

### DICOM Correction Item

Correction Number CP-1028	
Log Summary: Add Body Surface Area Equation for Asia	
Type of Modification Addition	Name of Standard PS 3.16 - 2009
<p>Rationale for Correction:</p> <p>Alternate equations are available for estimating Body Surface Area for Asian patients. References are added for all BSA formulae.</p> <p>Reference documents:</p> <ul style="list-style-type: none"> <li>- 1985 Infant Internal Medicine Department, "The Actual infant inspection method", special edition. (Japanese)</li> <li>- Kanai Izumi/Masamitsu Kanai, 'Clinical examination method summary'</li> <li>- DuBois D, DuBois DF. A formula to estimate the approximate surface area if height and weight are known. Arch Int Med 1916;17:863-71.</li> </ul> <p>(Japanese) 東洋人体表面積計算式の追加依頼</p>	
Sections of documents affected PS 3.16, Context ID 3663 Body Surface Area Equations	
Correction Wording:	

*Amend PS 3.16, Context ID 3663 Body Surface Area Equations as follows*

**Context ID 3663**  
**Body Surface Area Equations**  
 Type: Extensible Version: 2003032720100609

Coding Scheme Designator	Code Value	Code Meaning
DCM	122240	BSA = <del>0.003</del> 2.207*WT^(0.7285-0.0188 log (WT))*HT^0.3
DCM	122241	BSA = 0.007184*WT^0.425*HT^0.725
DCM	122242	BSA = 0.0235*WT^0.51456*HT <del>em</del> ^0.42246
DCM	122243	BSA = 0.024265*WT^0.5378*HT <del>em</del> ^0.3964
DCM	122244	BSA = (HT * WT/36)^0.5
<b><u>DCM</u></b>	<b><u>122245</u></b>	<b><u>BSA = 1321+0.3433*WT</u></b>
<b><u>DCM</u></b>	<b><u>122266</u></b>	<b><u>BSA = 0.007358*WT^0.425*HT^0.725</u></b>
<b><u>DCM</u></b>	<b><u>122267</u></b>	<b><u>BSA = 0.010265*WT^0.423*HT^0.651</u></b>
<b><u>DCM</u></b>	<b><u>122268</u></b>	<b><u>BSA = 0.008883*WT^0.444*HT^0.663</u></b>
<b><u>DCM</u></b>	<b><u>122269</u></b>	<b><u>BSA = 0.038189*WT^0.423*HT^0.362</u></b>
<b><u>DCM</u></b>	<b><u>122270</u></b>	<b><u>BSA = 0.009568*WT^0.473*HT^0.655</u></b>

Add to PS 3.16 Annex D

**DICOM Code Definitions (Coding Scheme Designator "DCM" Coding Scheme Version "01")**

Code Value	Code Meaning	Definition	Notes
...	...	...	...
122240	BSA = $0.003_{207} \cdot WT^{(0.7285 - 0.0188 \log(WT))} \cdot HT^{0.3}$	Body Surface Area computed from patient height and weight: BSA = <del>0.003</del> <sub>207</sub> · WT[ <b>kg</b> ] <sup>(0.7285 - 0.0188 log (WT[<b>kg</b>]))</sup> · HT[cm] <sup>0.3</sup> <b>[Boyd E, <u>The growth of the surface area of the human body.</u> Minneapolis: University of Minnesota Press, 1935, eq. (36)]</b>	
122241	BSA = $0.007184 \cdot WT^{0.425} \cdot HT^{0.725}$	Body Surface Area computed from patient height and weight: BSA = $0.007184 \cdot WT[kg]^{0.425} \cdot HT[cm]^{0.725}$ [Dubois and Dubois, <del>Proc Soc Exp Bio NY, 1916</del> <b><u>Arch Int Med 1916 17:863-71</u></b> ]	
122242	BSA = $0.0235 \cdot WT^{0.51456} \cdot HT^{0.42246}$	Body Surface Area computed from patient height and weight: BSA = $0.0235 \cdot WT[kg]^{0.51456} \cdot HT[cm]^{0.42246}$ <b>[Gehan EA, George SL, 'Estimation of human body surface area from height and weight', <u>Cancer Chemother Rep 1970 54:225-35</u>]</b>	
122243	BSA = $0.024265 \cdot WT^{0.5378} \cdot HT^{0.3964}$	Body Surface Area computed from patient height and weight: BSA = $0.024265 \cdot WT[kg]^{0.5378} \cdot HT[cm]^{0.3964}$ <b>[Haycock G.B., Schwartz G.J., Wisotsky D.H. 'Geometric method for measuring body surface area: A height weight formula validated in infants, children and adults.' <u>The Journal of Pediatrics 1978 93:1:62-66</u>]</b>	

122244	$BSA = (HT * WT/36)^{0.5}$	Body Surface Area computed from patient height and weight: $BSA = (HT[m] * WT[kg]/36)^{0.5}$ <b>[Mosteller, R.D. 'Simplified Calculation of Body Surface Area.' <i>N Engl J Med</i> 1987 Oct 22;317(17):1098]</b>	
<u>122245</u>	$BSA = 1321+0.3433*WT$	Body Surface Area computed from patient weight: $BSA = 1321+0.3433*WT[kg]$ (for pediatrics 3-30 kg) <b>[Current, J.D. 'A Linear Equation For Estimating The Body Surface Area In Infants And Children', <i>The Internet Journal of Anesthesiology</i>. 1998. 2:2]</b>	
<u>122266</u>	$BSA = 0.007358*WT^{0.425}*HT^{0.725}$	Body Surface Area computed from patient height and weight: $BSA = 0.007358*WT[kg]^{0.425}*HT[cm]^{0.725}$ (for East Asian adult, aged 15+ years) <b>[Kanai Izumi, Masamitsu Kanai, 'Clinical examination method summary']</b>	
<u>122267</u>	$BSA = 0.010265*WT^{0.423}*HT^{0.651}$	Body Surface Area computed from patient height and weight: $BSA = 0.010265*WT[kg]^{0.423}*HT[cm]^{0.651}$ (For East Asian child aged 12-14 years)	
<u>122268</u>	$BSA = 0.008883*WT^{0.444}*HT^{0.663}$	Body Surface Area computed from patient height and weight: $BSA = 0.008883*WT[kg]^{0.444}*HT[cm]^{0.663}$ (For East Asian child aged 6-11 years)	
<u>122269</u>	$BSA = 0.038189*WT^{0.423}*HT^{0.362}$	Body Surface Area computed from patient height and weight: $BSA = 0.038189*WT[kg]^{0.423}*HT[cm]^{0.362}$ (For East Asian child aged 1-5 years)	
<u>122270</u>	$BSA = 0.009568*WT^{0.473}*HT^{0.655}$	Body Surface Area computed from patient height and weight: $BSA = 0.009568*WT[kg]^{0.473}*HT[cm]^{0.655}$ (For East Asian child aged 0-12 months)	