

Supplementary Tables S1 and S2

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Supplementary Table S1. Examples of racial/ethnic groups (highlighted) reported to have higher prevalence or frequency of asthma symptoms, diagnosis, mortality, ED visits and/or hospital admissions than comparator (>) ethnic groups. Data are from cross-sectional and cohort studies, a systematic review (SR) (Netuveli et al., 2005) and a non-systematic review (R) (Lara et al., 1999).

Location	Prevalence	Symptoms or diagnosis	Mortality	ED visits	Hospital admissions
Canada		British > East European (Horne et al., 1989)			
Fiji		Indian: > Fijian (Flynn, 1994)			
Germany	German: > Turkish (Kabesch et al., 1999)				
Israel	Jew: > Arab (Shohat et al., 2000) > Druze (Sacher et al., 1994) Western: > North-African (Laor et al., 1993)	Jew: > Arab (Shohat et al., 2000)		Arab: > Jew (Horowitz et al., 1995)	
Malaysia	Indian: > Chinese (Ross, 1984) Malay: > Chinese (Ross, 1984)				
Netherlands		Dutch: > Surinamese/Antillean > Turkish/Moroccan (Van de Ven et al., 2006)			
New Zealand	Maori: > Pacific Islander > European (Pattimore et al., 1989; Robson et al., 1993 ; Salmond	European: > Maori > Pacific Islander (Garrett et al., 1989) Maori:	Maori: > European > Pacific Islander (Sears et al., 1985; Mitchell, 1991)		Maori: > European (Mitchell & Cutler, 1984) Pacific Islander: > European

	et al., 1999)	> European	Pacific Islander:	> Maori
	Pacific Islander:	> Pacific Islander	> European (Mitchell, 1991)	(Mitchell & Cutler,
	> European	(Pattemore et al., 2004)		1984; Tukuitonga et al.,
	(Salmond et al., 1999)			2004)
Norway	Sami:	Sami:		
	> White Caucasian	> White Caucasian		
	(Selnes et al., 1999)	(Selnes et al., 1999)		
Singapore	Indian:	Indian:	Indian:	Indian:
	> Chinese (Ng et al., 1994)	> Chinese (Ng & Tan, 1999)	> Chinese (Ng & Tan, 1999)	> Chinese
	Malay:	Malay:	Malay:	(Ng et al., 2003; 2006)
	> Chinese (Ng et al., 1994)	> Chinese (Ng & Tan, 1999)	> Chinese (Ng & Tan, 1999)	Malay:
				> Chinese (Ng et al., 2003)
South Africa			Mixed race:	
			> Black, White	
			(Zar et al., 2001)	
Sweden	Chilean:			
	> Swedish (Hjern et al., 2000)			
UK	Black Non-Hispanic:	Asian:	Black Non-Hispanic:	Black:
	> Hispanic	> White (Jones et al., 1996)	> Hispanic	> White (Gilthorpe et al.,
	> White Non-Hispanic	> Non-Asian	> White Non-Hispanic	1998; Netuveli et al.,
	(Akinbami & Schoendorf,	(Donaldson & Taylor, 1983)	(Akinbami & Schoendorf,	2005) (SR)
	2002)	Black:	2002)	Indian Sub-Continental:
		> White (Netuveli et al.,		> White European
		2005) (SR)		(Moudgil & Honey-
		Black Non-Hispanic:		bourne, 1998)
		> Hispanic		South Asian:
		> White Non-Hispanic		> White (Netuveli et al.,
		(Akinbami & Schoendorf,		2005) (SR)
		2002)		
		White:		
		> South Asian (Netuveli et al.,		
		2005) (SR)		

<p>USA</p>	<p>Asian: > Latino (Simon et al., 2003) African American: > Asian, Latino (Meng et al., 2007) > Caucasian (von Behren et al., 1999; Lwebuga-Mukasa & Dunn-Georgiou, 2000) > White Non-Hispanic (Meng et al., 2007) > White (Chung et al., 2004; Meng et al., 2007) American Indian / Alaskan native: > Asian, Latino, White > White Non-Hispanic (Meng et al., 2007) Black: > Asian, Latino (Simon et al., 2003) > Hispanic (Smith et al., 2005) > Mexican, Puerto Rican (Freeman et al., 2003) > White (Turkeltaub & Gergen, 1991; Nelson et al., 1997; Litonjua et al., 1999; Chung et al., 2004; Smith et al., 2005a; Pearlman et al., 2006) Cuban American: > Mexican American (Davis et al., 2006)</p>	<p>African American: > Caucasian (Higgins et al., 2005) > European American > Mexican American (Roberts, 2002) Afro-Caribbean: > Bangladeshi (Saxena et al., 2002) Black: > White (Litonjua et al., 1999; Chen et al., 2002; Lieu et al., 2002; Litonjua et al., 2005; Guevara et al., 2006; Bai et al., 2007) Hispanic: > African American (Beckett et al., 1996; Higgins et al., 2005) > Caucasian (Higgins et al., 2005) > White (Litonjua et al., 1999; 2005) Irish: > Bangladeshi (Saxena et al., 2002) Mexican American: > White Non-Hispanic (Arif et al., 2003) Black Non-Hispanic: > Mexican (Rose et al., 2006) White Non-Hispanic:</p>	<p>African American: > Caucasian (Schleicher et al., 2000) Black: > White (Schwartz et al., 1990; Carr et al., 1992; Grant et al., 2000; Gupta et al., 2006) Black Non-Hispanic: > Asian > Pacific Islander (Payne-Sturges & Gee, 2006) > White Non-Hispanic (Akinbami & Schoendorf, 2002; Payne-Sturges & Gee, 2006) Hispanic: > White (Carr et al., 1992) Puerto Rican: > Cuban-American > Mexican-American (Homa et al., 2000)</p>	<p>African American: > Caucasian (Zoratti et al., 1998) > White (Grant et al., 2005; Stingone & Claudio, 2006) Black: > Hispanic (Boudreaux et al., 2003a; Smith et al., 2005a) > White (Boudreaux et al., 2003a; 2003b; Elster et al., 2003; Smith et al., 2005a) Black Non-Hispanic: > White Non-Hispanic (Centers for Disease Control & Prevention, 2002; Akinbami & Schoendorf, 2002) Hispanic: > Black, White (Boudreaux et al., 2003b) Latino: > African American > White (Stingone & Claudio, 2006)</p>	<p>African American: > Caucasian (Zoratti et al., 1998; von Behren et al., 1999) > European American > Mexican American (Roberts, 2002) > White Non-Hispanic (Laditka & Laditka, 2006) > White (Bloomberg et al., 2003; Grant et al., 2005) Black: > Hispanic (Boudreaux et al., 2003a) > White (Wissow et al., 1988; Gergen & Weiss, 1990; Goodman et al., 1998; Ray et al., 1998; Carr et al., 1992; Boudreaux et al., 2003a; 2003b; Wallace et al., 2004; Gupta et al., 2006) Black Non-Hispanic: > White Non-Hispanic (Ash & Brandt, 2006) Hispanic: > Black (De Palo et al., 1994) > White (Carr et al., 1992;</p>
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Hispanic:

- > Black (Crain et al., 1994; Beckett et al., 1996)
- > White Non-Hispanic (Beckett et al., 1996)
- > White (Crain et al., 1994; Litonjua et al., 1999; Chung et al., 2004)

Hispanic/Latino:

- > Caucasian (Lwebuga-Mukasa & Dunn-Georgiou, 2000)

Black Non-Hispanic:

- > Mexican American (Arif et al., 2004)
- > White Non-Hispanic (Arif et al., 2004; Smith et al., 2005b)

White Non-Hispanic:

- > Mexican-American (Arif et al., 2003; 2004)

Puerto Rican:

- > Black Non-Hispanic (Lara et al., 2006)
- > Cuban American (Lara et al., 1999) (R)
- > Mexican (Freeman et al., 2003; Lara et al., 2006)
- > Mexican American (Lara et al., 1999 (R); Davis et al., 2006)
- > Non-Puerto-Rican Latino (Ortega et al., 2006)
- > White Non-Hispanic (Lara et al., 2006)

- > Mexican (Rose et al., 2006)

- > Mexican American (Arif et al., 2003)

Non-Mexican-American:

- > Mexican American (Dodge, 1983)

Puerto-Rican:

- > Mexican
- > Black Non-Hispanic
- > White Non-Hispanic (Rose et al., 2006)

South Asian:

- > Chinese, Filipino (Klatsky & Tekawa, 2005)

White:

- > Black, Hispanic (Christiansen et al., 1996)

- Boudreaux et al., 2003b; De Palo et al., 1994)
 - > White Non-Hispanic (Ash & Brandt, 2006; Laditka & Laditka, 2006)
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White:

- > Hispanic (Smith et al., 2005a)
 - > Latino (Simon et al., 2003)
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Supplementary Table S2. Examples of physiological, socioeconomic and other variables typically reported in the literature to differ among racial/ethnic groups of asthma patients

	Study group	Racial/ethnic differences	References
Lung function			
FEF ₂₅₋₇₅	Malaysia, children	Chinese > Malay, Indian	Azizi & Henry (1994)
FEV ₁	USA, children	White > African American	Greaves et al. (2007)
FEV ₁ % predicted	USA, families	Hispanic > White > African American	Lester et al. (2001)
FEV ₁ % predicted	USA, children	White > African American	Greaves et al. (2007)
FEV ₁ & FVC	UK, children	White > Asian	Whittaker et al. (2005)
FEV ₁ & FVC	USA, children	White > African-American, Asian, Hispanic, Somali	Greaves et al. (2007)
FEV ₁ & FVC	USA, adolescents	White > Black	Hsi et al. (1983)
FEV ₁ & FVC	USA, adults	White > Black	Jacobs et al. (1992)
FEV ₁ & FVC	Tahiti, adolescents	European > Polynesian	Neukirch et al. (1988)
FEV ₁ & FVC	Malaysia, children	Chinese > Malay, Indian	Azizi & Henry (1994)
FEV ₁ & FVC	Singapore, adults	Chinese > Malay > Indian	Johan et al. (1997), Chia et al. (1993)
FVC	USA, children	White > Black	Binder et al. (1976)
FVC	USA, children	White > African American	Greaves et al. (2007)
PEF	Turkey, children	Turkish > Mexican American, African American, White American	Ones et al. (2004)
PEF (measured in emergency department)	USA, adults	White > Black, Hispanic	Boudreaux et al. (2003a)
Cardiopulmonary capacity expressed as V _{max50%}	USA, children	Mexican American > Non-Mexican American	Dodge (1983)
Cardiopulmonary capacity expressed as V _{max}	China, children	Caucasian > Chinese	Wong et al. (2001)
Effect of maternal smoking on FEF ₂₅₋	USA, children	Black > White	Cunningham et al. (1995)

⁷⁵ & FEV₁/FVC

Other physiological variables

Body mass index	UK, children	White > Asian	Whittaker et al. (2005)
Birth weight	USA, families	European American > African American	Klinnert et al. (2002)

Asthma and allergy characteristics

Asthma Quality of Life Questionnaire (AQLQ) score	UK, adolescents & adults	White European > Indian Sub-continental	Moudgil et al. (2000)
Asthma Quality of Life score (St George's Respiratory Health Questionnaire, SGRH)	Malaysia, adults	Indian > Malay, Chinese	Loh et al. (2006)
Frequency of maternal asthma	USA, families	European American > African American	Klinnert et al. (2002)
Frequency of maternal asthma	USA, families	African American > White > Hispanic	Lester et al. (2001)
Number of siblings with asthma	USA, families	African American > Hispanic > White	Lester et al. (2001)
Asthma persistence	USA, children	Non-Caucasian > Caucasian	Higgins et al. (2005)
Airway inflammation markers (sputum eosinophils & neutrophils)	USA, adults	Differed between African American, Hispanic and White	Woodruff et al. (2001)
Total IgE concentration	USA, families	Hispanic > African American > White	Lester et al. (2001)
Total IgE concentration	USA, children	Asian > White > Somali > Hispanic > African American	Greaves et al. (2007)

Exposure to pollutants and allergens

Aeroallergen sensitivity	USA, adults	Black > White	Litonjua et al. (2005)
Pet allergen exposure	USA, families	European American > African American	Klinnert et al. (2002)
Frequency of positive skin tests to cockroaches, fungi, house dust mite, pet allergens, and/or pollen	USA, children & families	Differed between African American, Hispanic, Puerto Rican, White	Lester et al. (2001), Celedon et al. (2004)
Exposure to threshold PM _{2.5} air pollution	USA, whole census population	Asian, Pacific Islander, White Hispanic > American Indian /Alaska native, Black Hispanic, Black Non-Hispanic, White non-Hispanic	Payne-Sturges & Gee (2006)

Exposure to aromatic volatile organic compounds	USA, adults	Mexican American > Non-Hispanic White > Non-Hispanic Black	Arif & Shah (2007)
Current smoker	USA, adults	White > Black > Hispanic	Boudreaux et al. (2003a)
Prenatal smoke exposure	USA, families	European American > African American	Klinnert et al. (2002)
Tobacco smoke exposure	USA, families	African American > European American > Hispanic	Klinnert et al. (2002)
Education & knowledge			
Cognitive score	USA, families	European American > African American	Klinnert et al. (2002)
Asthma knowledge	USA, adults	Non-African American > African American	Apter et al. (2003)
Economic factors			
Proportion of population in urban residence	USA, children	Puerto Rican > African American > White	Celedon et al. (2004)
Proportion of population in suburban residence	USA, children	White > African American > Puerto Rican	Celedon et al. (2004)
Proportion of population resident in high poverty area	USA, children	Black > White, Asian, Hispanic	Kitch et al. (2000)
Proportion of population resident in low poverty area	USA, children	White > Asian > Hispanic > Black	Kitch et al. (2000)
Proportion of population in lowest social class	UK, children & adolescents	Afro-Caribbean, Indian, Pakistani, Bangladeshi > general population	Saxena et al. (2002)
Proportion from locality with lowest socio-economic indicators	USA, adults	Black, Hispanic > White	Litonjua et al. (2005)
Household income	USA, families	White, African American > Hispanic > Asian, Somali	Kitch et al. (2000)
Household income	USA, families	White > Black > Hispanic	Boudreaux et al. (2003b)
Insurance status (private, Medicaid, other, none)	USA, families	Differed between White, Black, Hispanic	Boudreaux et al. (2003b)
Treatment and medication adherence			
Asthma medication use	USA, children	White > African American > Hispanic >	Greaves et al. (2007)

Prophylactic asthma medication use	New Zealand, children	Somali > Asian	Pattemore et al. (1989)
Prophylactic asthma medication use	UK, children	European > Maori, Pacific Islander	Smeeton et al. (2007)
Number of β_2 -agonists used in emergency department	USA, children	White > South Asian	Boudreaux et al. (2003b)
Number of β_2 -agonists used, various settings	USA, children	White, Black > Hispanic	
Number of β_2 -agonists prescribed in primary care	USA, children	White > Black, Hispanic	Ortega et al. (2002)
Number of β_2 -agonists prescribed in primary care	UK, children	White > Afro-Caribbean, Indian	Duran-Tauleria et al. (1996)
Number of β_2 -agonists prescribed in primary care	UK, children, systematic review	White > Asian	Netuveli et al. (2005)
Extent of β_2 -agonist over-prescription	USA, children	White > Hispanic	Shields et al. (2004)
Proportion that used inhaled corticosteroids	USA, adults	White > Black > Hispanic	Boudreaux et al. (2003a)
Proportion that used inhaled corticosteroids	USA, adults & children	White > Hispanic	Ferris et al. (2006)
Number of asthma prescription units	UK, unspecified patients	White > Asian > Afro-Caribbean	Sturdy et al. (1996)
Proportion on corticosteroid prescriptions	Systematic review, children	White > Black	Elster et al. (2003)
Proportion with inhaled corticosteroid prescriptions	USA, adults	Caucasian > African American	Zoratti et al. (1998)
Proportion on anti-inflammatory drugs	UK, children, systematic review	White > Asian	Netuveli et al. (2005)
Proportion on anti-inflammatory drugs	USA, children	Puerto Rican > Black	Diaz et al. (2000)
Proportion on anti-inflammatory drugs	Systematic review, children	White > Black, Hispanic	Elster et al. (2003)
Proportion owning a peak flow meter	USA, adults	White > Black > Hispanic	Boudreaux et al. (2003a)
Proportion ever intubated for asthma	USA, adults	Black > Hispanic > White	Boudreaux et al. (2003a)

Adherence to inhaled corticosteroids	USA, adults	Non-African American, White > African American	Apter et al. (2003), Williams et al. (2007)
Adherence to inhaled corticosteroids	USA, children	White > Hispanic	Ortega et al. (2002)
Proportion that lost their asthma medication	USA, children	African American > White	Yeatts et al. (2000)
Frequency of post emergency-department follow-up care	USA, children	White > Black, Hispanic	Shields et al. (2004)
Clinical effectiveness of education and drug therapy intervention	UK, adults	White European > Indian Sub-continental	Moudgil et al. (2000)
Effectiveness of nurse-led intervention to reduce unscheduled asthma care	UK, adults and children	Subgroup effect not significant but indicated greater benefit for White patients than South Asian or ethnic minorities	Griffiths et al. (2004)

References for Tables S1 and S2

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