



Background

- Immigrants and their US-born children make up 61 million of the US population.¹
- Unique stressors negatively impact their NICU experience and family well-being.²⁻⁴
- Infants of immigrant mothers are an extremely vulnerable population that is often ignored.

Objective

- To evaluate the effect of maternal immigrant status on perceptions of discharge readiness in mothers of preterm infants (gestational age <37 weeks).
- To identify the impact of primary language in the household, maternal birthplace, and years in US on discharge readiness.

Methods

- Study sample: immigrant mothers (172) and native mothers (560) of preterm infants cared for in the NICU for >5 days between 2012 and 2015.
- The mothers completed the Fragile Infant Parent Readiness Evaluation™ (FIPRE) which was used as a discharge readiness questionnaire.
- The FIPRE is comprised of 5 primary scores which are converted to a standard 0-100 metric with greater scores being more favorable (scores <75 were evaluated).

Statistical Analyses

- Group comparisons were made based on maternal immigrant status.
- For maternal characteristics, chi-square tests were used for the categorical data, and t-test and Wilcoxon were used for the continuous data.
- For infant characteristics, bivariate regressions with GEE adjustment were used for the categorical data, and mixed models were used for the continuous data.
- Regression models were run on the total population and on the immigrant mothers to examine the effect of maternal immigrant status, primary language, maternal birthplace, and years in US on discharge readiness.

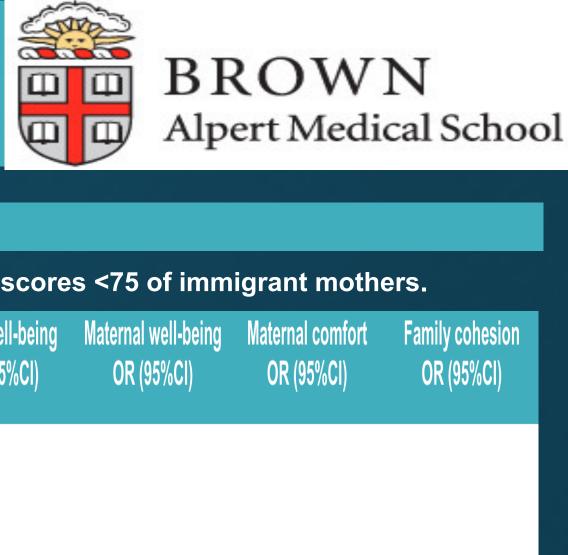
Results

Results													
Maternal characteris	FIPRE scales of immigrant and native mothers.					Logistic regressions for FIPRE scores <75 of immigrant mo							
Characteristics	Immigrant Mothers	Native Mothe	ers P value	Scales	Immigrant Mothers	Native Mo	others P va	lue	Characteristics	NICU support	Infant well-being		
N(%)	172(23)	560(77)		NICU support	93.7±10(10	0) 93.0%±12	(100) 0.75			OR (95%CI)	OR (95%CI)	OR (95%Cl)	OR (95%CI)
Age, y	30.7±6	29.1±6	0.004	Score < 75	7(4)	37(7)	0.22						
Gravida >1 Prenatal care	131(76) 197(99)	362(65) 656(99)	0.005 0.70	Infant well-bein	g 77.2±32(10	0) 88.8±17(1	00) 0.004	4					
Race/ethnicity	107(00)	000(00)	0.70	Score < 75	55(32)	78(14)	<0.0	001					
White	15(9)	394(70)		Maternal well-	77.6±16(79	4) 80.7±16(8	4.8) 0.01			1.11	0.97	1.02	0.96
Black	32(19)	54(10)	<0.0001	being	× ×	, ,	,		Years in US	(1.02-1.20)	(0.93-1.01)	(0.98-1.06)	(0.93-1.00)
Hispanic Mixed/other	93(54) 32(10)	71(13)		Score < 75	66(38)	157(28)	0.01						
Unmarried	32(19) 93(56)	41(7) 295(3)	0.61	Maternal	68.0±28(76	.2) 75.1±23(8	1) 0.01						
Non-English	105(61)	32(6)	<0.0001	comfort Score < 75	80(47)	219(39)	0.06						
primary language				Family cohesio									
Less than high school	33(20)	70(13)	0.02	Score < 75	•	, 00.1±21(0 119(21)	0.86						
Medicaid	120(70)	279(50)	<0.0001		35(21)	119(21)	0.00						
Child protective	6(3)	70(13)	0.0007	Time impact						1.99	1.51	0.60	1.19
services				A lot	51(30)	107(19)			Medicaid	(0.33-11.86)	(0.67-3.43)	(0.29-1.26)	(0.57-2.51)
Domestic abuse	12(7)	53(10)	0.33	Some	39(23)	131(24)		0		X /	()		\
Substance abuse Adverse mental	6(4) 34(20)	80(14) 232(42)	0.0001 <0.0001	A little	40(24)	191(34)	0.008	0					
health	34(20)	232(42)	<0.0001	None	39(23)	128(23)							
Maternal characteris	stics of immiar	ant mothers.		Bar graph of FIF	PRF scores <7	5 for immigrant a	nd native mot	hers.					
Characteristics		Immigrant Mothe	rs	50					Summar	V Poculte			
Maternal birthplace							P value 0.06		Juimia	y Results			
-				45			47						
Developed		8(5)		40		P value 0.01			•	ant mothers we		•	
Africa		33(20)				20	39		Medica	nglish speakin aid.	ig, less than	nign school	education,
Latin America		42(25)		35	P value <	0.0001							
Caribbean		60(36)		a 30	32				U	ant mothers we ement, substa		•	•
Asia & Oceania		23(14)		00 tage		28				בוווכווו, שטשומ	nce abuse, a	and adverse i	nentai nea
Years in US		, , , , , , , , , , , , , , , , , , ,		25 gug		20		P value 0.86		of immigrant m		•	
		22/22)		ם 20				21 21	nemor	rhage (III-IV), a	and any brea	st milk at dis	charge.
<5		33(22)						21 21		ant mothers we		-	-
5-9		40(26)		15					well-be	eing, maternal	well-being,	maternal con	nfort and ti
10-14		29(19)		10 P value	1	4			In the t	otal population	, immigrant i	nother, days	in NICU, n
15+		49(32)			= 0.22					ng, and social	•		•
Primary language re	eported			5	7				• In the t	otal population	Medicaid p	redicted favor	ahla FIPRF
English		55(32)		0 4							, medicald pl		
Spanish		86(51)		NIC	U Infant w		Maternal	Family		mmigrant moth	• •	•	
				supp		, C	comfort	cohesion	associa	ated with an inc	creased perc	eption of poo	r NICU sup
Other		29(17)			Immigrant	Mothers Nativ	e Mothers						
Infant characteristic	s of infants of i	immigrant and native	e mothers.	Logistic regres	sions for FIPR	E scores <75 of t	otal populatio	n.	Conclusi	ions			
Characteristics	Infants of	Infants of	P value	Characteristics	NICU Infa	ant well- Materna	l Maternal	Family					
	Immigrant Mothers	Native Mothers				being well-bein	•	cohesion					
N(%)	199(23)	667(77)		C	OR (95%CI) OR	(95%CI) OR (95%C	CI) OR (95%CI)	OR (95%CI)	Nearly	a quarter of the	e mothers we	re immigrants.	
Preterm group					• • •	· • • · • · • · • · • · • · • · • · • ·							
Early	65(33)	199(3)	0.50	Immigrant		1.87 1.54	1.35	0.85	Immigra	ant mothers pe	rceived less o	discharge read	diness in co
Moderate Late	42(21) 92(46)	143(21) 325(49)	0.52	mother (0.37-2.64) (1.	11-3.15) (0.96-2.46	6) (0.86-2.10)	(0.49-1.47)	native r	nothers.		•	
Birth weight, g	1784±639	1885±658	0.10										
Gest. age, wk	32.1±3	32.2±3	0.78	Days in NICU			1.01	1.01					
Days in hospital	37.2±37	35.2±36	0.65		0.97-1.00) (1.0	00-1.01) (1.00-1.0 <i>°</i>	1) (1.00-1.01)	(1.01-1.01)	• NON-Er	nglish speaking	and increase	eu sociai risk t	aciors cont
Multiple Male	54(27) 108(54)	207(31) 349(52)	0.25 0.76		-								
Intraventricular	8(4)	8(1)	0.02	Non-English		2.04 1.59	1.31	1.27	Our find	dings highlight t	the need for a	culturally com	petent care
hemorrhage (III-IV)	7(4)		0.00	speaking (0.11-1.31) (1.1	18-3.53) (0.95-2.66	6) (0.80-2.13)	(0.71-2.27)	enhanc	ed discharge re	eadiness serv	vices to help tl	his extreme
Necrotizing enterocolitis	7(4)	13(2)	0.20						populat	tion.			
Sepsis	8(4)	20(3)	0.46	Medicaid		1.20 0.44 74 1 02) (0 20 0 6	0.57	1.32					
Bronchopulmonary		64(10)	0.60		0.73-3.26) (0.1	74-1.93) (0.30-0.67	7) (0.40-0.83)	(0.84-2.08)		udes less than high so ce abuse, and adverse		• •	e services involv
dysplasia Apy broast milk at	155/70)	ADE/CE)	0.002										
Any breast milk at discharge	155(78)	435(65)	0.003	Social risk*		1.01 1.18	1.02	1.18		/ital Statistics Reports rges F, et al. Discharg		IICU to Latino famili	es with limited F
Oxygen at	11(6)	21(5)	0.55	factors (0.94-1.52) (0.8	36-1.20) (1.02-1.36	6) (0.89-1.16)	(1.01-1.38)		DB, et al. Connection			

maternal characteristic
Characteristics
Maternal birthplace
Developed
Africa
Latin America
Caribbean
Asia & Oceania
Years in US
<5
5-9
10-14
15+

Results															
Maternal characteris	laternal characteristics of immigrant and native mothers.			FIPRE scales of immigrant and native mothers.						Logistic regressions for FIPRE scores <75 of immigrant mo					
Characteristics	Immigrant Mothers	Native Moth	ers P value	Scales	Immigra Mothers		Native Moth	ers P val	ue	Characteristics	NICU support	Infant well-being		•	
N(%)	172(23)	560(77)		NICU support	93.7±10((100)	93.0%±12(10	0.75 0.75			OR (95%Cl)	OR (95%Cl)	OR (95%CI)	OR (95%CI)	
Age, y	30.7±6	29.1±6	0.004	Score < 75	7(4)		37(7)	0.22							
Gravida >1 Prenatal care	131(76) 197(99)	362(65) 656(99)	0.005 0.70	Infant well-bein	ig 77.2±32((100)	88.8±17(100) 0.004							
Race/ethnicity	197 (99)	000(99)	0.70	Score < 75	55(32)		78(14)	<0.00	01						
White	15(9)	394(70)		Maternal well-	77.6±16((79.4)	80.7±16(84.8	3) 0.01			1.11	0.97	1.02	0.96	
Black	32(19)	54(10)	<0.0001	being		()		,		Years in US	(1.02-1.20)	(0.93-1.01)	(0.98-1.06)	(0.93-1.00)	
Hispanic Mixed/other	93(54)	71(13)		Score < 75	66(38)		157(28)	0.01			((0.00)	()	
Mixed/other Unmarried	32(19) 93(56)	41(7) 295(3)	0.61	Maternal	68.0±28((76.2)	75.1±23(81)	0.01							
Non-English	105(61)	32(6)	<0.0001	comfort Score < 75	80(47)		219(39)	0.06							
primary language				Family cohesio			83.1±21(85)	0.20							
Less than high	33(20)	70(13)	0.02			(00)									
school Medicaid	120/70)	270(50)	<0.0001	Score < 75	35(21)		119(21)	0.86							
Child protective	120(70) 6(3)	279(50) 70(13)	0.0007	Time impact							1.99	1.51	0.60	1.19	
services	0(0)		0.0001	A lot	51(30)		107(19)			Medicaid	(0.33-11.86)	(0.67-3.43)	(0.29-1.26)	(0.57-2.51)	
Domestic abuse	12(7)	53(10)	0.33	Some	39(23)		131(24)						(0.20 1.20)	(0.07 2.01)	
Substance abuse	6(4)	80(14)	0.0001	A little	40(24)		191(34)	0.008							
Adverse mental health	34(20)	232(42)	<0.0001	None	39(23)		128(23)								
Maternal characteris	stics of immigr	ant mothers.		Bar graph of Fl		s <75 for im	nmigrant and	native mot	ners.						
Characteristics	50				value 0.06		Summary Results								
Maternal birthplace)			45				47							
Developed		8(5)		75						Immigra	ant mothers we	ere more like	lv to be older	 aravida >	
Africa		33(20)		40		P١	value 0.01			•	nglish speakin		•		
Latin America		42(25)		35	. .	-0.0004	38	39		Medica	nid.				
					P value	e <0.0001				Immigra	ant mothers we	ere less likel y	/ to have chil	d protectiv	
Caribbean		60(36)		မ္ <u>မာ</u> 30	32	2				involve	ement, substa	nce abuse, a	and adverse r	nental hea	
Asia & Oceania		23(14)		00 entage 25			28			Infants	of immigrant m	nothers were	more likely to	o have intra	
Years in US				ပို					P value 0.86		rhage (III-IV), a		•		
<5		33(22)		م 20					21 <mark>21</mark>		ant mothers we	ara mara lika	ly to soore u	nfavorably	
5-9		40(26)		15						•	eing, maternal		•	•	
10-14		29(19)				14									
15+		49(32)		¹⁰ P valu	e 0.22						otal population, ng, and social	•	•	•	
Primary language re	oportod	10(02)		5	7										
	eponeu			4						In the to	otal population	, Medicaid pr	redicted favor	able FIPR	
English		55(32)		0 NIC	:U Infan	nt well- N	Maternal I	Maternal	Family	In the ir	mmigrant moth	er population	, increased y	ears in US	
Spanish		86(51)		supp				comfort	cohesion	associa	ated with an inc	creased perc	eption of poo	r NICU sup	
Other		29(17)			Immigra	ant Mothers	s Native	Mothers							
Infant characteristic				Logistic regres			es <75 of tota	· · ·		Conclusi	ons				
Characteristics	Infants of Immigrant	Infants of Native	P value	Characteristics		Infant well- being	Maternal well-being	Maternal comfort	Family cohesion						
	Mothers	Mothers			support OR (95%CI)	OR (95%CI)	OR (95%CI)	OR (95%CI)		Nearly	a quarter of the	mothers way	re immigrante		
N(%)	199(23)	667(77)								• Nearly a	a quarter or the			•	
Preterm group Early	65(33)	199(3)		Immigrant	0.99	1.87	1.54	1.35	0.85	_					
Moderate	42(21)	143(21)	0.52		(0.37-2.64)	(1.11-3.15)	(0.96-2.46)	(0.86-2.10)	(0.49-1.47)	Immigra	ant mothers pe	rceived less o	discharge read	Jiness in co	
Late	92(46)	325(49)	0.40		·		,	,	·	native n	nothers.				
Birth weight, g Gest. age, wk	1784±639 32.1±3	1885±658 32.2±3	0.10 0.78	Days in NICU	0.98	1.00	1.01	1.01	1.01						
Days in hospital	37.2±37	35.2±36	0.65		(0.97-1.00)	(1.00-1.01)	(1.00-1.01)	(1.00-1.01)	(1.01-1.01)	Non-En	glish speaking	and increase	ed social risk f	actors cont	
Multiple	54(27)	207(31)	0.25												
Male Intraventricular	108(54) 8(4)	349(52) 8(1)	0.76 0.02	Non-English	0.39	2.04	1.59	1.31	1.27	Our find	dings highlight	the need for a	culturally com	petent care	
hemorrhage (III-IV)	8(4)	8(1)	0.02	u	(0.11-1.31)	(1.18-3.53)	(0.95-2.66)	(0.80-2.13)	(0.71-2.27)		ed discharge re			•	
Necrotizing	7(4)	13(2)	0.20			-	-			populat	C				
enterocolitis Sensio	O(A)		0.40	Medicaid	1.54	1.20	0.44	0.57	1.32	populat					
Sepsis Bronchopulmonary	8(4) 22(11)	20(3) 64(10)	0.46 0.60		(0.73-3.26)	(0.74-1.93)	(0.30-0.67)	(0.40-0.83)	(0.84-2.08)	*Social risk inclu	ides less than high so	chool education, sir	ngle, child protective	e services involv	
dysplasia		טיו(יט)	0.00								e abuse, and adverse	-	•		
Any breast milk at	155(78)	435(65)	0.003	Social risk*	1.20	1.01	1.18	1.02	1.18		ital Statistics Reports				
discharge Oxygen at	11(6)	21(5)	0.55	factors	(0.94-1.52)	(0.86-1.20)	(1.02-1.36)	(0.89-1.16)	(1.01-1.38)	3. Nicholas D	rges F, et al. Discharg)B, et al. Connection	-			
discharge	11(0)	21(3)	0.00								care unit. et al. Neonatal intensi es, a prospective coh		ne: the transition fro	m parent and pe	

Perceptions of Discharge Readiness by Maternal Immigrant Status in NICU Mothers Layla Abdulla, Elisabeth C McGowan, Richard Tucker, and Betty Vohr Women & Infants Hospital and Alpert Medical School of Brown University



Enlow E, et al. Neonatal intensive care unit to home: the transition from parent and pediatrician



1.52 (0.62-3.76)

