

Biomedicínské znalosti jako dokumentované a spravované zdroje

Lesný, Holeček, Vejvalka

MediGrid

Obsah

- Zdroje a znalosti
- Znalost – vznik, management a implementace
- Znalost jako zdroj
- Znalosti a zdroje v MediGridu



Co je to?

$$lad = 24.695 * bsa ^ 0.3911$$

- Ať je to cokoliv, je to snadné implementovat (C/C++, Java/Script, VisualBasic, webové služby)
- K čemu to však biomedicínský odborník (lékař) potřebuje?

Co je to?

$$lad = 24.695 * bsa ^ 0.3911$$

- Vztah mezi 50 percentilem (průměrnou hodnotou) tloušťky síně levého septa měřené ultrazvukem v milimetrech a plochou povrchu těla dítěte udávanou v metrech čtverečních.
- Základ pro ultrazvukové hodnocení funkce a tvaru srdce.

Co je to?

$$\text{lad} = 24.695 * \text{bsa} ^ 0.3911$$

- Znalost...
- Zdroj...

Vznik znalosti

- Změření a statistické zpracování dat 2036 dětí od 1 do 18 let.
- Autorský kolektiv vedený Dr. Kampannem
- Data publikována ... odeslána do *peer-review* časopisu (Heart, **IF=3.8**)

Zpracování znalosti

- Proces publikace...
 - Požadavky na autorství / původnost
 - Posouzení nezávislými odborníky
 - Schválení redakční radou
 - Uveřejnění
- Vznik důvěry
- Začlenění do poolu „vědeckých informací“
- Začlenění do systémů vědeckých znalostí

Systemy znalostí

1: [Heart](#), 2000 Jun;83(6):667-72.

Normal values of M mode echocardiographic measurements of more than 2000 healthy infants and children in central Europe.

[Kampmann C](#), [Wiethoff CM](#), [Wenzel A](#), [Stolz G](#), [Betancor M](#), [Wippermann CF](#), [Huth RG](#), [Habermehl P](#), [Knuf M](#), [Emschermann T](#), [Stopfkuchen H](#).

Johannes Gutenberg University, Department of Paediatric Cardiology, Langenbeckstrasse 1, D-55101 Mainz, Germany. christoph.kampmann@uni-mainz.de

OBJECTIVE: To obtain normal M mode (one dimensional) echocardiographic values in a substantial sample of normal infants and children. **DESIGN:** Data were obtained over three years from a single centre in central Europe. **PATIENTS:** 2036 healthy infants and children aged one day to 18 years. **METHODS:** In line with recommendations for standardising measurements from M mode echocardiograms, and using digital echocardiographic equipment, measurements were obtained of the following: right ventricular anterior wall thickness at end diastole, right ventricular end diastolic dimension, thickness of interventricular septum at end diastole and end systole, thickness of posterior wall of the left ventricle at end diastole and end systole, left ventricular dimension at end diastole and end systole, pulmonary and aortic valve diameter, and left atrial dimension. **RESULTS:** Measurements are presented graphically on centile charts with respect to body surface area, and as tables with mean and 2 SD values for newborns in relation to body weight, and for infants and children in relation to body surface area. Best fitting regression equations are given for each measured variable, using the 50th centile values. **CONCLUSION:** In comparison with previously published normal values, the presented charts and tables make it possible to judge echocardiographic measurements of a particular patient as normal or abnormal.

PMID: 10814626 [PubMed - indexed for MEDLINE]

1. Knihovnický

- MeSH, UMLS
- Indexovaný přes MEDLINE / PubMed

2. Web of knowledge

- Hierarchie publikací seřazená dle citovanosti

Title: Normal values of M mode echocardiographic measurements of more than 2000 healthy infants and children in central Europe

Author(s): [Kampmann C](#), [Wiethoff CM](#), [Wenzel A](#), [Stolz G](#), [Betancor M](#), [Wippermann CF](#), [Huth RG](#), [Habermehl P](#), [Knuf M](#), [Emschermann T](#), [Stopfkuchen H](#)

Source: HEART 83 (6): 667-672 JUN 2000

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Abstract: Objective-To obtain normal M mode (one dimensional) echocardiographic values in a substantial sample of normal infants and children.

Design-Data were obtained over three years from a single centre in central Europe

Zdroj

- Vzniká okamžikem publikace...
- Vyhledání
- Důvěra
- Řízení přístupu
- Správa verzí
- Využití
- Implementace

Table 3 Regression equations of the different variables

| Variable | Regression equation | r^2 |
|------------|-------------------------------|--------|
| RVAWd (mm) | $2.8857 * BSA^{0.1015}$ | 0.9668 |
| RVDD (mm) | $7.4461 * e^{0.4587 * BSA}$ | 0.9898 |
| IVSd (mm) | $5.8055 * BSA^{0.3688}$ | 0.9772 |
| IVSs (mm) | $7.9158 * BSA^{0.3603}$ | 0.9865 |
| LVEDD (mm) | $38.537 * BSA^{0.4509}$ | 0.9896 |
| LVESD (mm) | $24.231 * BSA^{0.4469}$ | 0.9972 |
| LVPWd (mm) | $6.0963 * BSA^{0.3988}$ | 0.9854 |
| LVPWs (mm) | $9.9845 * BSA^{0.4238}$ | 0.9908 |
| AoD (mm) | $19.443 * BSA^{0.4578}$ | 0.9981 |
| PAD (mm) | $8.2037 * \ln^{(BSA)+23.968}$ | 0.9818 |
| LAD (mm) | $24.695 * BSA^{0.3911}$ | 0.9975 |

The regression equation were calculated as best fitting regressions to the 50% centile line. The multiple squared correlation coefficient (r^2) donates the correlation between the regression equation and the 50% centile.

Vyhledání zdroje

- MEDLINE / PubMed

- Podle citace

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1: Heart. 2000 Jun;83(6):667-72. Full Text FREE Heart Links

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- ▶ [Normal values of 2-dimensional echocardiographic parameters in children] [Cesk Pediatr. 1992]
- ▶ Development of allometric equations to establish normal limits for M-mode echocardiography [G Ital Cardiol. 1996]
- ▶ Echocardiographic measurements of left ventricle in normal infants and children. [Tohoku J Exp Med. 1986]
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- Placený přístup, správa

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2. Eerola A, Pihkala JI, Boldt T, et al.
[Hemodynamic improvement is faster after percutaneous ASD closure than after surgery](#)
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Times Cited: 0
3. Bazrgar M, Karimi M, Peiravian F, et al.
[Apolipoprotein E gene polymorphism and left ventricular function in Iranian patients with thalassemia major](#)
HAEMATOLOGICA-THE HEMATOLOGY JOURNAL 92 (2): 256-257 FEB 2007
Times Cited: 0
4. Overbeek LIH, Kapusta L, Peer PGM, et al.
[New reference values for echocardiographic dimensions of healthy Dutch children](#)
EUROPEAN JOURNAL OF ECHOCARDIOGRAPHY 7 (2): 113-121 MAR 2006
Times Cited: 1
5. Hahn A, Schmidt D, Hagel KJ, et al.
[Monitoring cardiac function by B-type natriuretic peptide \(BNP\) in patients with infantile Pompe's disease treated with recombinant alpha-glucosidase](#)
CLINICAL LABORATORY 52 (11-12): 615-619 2006
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6. Braunlin EA, Berry JM, Whitley CB
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Využití a implementace

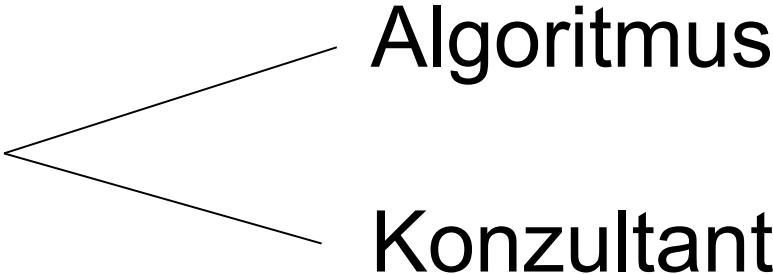
- Například v echokardiografických přístrojích
- Uvedení na MEDALu
- Jako webová služba
- Apod.



Znalost jako zdroj

- Aby bylo možné využívat znalost v biomedicíně, musí...
 - být zdokumentována
 - ...me jí důvěřovat
 - být dostupná, vyhledatelná
 - být implementována

Vize MediGridu

- Nástroj pro implementaci biomedicínských znalostí (odborný obsah)
- Znalost → Zdroj 
 - Algoritmus
 - Konzultant

03 Cíl projektu

Návrh a pilotní implementace gridového systému propojujícího moduly, agenty a další nástroje s odborným obsahem a nabízejícího uživatelské rozhraní s jasně definovanou sémantikou a možností interaktivní spolupráce uživatelů v oblasti zdravotnictví.

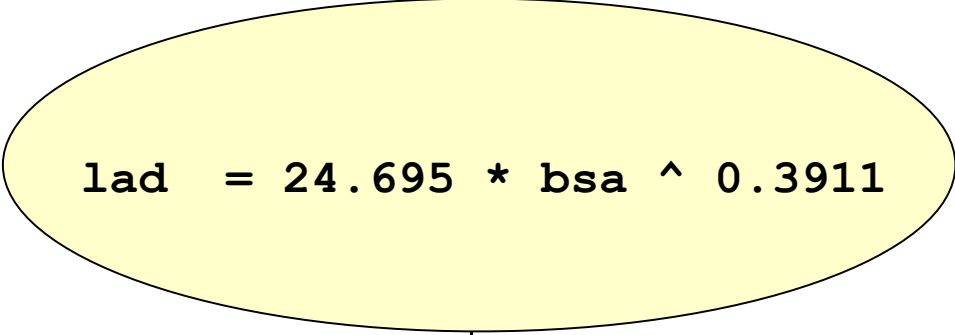
Zdroj v MediGridu

Znalostní inženýrství

- Zdokumentování

Softwarové inženýrství

- Implementace
- Řízení přístupu


$$lad = 24.695 * bsa ^ 0.3911$$

Společná témata

- Verze
- Důvěra
- ...

Zdroj v MediGridu

Znalostní inženýrství

- Zdokumentování

Softwarové inženýrství

- Implementace
- Řízení přístupu



Společná témata

- Verze
- Důvěra
- ...

Shrnutí

- MediGrid – platforma pro sdílení biomedicínských znalostí
- Pojem „zdroje“ je společným tématem pro znalostní a softwarové inženýry
 - Problematika dokumentace
 - Problematika správy
 - Společná témata
- Správa dokumentovaných zdrojů prostředky sítě GRID?

Fleur Carlotta Bohemia Benov

