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Can the Early Years Foundation Stage Profile be used to Identify Additional Educational Needs in Primary School? A Population–Level Analysis in England

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Highlights

- Early identification of special educational needs and disabilities (SEND) is a key policy priority in England.
- Using educational and health administrative data, this study showed that 'Good Level of Development' (GLD) on the Early Years Foundation Stage Profile (EYFS-P) at ages 4–5 can be used to identify children who may benefit from further assessment and/or early support.
- However, structural inequalities were observed across pupil characteristics, with children from ethnic minority backgrounds, those with English as an Additional Language and girls, as well as children not eligible for free school meals and those without a chronic health condition, less likely to be identified as having SEND than their peers, despite equivalent GLD scores.
- Practitioners and policymakers should make use of existing structures and support for the GLD assessment in the EYFS-P in Reception to ensure that all children's SEND needs are identified and supported early.

Why does this matter?

A 'Good Level of Development' (GLD) at ages 4–5 can be used to identify special educational needs and disabilities (SEND) early and help ensure that all children receive timely support.

Can the Early Years Foundation Stage Profile be used to Identify Additional Educational Needs in Primary School? A Population-Level Analysis in England

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Early identification of special educational needs and disabilities (SEND) is a key policy priority in England. This study provides the first national-scale evaluation of the ‘Good Level of Development’ (GLD) measure for supporting the early identification of SEND. The GLD is part of the Early Years Foundation Stage Profile (EYFSP) and is a statutory assessment completed by practitioners at the end of Reception (ages 4–5). A longitudinal study was conducted following 580,523 children from Reception (2012–13) to Year 6 (2018–19) using the ECHILD database, which links state-funded school and hospital records. Logistic regression analyses showed that GLD Overall (Reached/Not reached), GLD Overall (Areas of Learning), and GLD Linear scores significantly predicted later SEND identification. Furthermore, each of the five areas of learning made unique contributions to predicting SEND identification, with distinct profiles emerging across SEND types. However, while GLD scores were consistently predictive across pupil characteristics, some pupil characteristics were more likely to be identified as having SEND, despite equivalent GLD scores. Overall, this study concludes that GLD Overall (Reached/Not reached), which is currently used in educational practice, is a valid and practical screening measure for early SEND identification. However, structural inequalities in SEND identification must be addressed to ensure all children have equitable access to support.

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The ECHILD Database uses data from the Department for Education (DfE). The DfE does not accept responsibility for any inferences or conclusions derived by the authors. This work uses data provided by patients and collected by the National Health Service as part of their care and support. Source data can also be accessed by researchers by applying directly to NHS England. We are grateful to the Office for National Statistics (ONS) for providing the trusted research environment for the ECHILD Database. ONS agrees that the figures and descriptions of results in the attached document may be published. This does not imply ONS' acceptance of the validity of the methods used to obtain these figures, or of any analysis of the results. The DfE, NHSE and ONS do not accept responsibility for any inferences or conclusions derived by the authors. The views in this publication do not necessarily reflect the views of UCL.

Ethics statement: Ethical approval for the current study was granted by the IOE Ethics Committee (REC 2270). Permissions to use linked, de-identified data from HES and NPD were granted by NHS England (DARS-NIC-381972-Q5F0V-v0.5) and the Department for Education (DR200604.02B). Ethical approval for the ECHILD project was granted by the National Research Ethics Service (17/LO/1494), NHS Health Research Authority Research Ethics Committee (20/EE/0180 and 21/SW/0159) and is overseen by the UCL Great Ormond Street Institute of Child Health's Joint Research and Development Office (20PE16).

Introduction

Background and Policy Context

Over 1.7 million children (19.5%) in England are identified as having special educational needs and disabilities (SEND) (DfE, 2026a). Children with SEND face significant challenges to their educational outcomes and wellbeing. They have the largest attainment gap with their peers, compared to other pupil characteristics (Azpitarte & Holt, 2024; Cant et al., 2026; EEF, 2018) and they are more likely to be suspended, excluded, or persistently absent from school (Gimeno et al., 2025; DfE, 2026b).

Within the current SEND Code of Practice in England (DfE, 2015), most children identified with SEND receive SEN support. This is provision that is additional to, or different from, the support typically provided through schools' usual curriculum offer. Children with more complex needs may receive an Education, Health and Care plan (EHCP), following further statutory assessment by their local authority. The most common type of need for those with SEN support is Speech, Language and Communication Needs (SLCN) and for those with an EHCP is Autistic Spectrum Disorder (ASD) (DfE, 2026a). However, studies show there are inequalities in SEND identification, particularly for children from lower socioeconomic and ethnic minority backgrounds (Hutchinson, 2021; Lewis et al., 2025; Wood et al., 2024), and in some cases girls (Warburton et al., 2026), being less likely to be identified than their peers.

Early Identification of SEND needs

The UK government recently announced a programme of SEND reform, with a focus on early identification of need (DfE, 2026b). Research suggests early identification is associated with better developmental, educational, and social outcomes for children (Curran, 2020), and can reduce long-term costs by reducing the need for later, more intensive specialist provision (Carneiro et al., 2025). Universal screening measures are a valuable tool for early identification as they can efficiently flag children who may benefit from further assessment and/or early support before their needs potentially escalate (Higginson et al., 2023). Unlike targeted or diagnostic assessments, universal screening measures are administered with all children, regardless of whether any prior concerns have been raised. This makes them well-suited to identifying children whose needs might otherwise go unrecognised, including those from groups where structural inequalities in identification are most pronounced (Wood et al., 2024).

To fulfil this role, universal screening measures should span the key domains of child development relevant to SEND, including cognition, language, socioemotional development, and physical development (Miles et al., 2018) and be suitable for administration by teachers or educational practitioners (Chödrön et al., 2021). High-quality screening measures should also demonstrate strong reliability and validity (defined further below), including across children from different socioeconomic circumstances and pupil characteristics (Glover & Albers, 2007; Outhwaite et al., 2024).

Psychometric Standards for Screening Measures

The Standards for Educational and Psychological Measurements (AERA et al., 2014) and the COSMIN guidelines (Mokkink et al., 2016; Prinsen et al., 2018) provide frameworks for appraising the psychometric properties (i.e., reliability and validity) of educational screening measures. In the context of screening for SEND, predictive validity and diagnostic accuracy are particularly relevant. Predictive validity refers to the extent to which a screening measure is associated with a future outcome, such as later SEND identification. It can be assessed using the Area Under the ROC Curve (AUC), with values above .70 considered to have good predictive validity (Prinsen et al., 2018).

Diagnostic accuracy refers to how well a screening measure correctly classifies children as 'at-risk' or 'not at-risk' of SEND at a given threshold (AERA et al., 2014). It can be assessed through sensitivity, which in this context is the proportion of children who go on to be identified as having SEND and were correctly identified as 'at-risk of SEND' on the GLD. Diagnostic accuracy also includes specificity, which in this context is the proportion of children who go on to be identified as not having SEND and were correctly identified as 'not at-risk of SEND' on the GLD. For screening purposes, sensitivity is typically prioritised over specificity. This is because failing to identify a child with genuine need (i.e., a false negative) is considered more costly in the long term, than over-identification (i.e., a false positive) for children's outcomes and economic costs (Carneiro et al., 2025; Jenkins et al., 2007; Klingbeil et al., 2019). While there are no official acceptable thresholds for sensitivity and specificity, some studies suggest that values above .90 indicate good sensitivity and values above .70 indicate good specificity (Jenkins et al., 2007; Kilgus et al., 2014).

Previous Research with the Early Years Foundation Stage Profile

In England, the Early Years Foundation Stage Profile (EYFS-P) is a potentially valuable screening measure for early SEND identification because it is already embedded within routine educational practice (DfE, 2012; DfE, 2021). The EYFS-P is a statutory assessment completed by practitioners at the end of Reception (i.e., first year of school). The assessment is based on classroom observations of whether 4-5-year-olds meet, exceed, or are below the expected levels for 17 Early Learning Goals (ELGs) in seven Areas of Learning (see Table 1). Children are considered to have reached a 'Good Level of Development' (GLD) if they meet or exceed the expected levels for Communication and Language, Personal, Social and Emotional Development, Physical Development, Literacy and Mathematics, which together cover a total of 12 ELGs. A detailed overview of the 12 ELGs required for a GLD is included in the Appendix.

Despite its nationwide use, relatively few studies have evaluated the psychometric properties of the EYFS-P. Previous research shows that the full EYFS-P (i.e., 17 ELGs across seven areas of learning) had good internal consistency (Mooney et al., 2025) and predicted later outcomes, including SEND identification at ages 5-6 (De Stavola et al., under review), socioemotional difficulties at ages

7-10 (Communication and Language and Personal, Social and Emotional Development only), and academic attainment at age 11 (Mooney et al., 2025).

However, the full EYFS-P includes domains beyond those typically recommended for universal screening measures (Miles et al., 2018), suggesting that the GLD, which focuses on a subset of core developmental domains, may be a more appropriate basis for early SEND screening. Initial evidence from the Bradford region has demonstrated the potential of the binary GLD indicator (Reached/Not reached) for identifying SEND between ages 5–12 (Atkinson et al., 2022; Warburton et al., 2026; Wood et al., 2024). A key limitation of this approach, however, is that the binary GLD indicator does not differentiate between levels of need. For example, a child who falls below expectations in a single area of learning is classified as not reaching the GLD in the same way as a child who falls below expectations across all five areas, despite these children potentially having very different levels of educational need. Therefore, more nuanced measurement approaches to the GLD, which considers the areas of learning not reached, should be considered when evaluating the potential of the GLD for supporting the early identification of SEND.

Current study

The current study aimed to provide the first national-scale evaluation of the GLD for supporting the early identification of SEND in England. Three research questions (RQs) were addressed: (RQ1) Do GLD scores predict identification of SEND between Year 1 and Year 6? (RQ2) Which areas of learning within the GLD are most predictive of different types of SEND, including Autism Spectrum Disorder (ASD), Speech, Language and Communication Needs (SLCN), Moderate Learning Difficulties (MLD), and Specific Learning Difficulties (SpLD)? (RQ3) Do GLD scores predict identification of SEND consistently across pupil characteristics?

Methods

Data and Participants

Data were drawn from the ECHILD database, which links administrative records from the National Pupil Database (NPD) and Hospital Episode Statistics (HES) (McGrath-Lone et al., 2022). The NPD contains child-level information on EYFS-P scores and pupil characteristics for all children attending state-funded schools in England (Jay et al., 2019). HES captures all hospital admissions in National Health Service (NHS)-funded hospital activity in England, covering an estimated 98–99% of all hospitalisations (Herbert et al., 2017). Records across the two datasets were deterministically linked by NHS England (Jay et al., 2019). Data were available up to and including the 2021–22 academic year.

Using these data, a cohort was constructed of 643,359 children who completed the EYFS-P in Reception¹ in 2012-13 and followed through to Year 6 in 2018-19. This cohort was selected because they completed primary school before the disruptions to education caused by the Covid-19 pandemic, and to ensure consistency with previous research (e.g., Wood et al., 2024). As the focus of the analysis was on new identification of SEND, children who were identified as SEND in the Reception Year were excluded (Wood et al., 2024). The final sample consisted of 580,523 children (see Table 2).

Measures

SEND identification. Children were considered to have SEND (yes/no) if they were recorded at any point from Year 1 (age 5-6) to Year 6 (age 10-11) as having a School Action plan, School Action Plus plan, a SEND statement (pre-2015), an EHCP or in receipt of SEND support (post-2015).

Types of SEND need. Different types of SEND need were derived based on whether a child's primary or secondary SEND need was ever recorded as Autism Spectrum Disorder (ASD), Speech, Language and Communication Needs (SLCN), Moderate Learning Difficulties (MLD; e.g., global developmental delay), or Specific Learning Difficulties (SpLD; e.g., dyslexia). These four categories were prioritised in the current study as ASD and SLCN are the most prevalent SEND types in England (DfE, 2026a), while MLD and SpLD reflect some of the learning difficulties conceptually aligned with the areas of learning included in the GLD.

GLD. The current study evaluated three GLD measurement approaches. First, GLD Overall (Reached/Not reached) reflected current educational practice (DfE, 2012; DfE, 2021), classifying children as having reached a GLD if they met or exceeded expectations across all five areas of learning (see Table 1). Second, GLD Overall (Areas of Learning) also included children who reached a GLD, while additionally capturing, for those who did not reach the GLD, the number of areas of learning in which expectations were not met. Third, GLD Linear was a continuous measure derived by summing scores across the 12 ELGs covered by the five areas of learning comprising a GLD, each rated on a three-point scale: 0 (not yet met), 1 (met), or 2 (exceeded), for a maximum score of 24. The 12 ELGs had good internal consistency (i.e., reliability) ($\alpha = .94$), including across the five areas of learning (see Table 1). As the sample completed Reception in 2012-13, the ELG items comprising the GLD were part of the 2012–21 EYFS-P framework (see Appendix).

Pupil characteristics. Eligibility for free school meals (FSM) in Reception (yes/no) was used as a proxy for children's socioeconomic background. Where FSM eligibility data were missing for the Reception Year, Year 1 data were used to minimise missing cases. For ethnicity, children were categorised as 'white British' or 'Ethnic minority' based on caregiver-reported school census records. English as an Additional Language (yes/no), Gender (male/female) and Summer born

¹ The EYFS-P is a statutory measure; only 0.3% of children have an exemption (DfE, 2023).

(August/September) were also based on caregiver-reported school census records. Hospital-recorded chronic health conditions (yes/no) were obtained from the HES dataset and were defined as any recorded instance of a chronic health condition (Hardelid et al., 2014), prior to the start of Reception.

Table 1: Areas of Learning and Early Learning Goals within the EYFS-P and GLD (2012–21).

Area of Learning	Early Learning Goals (2012–21)	Included in GLD	Internal Consistency
Communication and Language	1. Listening and attention 2. Understanding 3. Speaking	Yes	.89
Physical Development	4. Moving and handling 5. Health and self-care	Yes	.74
Personal, Social and Emotional Development	6. Self-confidence and self-awareness 7. Managing feelings and behaviour 8. Making relationships	Yes	.84
Literacy	9. Reading 10. Writing	Yes	.88
Mathematics	11. Numbers 12. Shape, space and measure	Yes	.86
Understanding the World	13. People and communities 14. The world 15. Technology	No	n/a
Expressive Arts and Design	16. Exploring and using media and materials 17. Being imaginative	No	n/a

Statistical Analysis Plan

To answer RQ1, a series of logistic regression analyses were conducted to examine whether GLD Overall (Reached/Not reached), GLD Overall (Areas of Learning) and GLD Linear scores predicted identification of SEND between Year 1 and Year 6 (yes/no). To assess the diagnostic accuracy of GLD, sensitivity and specificity values were calculated for each measurement approach.

To answer RQ2, LASSO logit regression was conducted to identify which areas of learning made a unique contribution to predicting the identification of the four SEND types considered in the current study: ASD, SLCN, MLD and SpLD. Areas of Learning that were retained by the LASSO analysis were subsequently entered into a logistic regression to determine which area(s) had the strongest predictive relationship with each SEND type.

To answer RQ3, a series of logistic regression analyses were conducted to examine whether GLD Linear scores significantly predicted SEND identification (yes/no) across all pupil characteristics. The GLD Linear score was used for these analyses as it provided a continuous measure of GLD performance, enabling interaction effects between GLD scores and pupil characteristics to be modelled across the full range of scores. Interactions between each pupil characteristic and GLD Linear scores were used to test the extent to which the predictive relationship of the GLD differed between groups. Unadjusted models are reported in the main text, with adjusted models including additional covariates (i.e., all other pupil characteristics) reported in the Appendix.

A small number of individuals were missing some information required for the analysis, including SEND identification (1.9%), SEND type (2.0%) and some pupil characteristics (see Table 2). Consistent with previous research (Atkinson et al., 2022; Wood et al., 2024), all analyses were conducted on complete cases only, with specific sample sizes reported for each analysis.

Table 2: Participant characteristics of the final sample ($n = 580,523$).

Child Characteristics	N	% of Sample
Gender		
Male	295,026	50.8%
Female	285,497	49.2%
Ethnicity		
White British	406,558	70.0%
Ethnic minority	159,356	27.5%
Prefer not to say/ Missing	14,609	2.5%
English as Additional Language		
EAL	164,754	28.4%
No EAL	407,242	70.2%
Prefer not to say/ Missing	8,527	1.5%
Socioeconomic Background		
FSM	100,478	17.3%
No FSM	471,518	81.2%
Prefer not to say/ Missing	8,527	1.5%
Summer Born		
August	48,739	8.4%
September	47,388	8.2%
All other months	484,396	83.4%
Hospital-Recorded Chronic Health Condition		
CHC	1,910	<1.0%
No CHC	578,613	99.7%
SEND Identification between Y1-Y6		
No SEND	453,615	78.1%
Any SEND	115,698	19.9%
Missing	11,000	1.9%
Autism Spectrum Disorder (ASD) between Y1-Y6		
No ASD	563,335	97.0%
Any ASD	5,685	1.0%
Missing	11,503	2.0%
Speech Language and Communication Needs (SLCN) between Y1-Y6		
No SLCN	547,119	94.2%
Any SLCN	21,901	3.8%
Missing	11,503	2.0%
Moderate Learning Difficulties (MLD) between Y1-Y6		
No MLD	529,857	91.3%
Any MLD	39,163	6.7%
Missing	11,503	2.0%
Specific Learning Difficulties (SpLD) between Y1-Y6		
No SpLD	547,123	94.2%
Any SpLD	21,897	3.8%
Missing	11,503	2.0%

Results

RQ1: Do GLD scores predict identification of SEND between Year 1 and Year 6?

Descriptive statistics for the GLD Overall and GLD Linear approaches are summarised in Table 3. Of those children who did not reach a GLD at the end of the Reception Year, Literacy was the most common area of learning not reached, followed by Mathematics, Communication and Language, and Personal, Social, and Emotional Development (see Appendix).

Table 3: Descriptive statistics for the GLD Overall and GLD Linear approaches (n = 580,523).

GLD Measurement Approach	N	% of Sample
<i>GLD Overall (Reached/Not reached)</i>		
Reached GLD Overall	323,558	55.7%
Not Reached GLD Overall	256,965	44.3%
<i>GLD Overall (Areas of Learning)</i>		
Reached GLD Overall	323,558	55.7%
Below expectations in 1 area of learning	65,428	11.3%
Below expectations in 2 areas of learning	63,412	10.9%
Below expectations in 3 areas of learning	44,780	7.7%
Below expectations in 4 areas of learning	40,359	7.0%
Below expectations in 5 areas of learning	42,986	7.4%
<i>GLD Linear</i>	Mean (SD)	Min- Max
Total Score	11.81 (5.31)	0 – 24

Logistic regression analyses showed that all three GLD measurement approaches were significantly predictive of SEND identification between Year 1 and Year 6 (Table 4). For the GLD Overall, children who did not reach a GLD had 7.40 times higher odds of being identified as having SEND, than those who did reach a GLD. For the GLD Overall (Areas of Learning), the odds of SEND identification increased with each additional area of learning below expectations, ranging from 3.01 times higher odds for those below in one area to 19.32 times higher odds for those below in all five areas. For the GLD Linear approach, each one-point increase in total score was associated with a 20% reduction in the odds of later SEND identification (OR = .80). AUC values ranged from .72 to .78 across the three approaches, indicating good predictive validity (Prinsen et al., 2018). Table 5 reports the sensitivity and specificity values for the GLD Overall and GLD Linear approaches.

Table 4: Logistic regressions examining the extent to which the GLD Overall and GLD Linear approaches can predict later SEND identification between Y1 and Y6 ($n = 569,313$).

GLD Measurement Approach	Model Fit			Odds Ratio				AUC
	Pseudo R ²	X ² (df)	p	OR	SE	95% CIs	p	
GLD Overall (Reached/Not reached)								
Not Reached	.14	77,940(1)	<.001	7.40	.06	7.29–7.52	<.001	.72
GLD Overall (Areas of Learning)								
Below in 1 area	.17	100,333(5)	<.001	3.01	.04	2.94–3.08	<.001	.77
Below in 2 areas				5.50	.06	5.38–6.62	<.001	
Below in 3 areas				8.21	.10	8.02–8.41	<.001	
Below in 4 areas				11.68	.14	11.41–11.96	<.001	
Below in 5 areas				19.32	.23	18.87–19.79	<.001	
GLD Linear								
Total Score	.17	98.982(1)	<.001	.80	<.001	.797–.800	<.001	.78

Table 5: Diagnostic accuracy of the GLD Overall and GLD Linear approaches for predicting later SEND identification between Y1 and Y6 ($n = 569,313$).

GLD Measurement Approach	Sensitivity	Specificity
GLD Overall		
Reached v Not reached GLD	.80	.65
Not reached 2 areas of learning	.69	.76
GLD Linear		
Score 13 or below	.92	.35
Score 12 or below	.76	.69
Score 11 or below	.71	.75

RQ2: Which areas of learning in the GLD are most predictive of different types of SEND?

LASSO logit regression analyses showed that all areas of learning made a unique contribution to predicting later SEND identification across the four SEND types considered: Autism Spectrum Disorder (ASD), Speech, Language and Communication Needs (SLCN), Moderate Learning Difficulties (MLD), and Specific Learning Difficulties (SpLD).

Post-LASSO logistic regression results are reported in Table 6. Whilst all areas of learning were significantly predictive of all SEND types, with AUC values indicating good predictive validity (.71–.82), distinct profiles emerged, with certain areas of learning showing stronger associations with specific SEND types. Children who did not meet expectations in Personal, Social, and Emotional Development had 4.10 higher odds of later ASD identification. Similarly, children had significantly higher odds of later SLCN, if they did not meet expectations in Communication and Language (2.51 higher odds) or Literacy (2.52 higher odds). Being below expectations in Literacy was also associated with higher odds of MLD (4.31 higher odds) and SpLD (3.59 higher odds).

Table 6: Post-LASSO logistic regressions examining the extent to which not reaching each area of learning on the EYFS-P can predict the identification of different types of SEND between Y1 and Y6 ($n = 569,020$).

GLD Area of Learning	Model Fit			Odds Ratio			AUC	
	Pseudo R ²	X ² (df)	p	OR	SE	95% CIs		p
Autism Spectrum Disorder (ASD)								
Communication	.06	4,243(5)	<.001	1.11	.05	1.02–1.21	.012	.71
Physical Development				2.19	.08	2.04–2.35	<.001	
PSE				4.10	.16	3.80–4.42	<.001	
Literacy				1.20	.05	1.10–1.30	<.001	
Mathematics				.57	.02	.52–.62	<.001	
Speech Language and Communication Needs (SLCN)								
Communication	.14	25,274(5)	<.001	2.51	.05	2.41–2.62	<.001	.79
Physical Development				1.61	.03	1.56–1.66	<.001	
PSE				1.26	.02	1.21–1.30	<.001	
Literacy				2.52	.06	2.41–2.64	<.001	
Mathematics				1.37	.03	1.31–1.43	<.001	
Moderate Learning Difficulties (MLD)								
Communication	.19	53,480(5)	<.001	1.47	.02	1.43–1.51	<.001	.82
Physical Development				1.49	.02	1.45–1.53	<.001	
PSE				1.13	.02	1.10–1.16	<.001	
Literacy				4.31	.08	4.15–4.47	<.001	
Mathematics				2.46	.04	2.38–2.54	<.001	
Specific Learning Difficulties (SpLD)								
Communication	.09	16,207(5)	<.001	1.07	.02	1.03–1.12	<.001	.73
Physical Development				1.23	.02	1.18–1.27	<.001	
PSE				.90	.02	.87–.93	<.001	
Literacy				3.59	.08	3.44–3.74	<.001	
Mathematics				1.83	.04	1.76–1.91	<.001	

Note: PSE = Personal, Social and Emotional Development.

RQ3: Do GLD scores predict SEND identification between Y1 and Y6 consistently across pupil characteristics?

Table 7 shows that GLD Linear scores were significantly predictive of later SEND identification across all pupil characteristics, with higher scores associated with lower odds of being identified as having SEND. The interactions between GLD Linear scores and pupil characteristics, while significant in some cases (i.e., Ethnicity, EAL, FSM and Gender), were small in magnitude, and AUC values were relatively consistent across all groups (Table 8).

However, significant main effects were observed for most pupil characteristics (see Table 7), over and above controls for GLD Linear scores. As shown in Figure 1, white British children had significantly higher odds of being identified as SEND than their ethnic minority peers with equivalent GLD Linear scores. Similarly, children with English as their first language were also more likely to be identified as SEND than those with EAL. While children eligible for free school meals, males, and children with a chronic health condition were more likely to be identified as SEND than their peers. There was no significant difference in predicted probability of SEND identification between children born in August and September with equivalent GLD Linear scores (Figure 1). These results were consistent in both the unadjusted models (Tables 7 and 8) and when all other pupil characteristics were included as covariates (see Appendix).

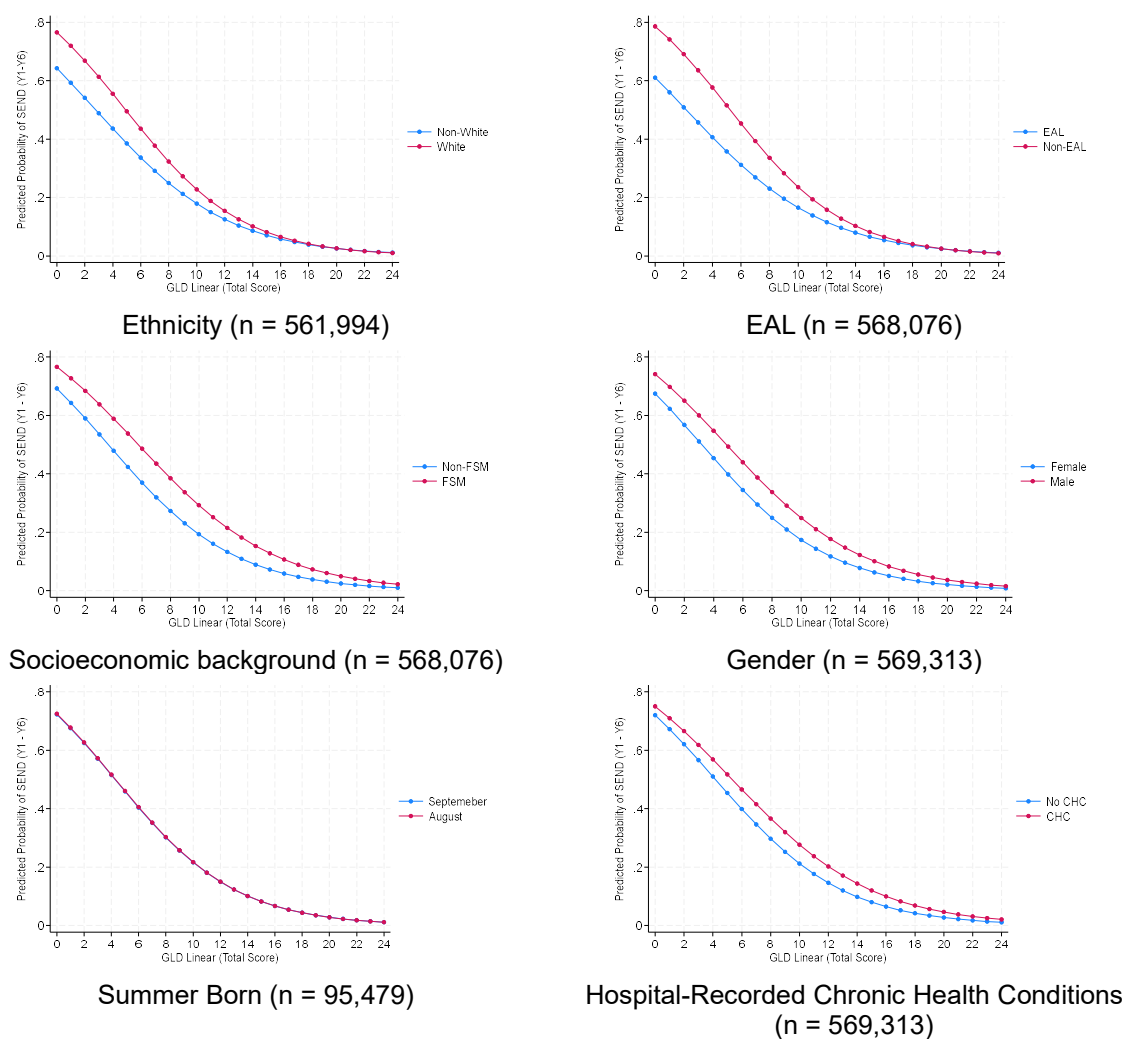
Table 7: Logistic regressions examining the extent to which the predictive relationship between GLD Linear Scores and later SEND identification is consistent across pupil characteristics (unadjusted models).

Pupil Characteristics	N	Model Fit			Odds Ratio			
		Pseudo R ²	X ² (df)	p	OR	SE	95% CIs	p
Ethnicity (1 = white British; 0 = Ethnic minority)								
GLD Linear Main Effect	561,994	.18	99,112(3)	<.001	.81	.001	.808–8.12	<.001
Ethnicity Main Effect					1.81	.03	1.75–1.88	<.001
GLD x Ethnicity Interaction					.97	.002	.968–.975	<.001
EAL (1 = No EAL; 0 = EAL)								
GLD Linear Main Effect	568,076	.18	103,068(3)	<.001	.81	.001	.811–.815	<.001
EAL Main Effect					2.34	.04	2.26–2.42	<.001
GLD x EAL Interaction					.96	.002	.957–.963	<.001
Socioeconomic background (1 = FSM; 0 = No FSM)								
GLD Linear Main Effect	568,076	.18	102,435(3)	<.001	.80	<.001	.798–.801	<.001
FSM Main Effect					1.45	.03	1.40–1.51	<.001
GLD x FSM Interaction					1.02	.002	1.01–1.02	<.001
Gender (1 = Male; 0 = Female)								
GLD Linear Main Effect	569,313	.18	102,628(3)	<.001	.80	.001	.794–.798	<.001
Gender Main Effect					1.38	.02	1.34–1.43	<.001
GLD x Gender Interaction					1.01	.002	1.01–1.02	<.001
Summer Born (1 = August; 0 = September)								
GLD Linear Main Effect	95,479	.16	15,014(3)	<.001	.80	.002	.794–.803	.001
Summer born Main Effect					1.01	.05	.924–1.10	.283
GLD x Summer born Interaction					1.00	.004	.991–1.01	.714
Hospital-Recorded Chronic Health Condition (1 = Yes; 0 = No)								
GLD Linear Main Effect	569,313	.17	99,017(3)	<.001	.79	.001	.797–.799	<.001
CHC Main Effect					1.17	.16	.898–1.52	.004
GLD x CHC Interaction					1.02	.01	.994–1.05	.327

Table 8: Area under the curve (AUC) values examining the extent to which the predictive relationship between GLD Linear Scores and later SEND is consistent across pupil characteristics (unadjusted models).

Pupil Characteristics	N	AUC
Ethnicity		
White British	561,994	.79
Ethnic minority		.78
EAL		
English as First Language	568,076	.79
English as Additional Language		.78
Socioeconomic Background		
FSM	568,076	.76
Non-FSM		.78
Gender		
Male	569,313	.77
Female		.79
Summer Born		
August born	95,479	.78
September born		.78
Hospital-Recorded Chronic Health Conditions		
Chronic Health Condition(s)	569,313	.77
No Chronic Health Conditions		.79

Figure 1: Predictive probabilities of being identified as SEND across pupil characteristics with equivalent GLD Linear scores (unadjusted models).



Discussion

The current study provides the first national-scale evaluation of the GLD for supporting the early identification of SEND. Using a cohort of over 580,000 children in England, this study examined whether GLD scores at the end of Reception (ages 4-5) predicted later SEND identification between Year 1 and Year 6 (ages 5-11). The study also examined which areas of learning were most predictive of different SEND types, and whether these associations were consistent across pupil characteristics. The current findings support the use of the GLD Overall (Reached/Not reached) as a screening measure for early SEND identification and thus have important implications for the ongoing SEND reforms in England.

GLD as a Predictor of Later SEND Identification

All three GLD measurement approaches were shown to have good predictivity validity for SEND identification between Year 1 and Year 6, with AUC values ranging from .72 to .78 (Prinsen et al., 2018).

In terms of diagnostic accuracy, not reaching the GLD Overall (i.e., performing below expectations in at least one area of learning), had good sensitivity for identifying SEND (.80). This means that 80% of children who went on to be identified as having SEND were correctly identified as 'at-risk' on the GLD Overall measure. However, this was accompanied by reduced specificity (.65), meaning that 35% of children who would go on to be identified as not having SEND were incorrectly flagged as 'at-risk' (i.e., false positives). Similarly, scoring 13 or below on the GLD Linear measure had the strongest sensitivity across all measurement approaches, correctly identifying 92% of children who would later be identified as having SEND. However, this increased sensitivity for identifying 'true positives' was accompanied by considerably lower specificity (.35), thus increasing the risk of 'false positives' if a GLD score of 13 or below was used. That is, at this threshold, 65% of children who would go on to be identified as not having SEND were incorrectly flagged as 'at-risk'.

Using a more conservative threshold on the GLD Overall, such as not reaching two or more areas of learning, improved specificity (.76), reducing the false positive rate to 24%. However, this came at the cost of reduced sensitivity (.69). This means that if this GLD threshold were used to identify SEND, 31% of children with genuine SEND needs may be missed. Given that the primary purpose of universal screening is to identify children who may benefit from further assessment and/or early support, sensitivity should be prioritised over specificity (Jenkins et al., 2007; Klingbeil et al., 2019), and thus the other GLD measurement approaches are more suitable for screening purposes.

Areas of Learning Most Predictive of Different SEND Types

All five areas of learning within the GLD made unique and significant contributions to predicting different SEND types. However, distinct profiles emerged across SEND categories. Personal, Social and Emotional Development was most strongly associated with later ASD identification, while Communication and Language and Literacy were most predictive of SLCN. Literacy was the strongest

predictor of both MLD and SpLD. These findings align with evidence that different SEND types are characterised by distinct cognitive and developmental profiles (Astle et al., 2022). Nevertheless, the finding that all areas of learning contributed uniquely across SEND types highlights the value of broad-based assessments that capture the full range of early child development (Cai et al., 2025; Miles et al., 2018). Overall, this evidence supports the use of the full GLD indicator with all five areas of learning, rather than any single domain, for early screening of educational needs.

Consistency of GLD Predictions Across Pupil Characteristics

The current study also found that the GLD was significantly predictive of later SEND identification across pupil characteristics. However, important differences were observed in which children were identified as having SEND. For example, white British children were more likely to be identified as having SEND than their ethnic minority peers with equivalent GLD scores, and children with English as their first language were more likely to be identified as having SEND than those with EAL. Children eligible for free school meals, males, and those with a chronic health condition were also more likely to be identified as having SEND than their peers with equivalent GLD scores. These findings are consistent with previous research documenting structural inequalities in SEND identification (Hutchinson, 2021; Lewis et al., 2025; Warburton et al., 2026; Wood et al., 2024) and suggest that equivalent levels of developmental need, as indicated by GLD scores, do not translate equally into SEND identification for all children.

Implications for Practice

The findings have several implications for educational practice and policy, particularly in the context of the current SEND reforms (DfE, 2026). First, consistent with research conducted in Bradford (Atkinson et al., 2022; Wood et al., 2024), the current findings support the use of the GLD Overall (Reached/Not reached) as a screening measure for early SEND identification. This approach is already embedded within routine educational practice, does not require additional training or changes to existing procedures (e.g., creating the GLD Linear scores), and is therefore well-suited to implementation in the context of the SEND reforms.

Second, the results suggest that all five areas of learning within the GLD should be considered when evaluating children's risk of later SEND needs. The distinct predictive profiles observed across SEND types indicate that no single area of learning is sufficient, and that a holistic approach to reviewing GLD performance is needed. Nevertheless, the areas of learning in which children do not meet expectations can provide an initial indication of the nature of their SEND needs. For example, difficulties in Personal, Social and Emotional Development may indicate further consideration of ASD, whilst difficulties in Communication and Language or Literacy may suggest SLCN, and below-expectations performance in Literacy may indicate risk of MLD or SpLD needs. Overall, it is important to emphasise that GLD, on its own, should not be used to label children with specific SEND needs,

rather it can be used as a screening measure to identify children who may benefit from further assessment and/or support.

Third, practitioners and policymakers should be aware that children from ethnic minority backgrounds, those with EAL and girls, as well as children not eligible for free school meals and those without chronic health conditions, are less likely to be identified as having SEND, despite equivalent levels of developmental need, as indicated by their GLD scores. This is consistent with evidence of structural inequalities in SEND identification (Hutchinson, 2021; Lewis et al., 2025; Warburton et al., 2026; Wood et al., 2024) and suggests that factors beyond developmental need may influence whether concerns are raised and acted upon. This means that some children may go without support during a critical period of development. These findings suggest that practitioners should use GLD performance proactively to prompt consideration of SEND needs for all children, particularly those from groups where barriers to identification are most pronounced. For example, for children with EAL, careful consideration is needed to distinguish between difficulties reflecting additional language acquisition and those indicative of broader SEND needs.

Limitations

Two key limitations should be noted when interpreting the current findings. First, this study is only able to capture SEND identification within the administrative data, that is, whether a child has been formally recognised as having SEND within the education system, rather than a direct measure of underlying need, such as via a standardised diagnostic assessment administered. Given well-documented inequalities in SEND identification (Hutchinson, 2021; Lewis et al., 2025; Warburton et al., 2026; Wood et al., 2024), some children with genuine additional needs, particularly those from groups where structural barriers to identification are most pronounced, may not be identified, and will therefore be misclassified as not having SEND in the current analyses. This suggests that the predictive validity and diagnostic accuracy of the GLD reported in the current study should be treated as conservative estimates.

Second, the GLD scores used in the current study are based on the ELGs from the 2012–21 EYFS-P framework. The framework was revised in 2021, with the most substantial changes made to the mathematics area of learning (DfE, 2021). Specifically, the ‘Shape, space and measure’ ELGs were replaced by ‘Numerical patterns’, as well as some additional refinements to ELG items across other areas of learning. A comparison of the two frameworks is included in the Appendix. Despite these changes, the core structure of the GLD and its constituent areas of learning remain largely consistent, and the findings are therefore still considered applicable to current educational practice.

Directions for Further Research

The current study has been prepared in response to the current DfE SEND reforms consultation and is part of a wider funded project on the early identification of educational needs (Outhwaite, 2025). The current study will be extended in the following ways. First, RQ2 will be expanded to examine all

other SEND categories, including Social, Emotional and Mental Health (SEMH), Sensory and Physical needs, and Severe, Profound and Multiple Learning Difficulties (SLD and PMLD).

Second, the current study used FSM eligibility as a proxy for socioeconomic background, finding that children eligible for FSM were more likely to be identified as having SEND than their non-FSM peers. This finding is somewhat inconsistent with other studies showing that children from lower socioeconomic backgrounds are less likely to be identified as having SEND than their more affluent peers, particularly in areas where parents have greater cultural capital for securing support (Hutchinson, 2021). FSM eligibility is also a relatively crude proxy for socioeconomic background, capturing only the most economically disadvantaged children (Campbell et al., 2024). Future analyses will therefore incorporate area-level indicators of socioeconomic disadvantage with the Income Deprivation Affecting Children Index (IDACI), to provide a more nuanced understanding of the relationship between socioeconomic background and SEND identification in the context of the GLD.

Finally, the current study examined a cohort of children in Reception in 2012–13 through to Year 6 in 2018–19. During this period, the revised SEND Code of Practice was implemented in January 2015, which introduced changes that may have affected the rate and nature of SEND identification (DfE, 2015). The EYFS-P framework was also revised in 2021 (see Appendix). Future analyses will therefore examine the consistency of the current findings across additional cohorts spanning these policy changes to provide a more robust and generalisable picture of the predictive validity and diagnostic accuracy of the GLD for supporting the early identification of SEND.

Conclusion

This study provides the first national-scale evidence that the GLD, a statutory assessment already embedded within routine educational practice in England, has meaningful predictive validity for later SEND identification across primary school. GLD scores were consistently predictive of SEND identification across all measurement approaches and across a range of pupil characteristics, with distinct areas of learning emerging as most relevant to different SEND types. These findings are timely given the current programme of SEND reform in England and suggest that the GLD represents a practical and low-burden tool for supporting early identification of children who may benefit from further assessment and/or targeted support. At the same time, the findings underscore the importance of addressing structural inequalities in SEND identification, ensuring that early screening translates into equitable access to support for all children, regardless of their background.

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Appendix

Table A1: Comparison of the early learning goals within the EYFS-P in 2012–21 and 2021–onwards.

Area of Learning	Early Learning Goals (2012–21)	Early Learning Goals (2021–onwards)
Prime Areas of Learning		
Communication and language	<i>Listening and attention:</i> i) Children listen attentively in a range of situations; ii) They listen to stories, accurately anticipating key events and respond to what they hear with relevant comments, questions or actions; iii) They give their attention to what others say and respond appropriately, while engaged in another activity.	<i>Listening, attention and understanding:</i> i) Listen attentively, responding with comments or questions; ii) Take part in conversations with teachers or peers.
	<i>Understanding:</i> i) Children follow instructions involving several ideas or actions; ii) They answer 'how' and 'why' questions about their experiences and in response to stories or events.	
	<i>Speaking:</i> i) Children express themselves effectively, showing awareness of listeners' needs; ii) They use past, present and future forms accurately when talking about events that have happened or are to happen in the future; iii) They develop their own narratives and explanations by connecting ideas or events.	<i>Speaking:</i> i) Participate in discussions using new vocabulary; ii) Explain thinking and express ideas and feelings using full sentences.
Personal, Social and Emotional Development	Self-confidence and self-awareness: children are confident to try new activities, and say why they like some activities more than others. They are confident to speak in a familiar group, will talk about their ideas, and will choose the resources they need for their chosen activities. They say when they do or don't need help	<i>Self-regulation:</i> i) Understanding feelings and begin to regulate behaviour; ii) Focus, respond and follow instructions; iii) Work towards simple goals with patience.
	<i>Managing feelings and behaviour:</i> i) Children talk about how they and others show feelings, talk about their own and others' behaviour, and its consequences, and know that some behaviour is unacceptable; ii) They work as part of a group or class, and understand and follow the rules; iii) They adjust their behaviour to different situations, and take changes of routine in their stride.	<i>Managing self:</i> i) Show confidence and independence; ii) Understand and follow rules; iii) Manage personal needs, like hygiene and dressing.
	<i>Making relationships:</i> i) Children play co-operatively, taking turns with others; ii) They take account of one another's ideas about how to organise their activity; iii) They show sensitivity to others' needs and feelings, and form positive relationships with adults and other children.	<i>Building relationships:</i> i) Form positive attachments; ii) Play co-operatively and take turns; iii) Show sensitivity to the needs of others.
Physical Development	<i>Moving and handling:</i> i) Children show good control and co-ordination in large and small movements; ii) They move confidently in a range of ways, safely negotiating space; iii) They handle equipment and tools effectively, including pencils for writing.	<i>Gross motor skills:</i> i) Move confidently and safely; ii) Show strength, balance and coordination in a range of physical activities.

	<i>Health and self-care:</i> i) Children know the importance for good health of physical exercise, and a healthy diet, and talk about ways to keep healthy and safe; ii) They manage their own basic hygiene and personal needs successfully, including dressing and going to the toilet independently.	<i>Fine motor skills:</i> i) Hold a pencil effectively in preparation for fluent writing; ii) Use other tools such as scissors and cutlery; iii) Begin to show accuracy when drawing.
Specific Areas of Learning		
Literacy	<i>Reading:</i> i) Children read and understand simple sentences; ii) They use phonic knowledge to decode regular words and read them aloud accurately; iii) They also read some common irregular words; iv) They demonstrate understanding when talking with others about what they have read.	<i>Comprehension:</i> i) Understand and retell stories using own words and new vocabulary; ii) Anticipate events and use new vocabulary in discussions.
	<i>Writing:</i> i) Children use their phonic knowledge to write words in ways which match their spoken sounds; ii) They also write some irregular common words; iii) They write simple sentences which can be read by themselves and others; iv) Some words are spelt correctly and others are phonetically plausible.	<i>Word reading:</i> i) Say sounds for letters and diagraphs; ii) Read simple words and sentences around, including sound blending. <i>Writing:</i> i) Write recognisable letters and spell words; ii) Write simple phrases and sentences.
Mathematics	<i>Numbers:</i> i) Children count reliably with numbers from 1 to 20, place them in order and say which number is one more or one less than a given number; ii) Using quantities and objects, they add and subtract two single-digit numbers and count on or back to find the answer; iii) They solve problems, including doubling, halving and sharing.	<i>Number:</i> i) Understand numbers up to 10; ii) Recognise quantities up to 5 without counting; iii) Automatically recall number bonds up to 5 and some to 10.
	<i>Shape, space and measures:</i> i) Children use everyday language to talk about size, weight, capacity, position, distance, time and money to compare quantities and objects and to solve problems; ii) They recognise, create and describe patterns; iii) They explore characteristics of everyday objects and shapes and use mathematical language to describe them.	<i>Numerical patterns:</i> i) Count beyond 20; ii) Compare quantities up to 10; iii) Explore number patterns up to 10, such as odds, evens and doubles.

Table A2: Number and proportion of children who did not meet expectations in each area of learning. The most frequent areas of learning not reached for those who were below expectations in 1-4 areas of learning are highlighted in grey.

GLD Overall (Areas of Learning)	N	Areas of Learning Not Reached				
		Communication	Physical	PSE	Literacy	Mathematics
Below expectations in 1 area of learning	65,428	6,336 (9.7%)	3,111 (4.8%)	10,714 (16.4%)	31,284 (47.8%)	13,983 (21.4%)
Below expectations in 2 areas of learning	63,412	14,812 (23.4%)	5,583 (8.8%)	12,200 (19.2%)	51,034 (80.5%)	43,195 (68.1%)
Below expectations in 3 areas of learning	44,780	32,179 (71.9%)	9,674 (21.6%)	15,975 (35.7%)	40,394 (90.2%)	36,118 (80.7%)
Below expectations in 4 areas of learning	40,359	38,192 (94.6%)	15,622 (38.7%)	30,832 (76.4%)	39,190 (97.1%)	37,600 (93.2%)

Table A3: Logistic regressions examining the extent to which the predictive relationship between GLD Linear Scores and later SEND identification is consistent across group characteristics (adjusted models).

Group Characteristics	N	Model Fit			Odds Ratio			
		Pseudo R ²	X ² (df)	p	OR	SE	95% CIs	p
Ethnicity (1 = White; 0 = Non-White)								
GLD Linear Main Effect	561,994	.19	108,143(18)	<.001	.81	.001	.808 – 8.13	<.001
Ethnicity Main Effect					1.47	.03	1.41 – 1.52	<.001
GLD x Ethnicity Interaction					.98	.001	.973 - .980	<.001
EAL (1 = No EAL; 0 = EAL)								
GLD Linear Main Effect	561,994	.19	108,260(18)	<.001	.81	.001	.812 – .817	<.001
EAL Main Effect					1.90	.04	1.84 – 1.98	<.001
GLD x EAL Interaction					.97	.002	.966 - .973	<.001
FSM (1 = FSM; 0 = No FSM)								
GLD Linear Main Effect	561,994	.19	108,116(18)	<.001	.79	<.001	.792- 1.36	<.001
FSM Main Effect					1.41	.03	1.36 – 1.47	<.001
GLD x FSM Interaction					1.02	.002	1.02 – 1.03	<.001
Gender (1 = Male; 0 = Female)								
GLD Linear Main Effect	561,994	.19	108,049(18)	<.001	.79	.001	.789 - .793	<.001
Gender Main Effect					1.38	.02	1.33 – 1.43	<.001
GLD x Gender Interaction					1.01	.002	1.01 – 1.02	<.001
Summer Born (1 = August; 0 = September)								
GLD Linear Main Effect	94,595	.18	16,589(8)	<.001	.80	.002	.795 - .805	<.001
Summer born Main Effect					.98	.05	.898 – 1.08	.742
GLD x Summer born Interaction					1.00	.004	.992 – 1.01	.828
Hospital-Recorded Chronic Health Condition (1 = Yes; 0 = No)								
GLD Linear Main Effect	561,994	.19	107,989(18)	<.001	.80	.001	.796 - .799	<.001
CHC Main Effect					1.05	.15	.804 – 1.38	.702
GLD x CHC Interaction					1.03	.01	1.00 – 1.05	.05

Table A4: Area under the curve (AUC) values examining the extent to which the predictive relationship between GLD Linear Scores and later SEND is consistent across pupil characteristics (adjusted models).

Pupil Characteristics	N	AUC
<i>Ethnicity</i>		
White British	561,994	.80
Ethnic minority		.79
<i>EAL</i>		
English as First Language	561,994	.80
English as Additional Language		.79
<i>Socioeconomic Background</i>		
FSM	561,994	.77
Non-FSM		.79
<i>Gender</i>		
Male	561,994	.78
Female		.79
<i>Summer Born</i>		
August born	94,595	.79
September born		.79
<i>Hospital-Recorded Chronic Health Conditions</i>		
Chronic Health Condition(s)	561,994	.78
No Chronic Health Conditions		.80

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