDF)
[36] Oxford University Migration Observatory website

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	It is unclear, but possible that disability, homelessness and deprivation might also be higher in this group. See recommendations for race and ethnicity.
Additional Information: Death rates and emergency hospital admissions.	The death rate from respiratory diseases is significantly higher in the city of Bristol and Swindon in comparison to the national average. The rest of the West of England is significantly better. Emergency hospital admission rate for people requiring NIV is unclear, however, the emergency hospital admission rate for COPD is significantly better in comparison to the national average (100 SAR): Gloucestershire 67, South Gloucestershire 87.3, North Somerset 78.6, BaNES 62.1 and Wiltshire 55.7. The SAR for Swindon is in line with the national average: 101.6 The SAR for Bristol is significantly worse: 145.3 **SAR= Standardised Admission Ratios*

Please answer question 7.0 following the completion of the EHIA and complete the action plan

7.0 Please summarise the potential positive and/or negative impacts of the strategy, policy, plan, or service	**Positive Impact** The aim of the Non-invasive ventilation project is to reduce mortality within this patient group by providing a standardised bundle of care. Positive impacts should, therefore, be experienced in protected groups in which the incidence of needing NIV is typically higher than for the general population. These include: • Older people (NIV is typically needed for those who are older). • Female gender (NIV has been used for a higher percentage of women versus men). • People with reduced communication, hearing and levels of English would benefit from a video in simplified language and BSL • All other protected groups as mentioned within this document, should benefit from this project, should they need non-invasive ventilation treatment or care.

	Adverse Effects Some individuals may experience short-term hallucinations and undesired effects when placed on NIV. However, this is a method that if intubation is not an option, may save their life.

Action Plan for Mitigation / Improvement and Implementation

	Action	Lead	Timescale	Action taken by Division/Directorate.
8.1 What are the key actions identified as a result of completing the EHIA?	Development of communication resource / video to support limited English / learning difficulties / deaf population groups.	Megan Kirbyshire	September 2023	
	Explore what accessibility resources are already in existence in trusts. Add to page 9.	Megan Kirbyshire	March 2023	
	Explore if higher incidence of COPD in women than men locally, and reasons why higher if incidence of COPD higher than in men.	Megan Kirbyshire	March 2023	
	Gather local data regarding outcomes and demographics to inform delivery, if appropriate.	Megan Kirbyshire	March 2023	

	Action	Lead	Timescale	Action taken by Division/Directorate.
8.2 Is a more comprehensive Equalities Impact Assessment or Health Inequalities Assessment required? Think about relevance and proportionality to the Equality Act and ask: is the impact significant enough that a formal and full consultation is required?	No.			

8.3 What are the next steps?
 	
Some suggestions:-
• Decide whether the strategy, policy, plan, procedure and/or service proposal:
  • Continues unchanged as there are no significant negative impacts
  • Adjusts to account for the negative impacts
  • Continues despite potential for adverse impact or missed opportunities to advance equality, (set out justifications for doing so)
  • Stops.
• Strategy, policy, plan, procedure and/or service proposal approved
• Publish report of this impact assessment
• Monitor and review
	Continue with project plan – no long-term adverse effects identified.
	
	Discuss with teams whether ability to impact on the identified areas.
	
	No specific action for the NIV care bundle as all patients who require NIV within hospital will receive it.
	
	Monitor and review in 6 months
		Megan Kirbyshire / Rosy Copping
		
		Megan Kirbyshire / Rosy Copping
		
		Megan Kirbyshire / Rosy Copping
		
		Megan Kirbyshire / Rosy Copping
			N/A
			
			Project team meeting 21/09/2022
			
			N/A
			
			March 2023
				Agreed that could develop local video to improve communication