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CLINICAL STUDIES OVERVIEW

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< Back to categories

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CATEGORIES

Adult
臨床研究 #19
臨床研究 #43

Adult CCU
臨床研究 #11
臨床研究 #22
臨床研究 #26
臨床研究 #29
臨床研究 #44
臨床研究 #61
臨床研究 #66

Adult ED
臨床研究 #20
臨床研究 #38
臨床研究 #65

Adult ICU
臨床研究 #4
臨床研究 #16
臨床研究 #31

Adult oncology
臨床研究 #55
臨床研究 #62

Adult PACU
臨床研究 #27

Adult Surgery
臨床研究 #37
臨床研究 #57

Ambulance
臨床研究 #47

Biomedical
臨床研究 #48

Cost Reduction
臨床研究 #70
臨床研究 #72

Methods Paper
臨床研究 #5
臨床研究 #13
臨床研究 #21
臨床研究 #28

Neonates
臨床研究 #17
臨床研究 #36
臨床研究 #46
臨床研究 #71

NICU
臨床研究 #2
臨床研究 #40
臨床研究 #41
臨床研究 #74

PACU
臨床研究 #10
臨床研究 #24
臨床研究 #32
臨床研究 #33
臨床研究 #45
臨床研究 #64

Pediatric CCU
臨床研究 #18
臨床研究 #58
臨床研究 #68

Pediatric ED
臨床研究 #1
臨床研究 #6
臨床研究 #14
臨床研究 #15
臨床研究 #23
臨床研究 #30
臨床研究 #50
臨床研究 #52
臨床研究 #53
臨床研究 #54
臨床研究 #60

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臨床研究 #63

Pediatric PACU
臨床研究 #51
臨床研究 #73

Pediatric Surgery
臨床研究 #56

Pediatrics
臨床研究 #3
臨床研究 #7
臨床研究 #8
臨床研究 #9
臨床研究 #12
臨床研究 #35
臨床研究 #39
臨床研究 #42
臨床研究 #59
臨床研究 #67
臨床研究 #69

Peri-operative
臨床研究 #34

Pharmacy
臨床研究 #25

School Nurse
臨床研究 #49

White Papers
White Paper #1: Measuring body temperature:
A simple, effective and reliable solution

Case Studies
Case Study #1: Hospitals Save 1,4 million Euro By Adopting TAT- 5000 Temporal Artery Thermometer
Case Study #2: Appeals Court Upholds Exergen Temporal Artery Thermometer Patent Infringement by Helen of Troy's Braun and Vicks Forehead Thermometers
Case Study #3: Temporal Artery Thermometry very comfortable for preterm neonates
Case Study #4: University Medical Centre Groningen chooses TAT-5000 of Exergen Medical as standard thermometer throughout hospital
Case Study #5: 90 percent of nurses prefer thermometer connected to vital signs monitor
Case Study #6: Why Seattle Children's Hospital decided to adopt temporal artery thermometers
Case Study #7: UL grants Exergen Corporation ISO 13485:2016 certificate
Case Study #8: After UMCG, Beatrixoord, Centre for Rehabilitation in Haren, also chooses infrared thermometers from Exergen
Case Study #9: Exergen medical forms strategic distribution partnership with internationnal medical trade consultants of Israel
Case Study #10: Small investment, large impact

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NICU - 临床研究 #74

COMPARISON OF AXILLARY AND TEMPORAL ARTERY THERMOMETRY IN PRETERM NEONATES

Abstract

The purpose of this study is to compare the accuracy of infrared temporal artery thermometry with axillary thermometry in a cohort of preterm neonates between 28 and 36 weeks postmenstrual age.

Neonates were randomly assigned to temperature measurement order (axillary followed by temporal artery or temporal artery followed by axillary). Temperature pairs were taken once during the day shift and once during the night shift. Behavioral states were assessed before, during, and after temperature measurement.

Neonates were predominantly female (64.7%) with a mean age of 6.6 days and a mean gestational age of 32.7 weeks, and most were cared for in incubators (n = 55). Noninferiority was observed between the two temperature methods (Holm-Bonferroni criterion = .025, p < .001). There was no statistically significant difference in the behavioral states of the neonates between the two temperature methods. It took nurses significantly longer to use the axillary thermometer than to use the temporal artery thermometer (p < .001).

Conclusions

- Temporal artery temperature measurements were as accurate as axillary temperature measurements in low-birth-weight neonates in the NICU.
- Nurses spent less time measuring with the temporal artery method than with the axillary method.

Title

Comparison of Axillary and Temporal Artery Thermometry in Preterm Neonates

Publication

Journal of Obstetric, Gynecologic, & Neonatal Nursing

Authors

Smith, S., Keltner, C., Stikes, R., Hayes, P., & Crawford, T. N.

Publication date

May 2018

Link

https://www.ncbi.nlm.nih.gov/pubmed/29625020

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Pediatric PACU - 临床研究 #73

预防儿童在围手术期间体温过低

摘要

围手术期间出现意外体温过低是一种常见的手术风险。意外低温是指围手术期任何阶段体温低于36°C。美国中西部一所三级儿科医院的围手术期护士制定了一份基于循证医学理念临床实践指南(CPG)，旨在为儿科外科手术患者维持正常体温。

该临床实践指南概述了体温调节护理干预的标准措施，并一致要求使用颞动脉温度计。在完全实施该临床实践指南前，意外低温症的基线发生率为16.3% (n = 80)。

研究结果表明，该指南能指导研究型护理实践，不断地防止意外低温。实施后，计划外围手术期低温的发生率为1.84%（n = 1,196）。

结论

· /

标题

Preventing unplanned perioperative hypothermia in children

发表期刊

AORN Journal

作者

Beedle, S. E., Phillips, A., Wiggins, S., & Struwe, L.

发表日期

2017年1月31日

Link

https://aornjournal.onlinelibrary.wiley.com/doi/abs/10.1016/j.aorn.2016.12.002

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CL-901-CH-V0

MINIMISING THE COSTS OF TEMPERATURE MONITORING IN HOSPITALS

Abstract
WILL BE ADDES WHEN PDF IS READY

Conclusions
- /

Title
Minimising the costs of temperature monitoring in hospitals

Publication
Postgraduate Medical Journal

Authors
Kuymana, C.

Publication date
/

Link
https://pmj.bmj.com/content/93/1104/580

TOOLKIT FOR IMPLEMENTATION OF TEMPORAL ARTERY THERMOMETERS FOR NEONATES

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COST MINIMISATION ANALYSIS OF THERMOMETRY IN TWO DIFFERENT HOSPITAL SYSTEMS

Abstract
Temperature monitoring can be accomplished by various methods, including oral (OT), rectal (RT), axillary (AT), tympanic membrane (TMT) and temporal artery (TAT) thermometry, with varying amounts of cost incurred by healthcare systems.

At UHCZ, use of TAT would bring budget savings regardless of the number of devices per bed and the number of years observed. Savings would range from US$0.08 million (one device per bed, impact for 1 year) to US$1.8 million (one device per 10 beds, impact for 5 years). At UMH, use of TAT would lead to budget savings if one device per 10 beds were acquired, but only over a period of 3 or 5 years. Other TAT scenarios were associated with budget costs at UMH even after a period of 5 years.

Conclusion
- Sensitivity analyses showed that the price of current consumables had the highest impact on the model in both hospital settings, with TAT up to 10 times cheaper in that regard over TMT at UHCZ, potentially leading to considerable budget savings within a year of hospital-wide implementation.

Title
Cost minimisation analysis of thermometry in two different hospital systems

Publication
Postgrad Medical Journal

Authors
Hayes, K., Shepard, A., Cesarec, A., et al.

Publication date
January 2017

Link
https://pmj.bmj.com/content/93/1104/603

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SUMMARY SAFETY REVIEW - EAR AND FOREHEAD (CONTACT) INFRARED THERMOMETERS (VARI- OUS BRANDS) - ASSESSING THE POTENTIAL RISK OF INACCURACY IN CHILDREN UNDER 2 YEARS OLD

????

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PRECISION, SENSITIVITY AND PATIENT PREFERENCE OF NON-INVASIVE THERMOMETERS IN A PEDIATRIC SURGICAL ACUTE CARE SETTING

Abstract

The purpose of the project was to compare the temporal artery thermometer (TAT) to the digital probe thermometer readings at axillary or oral sites, to determine the relative precision and sensitivity of the three methods of thermometry, to compare their readings to core temperature when feasible, and to survey patient and family thermometer preferences.

The study had a randomized crossover design in a 70-bed surgical unit over eight months. Two sets of temperature measurements were obtained for each patient: TAT, axillary, oral (depending on patient ability) and a bladder temperature representing core body temperature (when available). Each method was used twice on each patient, to examine within-method precision. Following measurement, patients or caregivers provided their thermometer preference. For younger/nonverbal patients, a professional observer recorded a disruption score. N=298 patients were enrolled.

TAT was more precise than oral and axillary thermometers ($p<0.001$ vs. axillary, $p=0.001$ vs. oral). TAT measurements were higher on average than axillary and oral, by 0.7°C and 0.6°C respectively ($p<0.001$). TAT's disruption score for younger patients was 0.6 points lower on average than axillary ($p<0.001$). 84% of patients and families who indicated a clear thermometry preference chose TAT. Only 3 patients had bladder-temperature devices, and therefore accuracy could not be analyzed.

Conclusions

- TAT is more precise, more fever sensitive, less disruptive to younger children, and more preferred by patients and families.
- TAT is an acceptable temperature measure that could be substituted for oral or axillary temperature in acute care pediatric settings.

Title

Precision, Sensitivity and Patient Preference of Non-Invasive Thermometers in a Pediatric Surgical Acute Care Setting.

Publication

Journal of Pediatric Nursing

Authors

Opersteny, E., Anderson, H., Bates, J., Davenport, K., Husby, J., Myking, K., & Oron, A. P.

Publication date

July/August 2017

Link

https://www.ncbi.nlm.nih.gov/pubmed/28728767

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TYMPANIC TEMPERATURE VERSUS TEMPORAL TEMPERATURE IN PATIENTS WITH PYREXIA AND CHILLS

Abstract

Accurate body temperature (BT) measurement is critical for immediate and correct estimation of core BT; measurement of changes in BT can provide physicians the initial information for selecting appropriate diagnostic approach and may prevent unnecessary diagnostic investigation. This study aimed to assess differences in tympanic and temporal temperatures among patients with fever in different conditions, especially in those with and without chills. This prospective study included patients from the emergency department between 2011 and 2012. All temperature measurements were obtained using tympanic thermometers and infrared skin thermometers. Differences in tympanic and temporal temperatures were analyzed according to 6 age groups, 5 ambient temperature groups, and 6 tympanic and temporal temperature subgroups. General linear model analysis and receiver operating characteristic curve analysis were used to estimate the differences in mean tympanic and temporal temperatures. Of the 710 patients enrolled, 246 had tympanic temperature more than 38.0°C, including 46 with chills (18.7%). Fourteen patients (3.0%) had chills and tympanic temperature less than 38°C. In the tympanic temperature subgroup of 39.0 to less than 39.5°C, approximately one-third of the patients had chills (32.3%). In the tympanic temperature subgroup of 38.0 to less than 39.0°C, the tympanic temperature was 0.4°C higher than the temporal temperature in patients without chills and 0.9°C higher in patients with chills. In the tympanic temperature subgroup of 39.0°C or more, tympanic temperature was 0.7°C higher than temporal temperature in patients without chills and 0.8°C higher in patients with chills. Temporal thermometer is more reliable in the age group of less than 1 year and 18 to less than 65 years. When the patients show tympanic temperature range of 38.0 to less than 39.0°C, 0.4°C should be added for patients without chills and 0.9°C for patients with chills to obtain core temperature. However, in patients with tympanic temperature of 39.0°C or more, 0.7°C to 0.8°C should be added, regardless of the presence of chills.

Conclusions

- [WILL BE ADDES WHEN PDF IS AVAILABLE]

Title

Tympanic temperature versus temporal temperature in patients with pyrexia and chills

Publication

Medicine (Baltimore)

Authors

Yang, W. C., Kuo, H. T., Lin, C. H., Wu, K. H., Chang, Y. J., Chen, C. Y., & Wu, H. P.

Publication date

November 2016

Link

https://www.ncbi.nlm.nih.gov/pubmed/27858893

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Adult CCU - 临床研究 #66

使用者技术对颞动脉温度计测量的影响

摘要

测量体温是发现疾病和评估治疗效果的最古老方法之一；现在它仍然是一项重要的健康评估参数。在理想情况下，温度测量应该是有创性最低、快速、可靠、准确、安全的，并尽量减少对使用者技术的依赖。准确可靠的温度评估取决于生理和技术因素、使用者技术和设备维护。
在作者的多中心社区卫生系统中，无创温度测量的首选设备是红外传感颞动脉温度计(TAT)。要测量温度，使用者需要将体温计滑过颞动脉所在的皮肤。TA温度计反复采样皮肤温度并运行算法，在几秒钟内提供计算而得的温度。
有趣的是，该组织的护士不大愿意信赖TA温度计的结果，尤其是当检测结果超出正常范围或怀疑发烧时。根据他们自己的经验和对他人实践的观察，护理研究委员会（NRC）的成员担心使用者技术不一致影响结果，所以临床医生经常使用另一台设备来验证温度读数。不正确的使用技术会读取到不准确的温度值。可能一个发热的病人就得不到适当的治疗。
本研究的目的是让护理研究委员会观察，护士自我报告中正确使用TA温度计的次数，并评估正确使用和错误使用TAT温度计时获得的测量值之间的差异。

结论

- TA温度计测量在临床应用中有许多优点: 有创性最低、快速、安全。
- 我们的研究结果验证了这样的假设：使用者技术对TA温度计读数的可靠性和有效性影响显著。
- 本研究结果强调了正确技术的重要性，以及必须让护士理解错误结果造成的影响。
- 有时，重新评估使用者技术可能比质疑设备的可靠性更恰当。
- 需要进一步的研究来支持这些结果，包括将TA温度计与口腔和直肠温度计读数进行比较。
- 进一步的研究可以探索消除在床边使用TA温度计技术的障碍。
- 本研究还可以在体温变化较大的患者群体中重复进行，比如已知有发热或体温过低的患者。
- 本研究的结果应在临床实践中进行评估。

标题

The impact of user technique on temporal artery thermometer measurements

发表期刊

Nursing Critical Care

作者

Barry, L., Branco, J., Kargbo, N., Venuto, C., Werfel, E., Barto, D., & Glasofer, A.

发表日期

2016年9月

链接

https://www.nursingcenter.com/journalarticle?Article_ID=3647718&Journal_ID=606913&Issue_ID=3647688

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Adult ED - 临床研究 #65

急诊科——人体温度用于监测症状:来自2009年秋季甲型H1N1流感和季节性流感暴发的数据

摘要

急诊科日益成为评估和治疗急性疾病的门户。因此，它也成为全面监测和确定疾病暴发的关键试验场。在这里，我们讲述了一种在分诊过程中自动收集体温的新技术。该技术在急诊科中进行了测试，监测由发烧引起的疾病，例如季节性流感和一些流行病。

结论

- 在两年多的时间里，对急诊分诊时的温度测量进行了监测。
- 所得数据显示，该系统作为一种有潜力的发热疾病监测工具，有希望可以使目前的疾病监测系统更完善。
- 非专业人士也可以轻松测量温度，因此，该系统也可适用于监测学校、工作场所和交通枢纽的发热疾病，通常这些地方获取这些传统的症状指标是不切实际的。
- 该系统的有效性和通用性应在以后持续评估。

标题

Human temperatures for syndromic surveillance in the emergency department: data from the autumn wave of the 2009 swine flu (h1n1) pandemic and a seasonal influenza outbreak

发表期刊

BMC Emergency Medicine

作者

Bordonaro, S. F., McGillicuddy, D. C., Pompei, F., Burmistrov, D., Harding, C., & SanchezEmail, L. D.

发表日期

2016年3月9日

链接

https://bmcemergmed.biomedcentral.com/articles/10.1186/s12873-016-0080-7

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PACU - 临床研究 #64

术后麻醉恢复室（PACU）中的皮肤温度测量是否准确反映了核心温度?

摘要

本研究旨在验证术后麻醉恢复室(以下简称PACU)测得的前额皮肤温度是术中常用的核心温度的有效反映。基于传闻的医生/病人方面的读数，我们假设皮肤温度测量没那么准确。先前发表的一篇文章表明，术中的有创测量比术后的无创测量更准确，在转移到PACU时会轻微升高。PACU中的温度测量至关重要，因为美国联邦和专业机构将这作为麻醉质量的标志，即在麻醉结束后30分钟内SCIP或AQRS的测量值是否高于35.5℃。

结论

- 对280例资料齐全的全麻患者进行分析。
- 人口统计数据与预期相符。
- 虽然最后一次手术室测得的体温与PACU的测量值没有差异，但两次PACU测量结果（可能并无临床意义）有统计学上的差异(p=0.048)，比Foley导管温度略高0.89℃。

标题

ls skin temperature measurement in PACU an accurate reflection of core temperature?

发表期刊

2016 Anesthesiology Annual Meeting

作者

Bradley, S. L., Kwater, A. P., Cooke, J. M., Tovar, A., DeBeaux, A. C., Wu, H., Sridhar, S., Gumbert, S. D., Chappell, A., & Pivalizza, E. G.

发表日期

2016年10月24日

链接

http://www.asaabstracts.com/strands/asaabstracts/abstract.htm?year=2016&index=15&absnum=4041

【此为某大会期间的一篇介绍，只提供网上的PDF版本】

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Pediatric ED - 临床研究 #63

IMPROVING PEDIATRIC TEMPERATURE MEASUREMENT IN THE ED

Abstract

ED care providers have long debated which of the various methods of temperature measurement of pediatric patients is best. While the efficacy and accuracy of temporal artery, tympanic membrane, axillary, and infrared temperature measurement have been studied, the gold standard has been rectal temperature measurement. But despite its accuracy, this method causes children with noninfectious complaints and their families unnecessary distress and adds significant time to the triage process. In response, a group of ED staff nurses at a multihospital health system conducted an evidence-based quality improvement project to determine the best practice for accurate temperature measurement in children younger than five years who presented to the ED. The project included an exhaustive literature search, a review of relevant studies, the development of a table of evidence, a presentation of the findings, and recommendations for practice change. This article describes the project and the adoption of temporal artery thermometry, a painless, noninvasive screening method that provided consistently accurate temperature measurement as well as increased patient and nurse satisfaction and a shorter triage process.

Conclusion

- WILL BE ADDED WHEN PDF IS READY

Title

Improving pediatric temperature measurement in the ed

Publication

The American Journal of Nursing

Authors

Hurwitz, B., Brown, J., & Altmiller, G.

Publication date

September 2015

Link

https://www.ncbi.nlm.nih.gov/pubmed/26312806

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EQUIVALENCE OF TEMPERATURE MEASUREMENT METHODS IN THE ADULT HEMATOLOGY/ONCOLOGY POPULATION

Abstract
Neutropenic patients often become febrile and require frequent temperature monitoring. Monitoring core body temperature is considered the gold standard for accuracy. Taking oral temperature is the recommended noninvasive practice when core body temperature cannot be obtained; however, neutropenic patients often, for various reasons, are unable to tolerate an oral probe.

The purpose of this article is to determine the equivalence of temperatures taken via temporal artery, axillary, and oral methods, and to determine the best alternative to the oral method in the adult hematology/oncology population.

Conclusions
- The temporal method is a potential noninvasive alternative to the oral method for the adult hematology/oncology population.

Title
Equivalence of temperature measurement methods in the adult hematology/oncology population

Publication
Clinical Journal of Oncology Nursing

Authors
Mason, T. M., Reich, R. R., Carroll, M. E., Lalau, J., Smith, S., & Boyington, A. R.

Publication date
April 2015

Link
https://www.ncbi.nlm.nih.gov/pubmed/25840396

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发热患者颞、肺动脉温度的比较

摘要
作为临床护理的常规部分，体温测量是疾病的关键指标。根据肺动脉导管热敏电阻(PAT)测温的标准，PAT插入对患者有较大的风险，因此需要一种准确甚至精确的无创方法。

本研究的目的是测量这两种常用的体温采集方法的精度和准确性：PAT被认为是测量标准，而颞动脉温度计（TAT）用于温度高于38°C的患者进行测试。

结论
- 更新中

标题
Comparison of temporal to pulmonary artery temperature in febrile patients.

发表期刊
Dimensions of Critical Care Nursing

作者
Furlong, D., Carroll, D., Finn, C., Gay, D., Gryglik, C., & Donahue, V.

发表日期
2005年1月/2月

链接

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CL-901-CH-V0

TEMPORAL ARTERY THERMOMETRY TO DETECT PEDIATRIC FEVER

Abstract
This research investigated effectiveness of temporal artery thermometry (TAT) to detect high rectal fever in children ≥ 91 days and ≤ 4 years old. Rectal temperature was initially evaluated immediately followed by TAT. As expected, the difference between mean rectal (38.05 ± .99 °C) and mean TA (37.55 ± .8 °C) temperatures in subjects (N = 239) was significant (p < .0001). Linear regression revealed TAT underestimated rectal thermometry with greater frequency at higher temperatures.

This observation provides probable explanation for the disparity between these thermometry methods. A TAT sensitivity of 75% and specificity of 85% were determined for detecting high fever (39 °C)-a finding clinically unacceptable. In contrast, among the small number of injured subjects enrolled, TAT detected high rectal fever with 100% sensitivity and specificity.

This finding, if confirmed, suggests TAT screening for well and injured children has potential for clinical practice by diminishing rectal measurements and their associated risks in the acute care and/or ambulatory practice setting.

Conclusions
- WILL BE ADDED WHEN PDF IS READY

Title
Temporal Artery Thermometry to Detect Pediatric Fever

Publication
Clinical Nursing Research

Authors
Moore, A. H., Carrigan, J. D., Solomon, D. M., & Tart, R. C.

Publication date
October 2015

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儿童耳温、皮肤红外和颞动脉温度计测温与直肠测温的真实评估与比较

摘要
儿童体温测量具有临床意义。虽然直肠测量是黄金标准，但侵入性更小的工具更加有效。本报告旨在描述与直肠测量相比，耳温、皮肤红外或颞动脉温度计反映核心温度的准确性。
基于294位儿童（中位年龄3.2岁，范围0.02-17岁）的观察结果显示，与直肠温度读数相比，平均差异分别为0.49˚C（耳温测量; P <0.0001），0.34˚C（皮肤红外测量; P <0.0001），0˚C（颞动脉测量; P = 0.9288）。基于对布兰德-奥特曼图（Bland-Altman plot）的目测，所有测温方式都高于体温较低时的温度，低于体温较高时的温度，导致直肠温度在38˚C以上的敏感性为22% - 41%，特异性为98% - 100%。直肠测量的李克特量表和视觉模拟量表得分仅略高于其他方法。

结论
- 与直肠测量相比，所有的非侵入性测温技术都不及直肠测量。。
- 其中颞动脉测量的偏差最小，但与直肠测量相比，所有的非侵入性技术都高估了低温，低估了高温。
- 在我们看来，颞动脉测量结果不尽理想， 但排列第二最佳。

标题
Tympanic, Infrared Skin, and Temporal Artery Scan Thermometers Compared with Rectal Measurement in Children: A Real-Life Assessment

发表期刊
Current Therapeutic Research

作者
Allegaert, K., Casteels, K., van Gorp, I., & Bogaert, G.

发表日期
2014年5月8日

链接
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4008772/

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Pediatric CCU - 临床研究 #58

COMPARISON OF TEMPORAL ARTERY TEMPERATURE MEASUREMENT WITH STANDARD TEMPERATURE MEASUREMENT IN CRITICALLY ILL CHILDREN

Abstract

The objective of this study was to compare temporal artery (TA) temperature to bladder, rectal and axillary temperatures.

Sixty-nine participants aged 0 to 12 had temperature measurements from three sources: TA, bladder or rectal, and axillary. Participants were stratified based on age (< 1 year and 1–12 years) and method of temperature monitoring. Comparison of TA with other measures were computed based on deviation of ≥0.5°C.

The difference between bladder and TA temperature in <1 year group (p < .001) was significant at 0.55°C with bladder lower than TA temperature (95% CI: 0.24 to 0.85); however, bladder temperatures in the 1–12 year group (p=0.57) showed a difference of 0.1°C lower (95% CI: -0.23 to 0.42) to TA temperatures. Rectal and TA temperature did not differ significantly in either group (<1 year mean (95% CI) =0.31°C (-0.15, 0.77)(p = .19) and 1–12 years mean (95% CI)=0.29 °C(-017, 0.75) (p=0.22)). Axillary to TA temperatures, in both age groups, reflected a significant difference (<1 year mean (95% CI) =0.91°C (0.6,1.2)(p <0.001) and 1–12 years mean (95% CI)=0.87 °C(0.6, 1.2) (p<0.001)).

Conclusions

- The results of this study support use of TA therometry in the pediatric ICU as an acceptable alternative to rectal temperatures and confirm that TA thermometry is a more accurate estimate of core temperature than axillary.
- Varied bias between TA and bladder thermometry depended on the age of the patient.

Title

Comparison of temporal artery temperature measurement to standard temperature measurement in critically ill children

Publication

Pediatric Critical Care Medicine

Authors

Merrill, K., Ridling, D., Hawk, H., Jones, S., Nelson, J., Ruddy, M., Wilson, A., & Yalon, L.

Publication date

May 2014

Link

https://journals.lww.com/pccmjournal/Fulltext/2014/05001/ABSTRACT_179___COMPARISON_OF_TEMPORAL_ARTERY.176.aspx

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Adult Surgery - 临床研究 #57

RELIABILITY OF TEMPORAL ARTERY THERMOMETERS

Abstract

WILL BE ADDED WHEN PDF IS READY

Conclusions

- /

Title

Reliability of temporal artery thermometers

Publication

The Journal of Adult Health

Authors

McConnell, E., Senseney, D., George, S. S., & Whipple, D.

Publication date

November/December 2013

Link

https://www.ncbi.nlm.nih.gov/pubmed/24600936

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Pediatric Surgery - 临床研究 #56

LARYNGEAL VIEW AND TEMPERATURE MEASUREMENTS WHILE USING THE PERILARYNGEAL AIRWAY (COBRA-PLUS) IN CHILDREN

Abstract

The Cobra-PLUS perilaryngeal airway (CP) is a modification of the Cobra perilaryngeal airway. It has a distal curve for easier placement and a thermistor on the pharyngeal cuff. We assessed the orientation of the larynx to the CP and compared temperatures measured using CP to temporal arterial (TA) and infrared tympanic (T) thermometers.

American Society of Anesthesiologists (ASA) physical status 1 and 2 children 0-18 years old undergoing general anesthesia using CP were grouped into different weight cohorts. A fiberoptic scope was inserted through the CP, and laryngeal views were recorded and graded off line. Temperatures were measured from the CP, TA, and T at 15-min intervals for four readings or until the end of surgery. The CP was removed, while the patient was deeply anesthetized. Eighty subjects were analyzed. 87.5% (cohort range 75-95%) had an unobstructed view of the larynx. No serious adverse effects noted. Three hundred and sixteen temperature data points were recorded for each measured site. CP temperatures were consistently lower than TA and T with a bias of 0.9 and 0.6°C, respectively. Using temperatures measured at time 0 and 15 min, CP was associated with a larger intraclass correlation coefficient and smaller repeatability coefficient when compared to TA or T (ICC 0.65, 0.46. 0.44 and RC 0.78, 1, 1.36, respectively), indicating it had a better measure and remeasure reliability.

Conclusions

- The CP has a better orientation to the larynx compared with its previous version.
- It may be used to reliably trend intraoperative temperatures.

Title

Laryngeal view and temperature measurements while using the perilaryngeal airway (Cobra-PLUS) in children

Publication

Pediatric Anesthesia

Authors

Tan, G. M., Galinkin, J. L., Pan, Z., & Polaner, D. M.

Publication date

December 2013

Link

Go to the full Study in PDF >

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Adult oncology - 临床研究 #55

STUDY RECOMMENDS USE OF PROFESSIONAL TEMPORAL THERMOMETER IN ADULTS

Abstract

Article in Oncology Nurse Advisor that states: “Using the Exergen professional TAT-5000 temporal thermometer as a noninvasive alternative to measuring temperature orally in adult hematology/oncology patients to detect febrile neutropenia is supported by research conducted at Moffitt Cancer Center, a study presented at the Oncology Nursing Society (ONS) 38th Annual Congress outlined.”

Title

Study recommends use of professional temporal thermometer in adults

Publication

Oncology Nurse Advisor

Authors

Hughes, D.

Publication date

April 27, 2013

Link

https://www.oncologynurseadvisor.com/ons-annual-congress-2013/study-recommends-use-of-professional-temporal-thermometer-in-adults/article/290847/

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小儿急救室直肠、腋窝、鼓室和颞动脉测温的比较

摘要
急诊室内准确测温对于诊断和调查患者非常重要。目前已有多种无创测温方法，但对最准确的测温方法尚未达成共识。
本研究旨在比较急诊室常用的直肠、腋窝、颞动脉和鼓膜测温方法。这是一项横断面观察性研究，包括50名发烧儿童和50名不发烧儿童，在同一家三级医院的儿科急诊室就诊，年龄为2～12岁。
使用直肠、腋窝、鼓膜(左右)和颞动脉温度计测量体温，并进行比较。结果显示，各温度与直肠温度相关性良好，其中颞动脉温度相关性最好(相关系数发热组为0.99，无发热组为0.91)。

结论
・ 在繁忙的急诊室环境中，颞动脉测温法有可能取代直肠测温法。

标题
Comparison of rectal, axillary, tympanic, and temporal artery thermometry in the pediatric emergency room

发表期刊
Pediatric Emergency Care

作者
Batra, P., & Goyal, S.

发表日期
2013年7月

Link
https://www.ncbi.nlm.nih.gov/pubmed/23283266

COMPARISON OF TEMPORAL ARTERY TO MERCURY AND DIGITAL TEMPERATURE MEASUREMENT IN PEDIATRICS

Abstract
The aim of the study was to compare the temporal artery thermometer measurements with the mercury and digital axillary thermometer measurements in children.

This study was conducted at the Pediatric Emergency Department of Akdeniz University Hospital over a three-month period in Turkey. The sample for the study comprised 218 children (aged 0-18years). Three different methods were applied to each patient at the same time. After acquiring necessary institutional permission to conduct the study, the informed consent to participate was obtained from parents before the subjects were included in the study. The data were evaluated using general linear models. The differences between the groups were analyzed by Least Significant Difference method.

The average temperature measured by temporal artery, mercury and digital thermometers were 38.9°C, 38.3°C and 38°C respectively.

Conclusions
- Temporal artery thermometer values might be considered as core temperature.
- Rectal temperature is about 2°F (1°C) higher than an axillary temperature.
- In our study the difference between the temperature measured values was found to be consistent with the range provided in the literature.
- Temporal artery thermometers are recommended especially pediatric emergency settings, where an accurate, quick and safe body temperature measurement is of vital importance.

Title
Comparison of temporal artery to mercury and digital temperature measurement in pediatrics.

Publication
International Emergency Nursing

Authors
Işler, A., Aydin, R., Güven, T. S., & Günay, S.

Publication date
July 2014

Link
https://www.ncbi.nlm.nih.gov/pubmed/24183491

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Pediatric ED - 临床研究 #52

ARE TEMPORAL ARTERY TEMPERATURES ACCURATE ENOUGH TO REPLACE RECTAL TEMPERATURE MEASUREMENT IN PEDIATRIC ED PATIENTS?

Abstract

This study examined the accuracy of temporal artery and axillary temperatures compared with rectal temperatures in pediatric ED patients younger than 4 years.

A method-comparison study design was used to examine the agreement between a temporal artery or axillary thermometer and a nondisposable, rectal electronic thermometer, which is the clinical reference standard for temperature measurement in children. Temperatures were taken with each device in a convenience sample of stable, pediatric ED patients who were younger than 4 years. Bias and precision were calculated to quantify the differences between the 2 devices, as well as the percentage of temporal artery and axillary temperatures that were >±1.0°C and >±1.5°C higher or lower than the rectal temperature.

Conclusions

- A total of 52 pediatric ED patients were studied over a 10-month period.
- Bias and precision for the temporal artery and axillary devices were -0.46°C ± 0.50°C and -0.93°C ± 0.49°C, respectively.
- The percentage of temporal artery and axillary temperatures that were >±1.0°C and/or >±1.5°C above or below the clinical reference temperature were 15% and 6%, respectively, for the temporal artery thermometer and 39% and 14%, respectively, for the axillary thermometer.

Title

Are temporal artery temperatures accurate enough to replace rectal temperature measurement in pediatric ED patients?

Publication

Journal of Emergency Nursing

Authors

Reynolds, M., Bonham, L., Gueck, M., Hammond, K., Lowery, J., Redel, C., Rodriguez, C., Smith, S., Stanton, A., Sukosd, S., & Craft, M.

Publication date

January 2014

Link

https://www.ncbi.nlm.nih.gov/pubmed/23142099

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Pediatric PACU - 临床研究 #51

颞动脉测温法在小儿麻醉后监护病房的应用

摘要

/

结论

· /

标题

Temporal Artery Thermometry Use in Pediatric Patients in the Post-Anesthesia Care Unit

发表期刊

ASPAN 31st National Conference 2012

作者

Fratto, L., Hogan, K., & Kenney, K.

发表日期

2012年6月

链接

https://www.jopan.org/article/S1089-9472(12)00124-4/fulltext

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Pediatric ED - 临床研究 #50

儿童的温度测量

摘要
准确测量体温对检测儿童发热和体温过低非常重要。理想的测温技术应安全、简便、无创、经济、省时的，并且应准确反映核心体温。肺动脉最接近下丘脑，最能反映核心温度。其他部位包括远端食管、膀胱和鼻咽。
这些方法都是有创的并且难以在临床实践中使用。在无创方法中，直肠测温被认为是最接近核心温度的，但它有其自身的缺点。根据现有证据可得，颞动脉测温（所有年龄层）和鼓膜动脉测温（2岁以上儿童）均优于其他方法。

结论
- 根据现有证据，颞动脉测温（所有年龄层）和鼓膜动脉测温（2岁以上儿童）有潜力成为临床医生和家长的首选。
- 需要解决的问题与如何使用这些方法获得正常体温值有关。
- 需要设计一种较小儿童可以安全使用的鼓膜温度计。

标题
Thermometry in children

发表期刊
Journal of Emergencies Trauma Shock

作者
Batra, P., Saha, A., & Faridi, M. M. A.

发表日期
2012年7-9月

Link
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3440892/

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UNDERSTANDING THE DIFFERENT METHODS FOR TAKING A TEMPERATURE

Abstract
[Will be added when PDF is bought]

Conclusions

Title
Understanding the Different Methods for Taking a Temperature

Publication
NASN School Nurse

Authors
Pappas, M.

Publication date
July 2012

Link
https://journals.sagepub.com/doi/abs/10.1177/1942602X12451914

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Biomedical - 临床研究 #48

再论保温箱使用颞动脉温度计

摘要
保温箱应该设置到什么温度？采访贝基・克罗斯利，他是一名就读于宾夕法尼亚州威廉斯波特市萨斯奎哈纳健康中心生物医学工程部的III级生物医学技师 。

结论
- 经过大量研究， 我们医院已经允许在测温频繁的科室以及不常测温的科室使用这些体温计，
- 我们把它们运用到复苏室和重症监护室中。
- 我们将它们存放到库存中。并且定期检查，因为如果不定期清洁，读数的可靠性会显著下降。
- 每六个月检查一次，所以我们这些体温计的正确率很高。
- 我们也教育护理人员如何清洁这些装置。

标题
Blanket warmers revisited and temporal thermometers

发表期刊
Biomedical Instrumentation and Technology

作者
Crossley, B.

发表日期
2012年3月/4月

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https://www.aami-bit.org/doi/full/10.2345/0899-8205-46.2.147

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Ambulance - 临床研究 #47

颞动脉温度计用于到院前的操作中

摘要
院前生命体征是患者评估的重要和必要组成部分。我们将颞动脉温度计（TAT）与目前在我们的紧急医疗服务（EMS）系统中使用的电子温度计进行比较，然后将其与急诊室中使用的电子温度计进行比较。本研究的主要目的是评估TA温度计在院前环境中的有效性。其他值得关注的结果包括外来因素或寒冷环境温度是否影响TA温度计读数，护理人员对TA温度计的满意度。

共有818名患者在院前用这两种温度计测量了体温。TA温度计与电子温度计的关系为正、中；然而，这两种设备之间的一致性欠佳。回顾了69张图表，发现TA温度计与急诊数字体温计之间存在正相关关系，两者之间一致性较好。没有发现外部因素对温度测量有明显的影响；TA温度计在寒冷的天气下表现良好，EMS人员报告它易于使用。

结论
- TA温度计似乎是一种目前用于许多EMS系统的电子温度计的合适替代品。
- 参与这项研究的医护人员更喜欢TA温度计，而不是救护车上的电子温度计，他们认为它更准确。
- 这一课题需要进一步的研究。

标题
Temporal artery thermometer use in the prehospital setting

发表期刊
Canadian Journal of Emergency Medicine

作者
Carleton, E., Fry, B., Mulligan, A., Bell, A., & Brossart, C.

发表日期
2012年

链接
https://www.cambridge.org/core/services/aop-cambridge-core/content/view/40F902A46E410120888FF6B183A2FF4E/S1481803500000877a.pdf/temporal_artery_thermometer_use_in_the_prehospital_setting.pdf

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COMPARISON OF TEMPORAL ARTERY AND AXILLARY TEMPERATURES IN HEALTHY NEWBORNS

Abstract
The objective of this paper is to compare temperature readings of temporal artery and axillary thermometers in healthy late preterm and term infants in an effort to standardize practice.

Temperatures were taken at regular intervals per unit protocol. At each interval temporal and axillary temperatures were recorded.

Temporal temperatures were significantly higher (M = 36.9°C, SD = .59) than axillary temperatures (M = 36.7°C, SD = .68), t(124) = 6.74, p < .0001. Although statistical significance was shown between the two groups, no meaningful clinical difference was detected.

Conclusion

- Our study findings supported a new nursing practice standard for measuring infant temperatures in our mother/baby unit. Using temporal artery thermometers is now our unit's standard of care for healthy newborns.

Title
Comparison of Temporal Artery and Axillary Temperatures in Healthy Newborns

Publication
Journal of Obstetric, Gynecologic, & Neonatal Nursing

Authors
Haddad, L., Smith, S., Phillips, K. D., & Heidel, R. E.

Publication date
May 2012

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https://www.ncbi.nlm.nih.gov/pubmed/22834884

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围术期颞动脉、口腔、腋温测量结果的一致性

[THIS ONE IS PAID]

摘要
本研究验证了颞动脉和电子口腔/腋温度计在术前和术后温度读数的一致性，以及在三种测量模式下获得温度读数所需的秒数。
采用重复测量的方法，对86名成人受试者在进入手术区和入住PACU时分别测量颞动脉、口腔和腋下温度。
结果显示，术前与术后测量后，电子口腔体温计与颞动脉体温计的一致性最好，其次是电子口腔体温计与腋窝体温计的一致性，腋窝体温计与颞动脉的读数之间的一致性最低。
术前与术后的测温秒数有显著差异，颞动脉测温最快，其次为口腔测温和腋窝测温。该结果验证了使用颞动脉温度计是手术中非侵入性温度监测的最佳选择。

结论

- [WILL BE ADDED WHEN PDF IS READY]

标题
Agreement between temporal artery, oral, and axillary temperature measurements in the perioperative period

发表期刊
Journal of PeriAnesthesia Nursing

作者
Barringer, L. B., Evans, C. W., Ingram, L. L., Tisdale, P. P., Watson, S. P., & Janken, J. K.

发表日期
2011年6月26日

Link
https://www.ncbi.nlm.nih.gov/pubmed/21641529

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EVIDENCE-BASED PRACTICE HABITS: PUTTING MORE SACRED COWS OUT TO PASTURE

Abstract
For excellence in practice to be the standard for care, critical care nurses must embrace evidence-based practice as the norm. Nurses cannot knowingly continue a clinical practice despite research showing that the practice is not helpful and may even be harmful to patients.

This article is based on 2 presentations on evidence-based practice from the American Association for Critical-Care Nurses' 2009 and 2010 National Teaching Institute and addresses 7 practice issues that were selected for 2 reasons. First, they are within the realm of nursing, and a change in practice could improve patient care immediately. Second, these are areas in which the tradition and the evidence do not agree and practice continues to follow tradition. The topics to be addressed are (1) Trendelenburg positioning for hypotension, (2) use of rectal tubes to manage fecal incontinence, (3) gastric residual volume and aspiration risk, (4) restricted visiting policies, (5) nursing interventions to reduce urinary catheter–associated infections, (6) use of cell phones in critical care areas, and (7) accuracy of assessment of body temperature. The related beliefs, current evidence, and recommendations for practice related to each topic are outlined.

Title
Evidence-Based Practice Habits: Putting More Sacred Cows Out to Pasture

Publication
Critical Care Nurse

Authors
Makic, M. B. F., VonRueden, Rauen, C. A., & Chadwick, J.

Publication date
April 2011

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http://ccn.aacnjournals.org/content/31/2/38.full.pdf+html

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临床护理专家在温度测量中使员工能够改善患者的成果：从PI / EBP到护理研究

摘要
临床护理专家(CNS)在医疗机构中至关重要，帮助员工发现问题，开展绩效改进活动，审查文献中的最佳惯例，并做好护理研究的推动者。
本论文的目的是在医疗机构内建立一种护理文化，鼓励员工护士提出并回答有关患者护理、效果的问题。
收集了46名患者的数据。OE与核心温度之间没有显着差异，OE比核心温度低了0.1°F。TA温度计与核心温度之间统计学上存在较大差异，颞动脉比核心温度低0.3°F。

结论
- 本研究的结果回答了有关TA和OE温度准确性的问题。
- 在PI/EBP的研究过程中，临床护理专家使工作人员有能力改善患者的预后。

标题
Clinical Nurse Specialists Empowering Staff to Improve Patient Outcomes in Temperature Measurement: From PI/EBP to Nursing Research

发表期刊
National Association of Clinical Nurse Specialists National Conference Abstracts

作者
Brenda, A., Karen, S., & Rod, D.

发表日期
2011年3-4月

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CL-901-CH-V0

儿科测温:直肠测温法与颞动脉测温法的比较

摘要
/

结论
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标题
/

发表期刊
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作者
/

发表日期
/

链接
[https://www.sciencedirect.com/science/article/pii/S0882596310003842]

ACCURACY OF TEMPORAL ARTERY THERMOMETRY IN NEONATAL INTENSIVE CARE INFANTS

Abstract
The objective of this study is to determine the accuracy of temporal artery and axillary temperatures and the discomfort level of stable neonates during temperature measurement.

Bias and precision for the temporal artery and axillary devices were 0.30 ± 0.44 and 0.28 ± 0.33, respectively. Analysis of variance found significant differences between both temporal and axillary temperatures compared to rectal temperatures (P < .01). Statistical differences were small and did not represent a clinically important difference. No statistical difference was found between temporal artery and axillary temperatures (P = .81). Increases in neonate discomfort after temperature measurement were significantly greater with axillary than increases after temporal artery temperature measurement (P = .03).

Conclusions
- This study found that body temperature measured with the temporal artery thermometer was similar to temperatures obtained with an axillary thermometer in stable, afebrile neonates.
- The use of temporal artery thermometry appears to be an acceptable approach for noninvasive temperature measurement in neonates, which causes less discomfort in neonates.

Title
Accuracy of temporal artery thermometry in neonatal intensive care infants.

Publication
Advances in Neonatal Care

Authors
Lee, G., Flannery-Bergey, D., Randall-Rollins, K., Curry, D., Rowe, S., Teague, M., Tuininga, C., & Schroeder, S.

Publication date
February 2011

Link
https://www.ncbi.nlm.nih.gov/pubmed/21285659

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NICU - 临床研究 #40

ACCURACY OF TEMPORAL ARTERY THERMOMETRY IN NEONATAL INTENSIVE CARE UNIT INFANTS

Abstract

The purpose of this study is to determine the accuracy of temporal artery and axillary temperatures and the discomfort level of stable neonates during temperature measurement.
Convenience sample of neonates between the ages of 32 and 40 weeks' gestation cared for in an isolette or crib.

A method-comparison design was used to compare different methods for noninvasive temperature monitoring (infrared temporal artery; axillary electronic) to core body temperatures (indwelling rectal probe).

Bias and precision for the temporal artery and axillary devices were 0.30 ± 0.44 and 0.28 ± 0.33, respectively. Analysis of variance found significant differences between both temporal and axillary temperatures compared to rectal temperatures ($P < .01$). Statistical differences were small and did not represent a clinically important difference. No statistical difference was found between temporal artery and axillary temperatures ($P = .81$). Increases in neonate discomfort after temperature measurement were significantly greater with axillary than increases after temporal artery temperature measurement ($P = .03$).

Conclusions

- This study found that body temperature measured with the temporal artery thermometer was similar to temperatures obtained with an axillary thermometer in stable, afebrile neonates.
- The use of temporal artery thermometry appears to be an acceptable approach for noninvasive temperature measurement in neonates, which causes less discomfort in neonates.

Title

Accuracy of temporal artery thermometry in neonatal intensive care infants.

Publication

Advances in Neonatal Care

Authors

Lee, G., Flannery-Bergey, D., Randall-Rollins, K., Curry, D., Rowe, S., Teague, M., Tuininga, C., & Schroeder, S.

Publication date

February 2011

Link

https://www.ncbi.nlm.nih.gov/pubmed/21285659

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Pediatrics - 临床研究 #39

EFFICACY OF STANDARD DOSES OF IBUPROFEN ALONE, ALTERNATING, AND COMBINED WITH ACETAMINOPHEN FOR THE TREATMENT OF FEBRILE CHILDREN

Abstract

Many pediatricians recommend, and many parents administer, alternating or combined doses of ibuprofen and acetaminophen for fever. Limited data support this practice with standard US doses. This study compared the antipyretic effect of 3 different treatment regimens in children, using either ibuprofen alone, ibuprofen combined with acetaminophen, or ibuprofen followed by acetaminophen over a single 6-hour observation period.

Febrile episodes from children aged 6 to 84 months were randomized into the 3 treatment groups: a single dose of ibuprofen at the beginning of the observation period; a single dose of ibuprofen plus a single dose of acetaminophen at the beginning of the observation period; or ibuprofen followed by acetaminophen 3 hours later. Ibuprofen was administered at 10 mg/kg; acetaminophen at 15 mg/kg. Temperatures were measured hourly for 6 hours using a temporal artery thermometer. The primary outcome was temperature difference between treatment groups. Adverse-event data were not collected in this single treatment period study.

Sixty febrile episodes in 46 children were assessed. The mean (SD) age of the children was 3.4 (2.2) years, and 31 (51.7%) were girls. Differences among temperature curves were significant ($P < 0.001$; the combined and alternating arms had significantly better antipyresis compared with the ibuprofen-alone group at hours 4 to 6 (hour 4, $P < 0.005$; hours 5 and 6, $P < 0.001$). All but one of the children in the combined and alternating groups were afebrile at hours 4, 5, and 6. In contrast, for those receiving ibuprofen alone, 30%, 40%, and 50% had temperatures >38.0 °C at hours 4, 5, and 6, respectively (hour 4, $P = 0.002$; hours 5 and 6, $P < 0.001$).

Conclusions

- During a single 6-hour observation period for these participating children, combined and alternating doses of ibuprofen and acetaminophen provided greater antipyresis than ibuprofen alone at 4 to 6 hours.

Title

Efficacy of standard doses of Ibuprofen alone, alternating, and combined with acetaminophen for the treatment of febrile children

Publication

Clinical Therapeutics

Authors

Paul, I. M., Sturgis, S. A., Yang, C., Engle, L., Watts, H., & Berlin, C. M. Jr.

Publication date

December 2010

Link

https://www.ncbi.nlm.nih.gov/pubmed/21353111

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Adult ED - 临床研究 #38

急诊科体温监测和报告:流行病和生物恐怖的实用防护

摘要
网上暂未查询并获取

结论
· /

标题
Body temperature surveillance and reporting in the emergency department: a practical sentinel for pandemics and bioterrorism

发表期刊
Society for Academic Emergency Medicine Annual Meeting 2010

作者
Foy, S., McGillicuddy, D., Pompei, F., & Sanchez, L.

发表日期
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Adult Surgery - 临床研究 #37

结直肠手术和妇科手术中患者体温测量:食管核心、颞动脉和口腔测温方法的比较

摘要
保持围术期体温正常可减少术后并发症。因此需要一种准确，无创的方法来测量代表核心体温的温度。口腔测温法被认为是最准确的非核心体温测量方法，但这对插管或戴氧气面罩的患者构成了挑战。

本研究的目的是确定在进行结肠直肠或妇科手术的患者中，食管温度计测量的核心温度与口腔和颞动脉方法测量的温度之间的差异(如果有的话)。

采用重复测量的设计，对23名进行结肠直肠或妇科手术的患者进行了任意抽样。取两组术中温度（口温和颞动脉温），并与食管探针测量的核心温度进行比较。针对口温或颞温与核心温度的偏差测试，进行重复测量方差分析。绘制布兰-阿尔特曼（Bland-Altman）图以测试偏差与实际核心温度的相关性。

根据先验，温差大于0.4˚C被定义为具有临床意义。口腔温度相对食管温度平均偏高0.12˚C(P = 0.0008；95%置信区间[0.061,0.187])。颞动脉温度相对食管温度平均偏高0.074˚C(P = 0.03；95%置信区间[0.010,0.133])。核心(食道)测温与口腔或颞动脉测温的差异有统计学意义，但远小于临床可接受的0.4˚C的偏差。口温和颞动脉温度与核心（食管）温度的温差在0.4˚C范围内，这种差异被认为是临床上可接受的。口腔测温或颞动脉测温可以作为成人结直肠或妇科手术患者的无创核心体温的测量方法。

结论
· /

标题
Temperature Measurement in Patients Undergoing Colorectal Surgery and Gynecology Surgery: A Comparison of Esophageal Core, Temporal Artery, and Oral Methods

发表期刊
Journal of PeriAnesthesia Nursing

作者
Emily, M., Sendelbach, S., Hodges, J. S., Gustafson, C., Machemer, C., Johnson, D., & Reiland, L.

发表日期
2010年4月

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https://www.jopan.org/article/S1089-9472(10)00040-7/abstract

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Neonates - 临床研究 #36

用颞动脉温度计和腋窝水银温度计测量足月新生儿体温的准确性比较

摘要
直肠水银温度计（RT）被认为是一种测量接近核心温度的体温计，但是患者使用不舒服。 腋窝水银温度计（AT）是一种相对安全的方法，但耗时和准确性一直受到质疑。颞动脉温度计（TAT）是一种相对较新的方法，可以更快地测量体温，并且耐受性良好。

结论
- 在健康足月新生儿的体温测量中，TA温度计比AT水银温度计更准确。

标题
Comparison of the accuracy of body temperature measurements with temporal artery thermometer and axillary mercury thermometer in term newborns

发表期刊
Paediatrica Indonesiana

作者
Gunawan, M.

发表日期
2010年3月

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Pediatrics - 临床研究 #35

24个月以下儿童颞动脉和直肠温度测量的比较

摘要
本描述性研究比较了颞动脉(TA)和直肠温度测量、温度测量期间患者的舒适度以及获得温度测量所需的护理时间。40位研究参与者包括体温高于38°C的0-24个月大的儿童，他们住在美国中西部一家独立的儿童医院。对450对TA和直肠温度测量数据进行统计分析，结果显示二者的相关系数为0.776，平均差值为0.03°C，差值小于1.0°C的测量值为94.7%。通过面部、腿部、活动、哭泣、安慰程度来衡量患者的舒适度，与直肠相比，TA测温法可以提高患者的舒适度。TA测温法节省了87%的护理时间。

结论
- /

标题
Comparison of Temporal Artery to Rectal Temperature Measurements in Children Up to 24 Months

发表期刊
Journal of Pediatric Nursing

作者
Carr, E. A., Wilmoth, M. L., Eliades, A. B., Baker, P. J., Heisroth, K. L., & Stoner, K. H.

发表日期
2011年6月26日

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THE NEED FOR AN ACCURATE NONINVASIVE THERMOMETER

Abstract
WILL BE ADDES WHEN PDF IS READY

Conclusion
- /

Title
The need for an accurate noninvasive thermometer

Publication
Anesthesia & Analgesia

Authors
Harper, C. M.

Publication date
July 2009

Link
https://www.researchgate.net/publication/26300715_The_Need_for_an_Accurate_Noninvasive_Thermometer

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NONINVASIVE TEMPERATURE MONITORING IN POSTANESTHESIA CARE UNITS

Abstract
Initial postoperative core temperature is a physician and hospital performance measure. However, the extent to which core temperature changes during emergence from anesthesia and transport from the operating room to the postanesthesia care unit (PACU) remains unknown. Similarly, the accuracy of many noninvasive temperature-monitoring methods used in the PACU has yet to be quantified. This study, therefore, quantified the change in core temperature occurring during emergence and transport and evaluated the accuracy and precision of eight noninvasive thermometers in the PACU.

In 50 patients having laparoscopic surgery, the authors measured temperatures upon PACU arrival and 30 and 60 min thereafter. Monitoring methods included oral, axillary, temporal artery, forehead skin-surface, forehead liquid-crystal display, infrared aural canal, deep forehead, and deep chest. Bladder temperature was used as the reference and was also measured at the end of surgery. The primary outcome was agreement between individual temperatures from each method and bladder temperature in the PACU. A priori, the authors chose 0.5 degrees C as a clinically important temperature deviation. Bladder temperature increased 0.2 +/- 0.3 degrees C (95% confidence interval 0.1 to 0.3 degrees C), P < 0.001, during transport. None of the tested noninvasive thermometers was consistently within 0.5 degrees C of bladder temperature. However, oral, deep forehead, and temporal artery temperatures were significantly better than other methods and agreed reasonably well with bladder temperature.

Conclusion
- Invasive temperature monitoring available intraoperatively is more accurate than any generally available postoperative methods.
- Physician performance measures should therefore not be based exclusively on postoperative temperatures.
- Among the generally available postoperative monitoring methods, electronic oral thermometry appears to be the best.

Title
Noninvasive temperature monitoring in postanesthesia care units.

Publication
Anesthesiology

Authors
Langham, G. E., Maheshwari, A., Contrera, K., You, J., Mascha, E., & Sessler, D. I.

Publication date
July 2009

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https://www.ncbi.nlm.nih.gov/pubmed/19512860

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DO OUR PATIENTS HAVE HYPOTHERMIA? TEMPORAL VERSUS ORAL THERMOMETERS

Abstract
PACU and Phase II Recovery used two different type thermometers for measurement. A great variance was noted in the results. A random sampling of 44 outpatients was used comparing the results of temporal thermometers at discharge from PACU to results of oral thermometers on admission to Phase II. The study was over a month's time using a tool developed by staff. The data showed greater than 40% had more than 1 degree variance and 11% had more than 2 degree variance.

Conclusions
[Will be added when PDF is bought]

Title
Do Our Patients Have Hypothermia? Temporal Versus Oral Thermometers

Publication
Journal of PeriAnesthesia Nursing

Authors
Pittman, R., & Waters, R.

Publication date
June 2009

Link
https://www.jopan.org/article/S1089-9472(09)00225-1/abstract

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INFRA-RED THERMOMETRY: THE RELIABILITY OF TYMPANIC AND TEMPORAL ARTERY READINGS FOR PREDICTING BRAIN TEMPERATURE AFTER SEVERE TRAUMATIC BRAIN INJURY

Abstract
Temperature measurement is important during routine neurocritical care especially as differences between brain and systemic temperatures have been observed. The purpose of the study was to determine if infra-red temporal artery thermometry provides a better estimate of brain temperature than tympanic membrane temperature for patients with severe traumatic brain injury.

Brain parenchyma, tympanic membrane and temporal artery temperatures were recorded every 15-30 min for five hours during the first seven days after admission.

Twenty patients aged 17-76 years were recruited. Brain and tympanic membrane temperature differences ranged from -0.8 degrees C to 2.5 degrees C (mean 0.9 degrees C). Brain and temporal artery temperature differences ranged from -0.7 degrees C to 1.5 degrees C (mean 0.3 degrees C). Tympanic membrane temperature differed from brain temperature by an average of 0.58 degrees C more than temporal artery temperature measurements (95% CI 0.31 degrees C to 0.85 degrees C, P < 0.0001).

Conclusion
- At temperatures within the normal to febrile range, temporal artery temperature is closer to brain temperature than is tympanic membrane temperature.

Title
Infra-red thermometry: the reliability of tympanic and temporal artery readings for predicting brain temperature after severe traumatic brain injury

Publication
Critical Care

Authors
Kirk, D., Rainey, T., Vail, A., & Childs, C.

Publication date
2009

Link
https://www.ncbi.nlm.nih.gov/pubmed/19473522

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Pediatric ED - 临床研究 #30

TEMPORAL ARTERY THERMOMETRY UTILIZATION IN PEDIATRIC EMERGENCY CARE

Abstract

The objective of this study is to determine the effectiveness of temporal artery thermometry (TAT) as an alternative for temperature assessment of children 1 to 4 years of age in the pediatric emergency department.

Prospective cross-sectional study conducted at an urban children's hospital emergency department. TAT and rectal temperatures are compared in a convenience sample of children 1 to 4 years of age. Comparison of the temperatures is performed using Pearson correlation coefficient and regression analysis.

TAT and rectal temperatures are measured in 42 children 1 to 4 years of age. TAT predicts 83% of rectal temperatures. A receiver operating characteristic curve analysis shows that a cutoff of 37.7 degrees C or greater for fever in TAT is equivalent to rectal temperature greater than or equal to 38.3 degrees C with 100% sensitivity and 93.5% specificity.

Conclusions

- TAT is an effective screening tool in identifying fever in children 1 to 4 years of age.

Title

Temporal artery thermometry utilization in pediatric emergency care

Publication

Clinical Pediatrics

Authors

Titus, M. O., Hulsey, T., Heckman, J., & Losek, J. D.

Publication date

March 2009

Link

https://www.ncbi.nlm.nih.gov/pubmed/19015280

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Adult CCU - 临床研究 #29

对危重病人体温的无创测量

摘要

在成人重症监护中，假设患者没有插肺动脉导管和膀胱，直肠或食管的测温探头，那么最准确的无创测体温方法是什么?

结论

【注意:这是杂志上的一篇文章，不是科学研究，这些结论摘自于文章的结尾】

- 这些研究表明，无创温度测量对于排除高温和体温过低是准确的，但可能未检测到体温过高和体温过低，这取决于所使用的温度计。
- 该领域需要进一步研究。
- 最后要记住，治疗决策不应该基于单一的生命体征。

标题

Noninvasive measurement of body temperature in critically ill patients

发表期刊

American Association of Critical-Care Nurses

作者

Bridges, E., & Thomas, K.

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CL-901-CH-V0

MISGUIDED GUIDELINES ON NONINVASIVE THERMOMETRY

Abstract
[Will be added when PDF is bought]

Conclusions

Title
Misguided guidelines on noninvasive thermometry

Publication
Critical Care Medicine

Authors
Pompei, F.

Publication date
March 2003

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围麻醉期成年患者鼓膜温度与颞动脉温度的比较

摘要
达到术前温度稳定是麻醉和手术后离开术后复苏的重要标准。虽然有许多测量体温的方法，但在大多数围手术期间，鼓膜温度计（TM）已取代口腔温度计。由于鼓膜温度读数的可靠性受到许多报告和从业者的质疑，颞动脉(TA)温度计以其无创的方法和易于操作而在围麻醉的护士中流行起来。我们进行了一项前瞻性研究，从而确定TA体温计替代TM体温计在围麻醉期成年患者中的应用能力。

结论
· /

标题
Tympanic membrane versus temporal artery temperatures of adult perianesthesia patients

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作者
Fetzer, S. J., & Lawrence, A.

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ACCURACY AND PRECISION OF NONINVASIVE TEMPERATURE MEASUREMENT IN ADULT INTENSIVE CARE PATIENTS

Abstract

The objective of this study is to determine accuracy and precision of oral, ear-based, temporal artery, and axillary temperature measurements compared with pulmonary artery temperature.

In 60 adults with cardiopulmonary disease and a pulmonary artery catheter, mean pulmonary artery temperature was 37.1 degrees C (SD 0.6 degrees C, range 35.3 degrees C-39.4 degrees C). Mean (SD) offset from pulmonary artery temperature (with the mean reflecting accuracy and SD reflecting precision) and confidence limits were 0.09 degrees C (0.43 degrees C) and -0.75 degrees C to 0.93 degrees C for oral measurements, -0.36 degrees C (0.56 degrees C) and -1.46 degrees C to 0.74 degrees C for ear measurements, -0.02 degrees C (0.47 degrees C) and -0.92 degrees C to 0.88 degrees C for temporal artery measurements, and 0.23 degrees C (0.44 degrees C) and -0.64 degrees C to 1.12 degrees C for axillary measurements. Percentage of pairs with differences greater than +/-0.5 degrees C was 19% for oral, 49% for ear, 20% for temporal artery, and 27% for axillary measurements. Intubation increased oral measurements compared with pulmonary artery temperatures (mean difference 0.3 degrees C, SD 0.3 degrees C, P = .001).

Conclusion

- Oral and temporal artery measurements were most accurate and precise.
- Axillary measurements underestimated pulmonary artery temperature.
- Ear measurements were least accurate and precise.
- Intubation affected the accuracy of oral measurements; diaphoresis and airflow across the face may affect temporal artery measurements.

Title

Accuracy and precision of noninvasive temperature measurement in adult intensive care patients.

Publication

American Journal of Critical Care

Authors

Lawson, L., Bridges, E. J., Ballou, I., Eraker, R., Greco, S., Shively, J., & Sochulak, V.

Publication date

September 2007

Link

https://www.ncbi.nlm.nih.gov/pubmed/17724246

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OTC设备：颞动脉温度计TAT-2000C

摘要

/

结论

· /

标题

OTC device: temporal scanner TAT-2000C

发表期刊

Journal of the American Pharmaceutical Association

作者

Canales, A. E.

发表日期

2007年1月/2月

链接

https://www.japha.org/article/S1544-3191(15)31434-5/pdf

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CL-901-CH-V0

THE STRUCTURE AND PROCESSES OF CARE DELIVERY IMPACT POSTOPERATIVE NORMOTHERMIA

Abstract
CAN'T BE FOUND ONLINE, DOES EXERGEN HAVE IT??

Conclusions
- /

Title

Publication

Authors

Publication date

Link

PERIOPERATIVE TEMPERATURE AUDIT IN A LARGE PEDIATRIC HOSPITAL

Abstract
The combination of anesthetic-induced impairment of thermoregulatory control and exposure to a cool operating room environment makes most surgical patients

hypothermic. Infants and children cool more quickly than adults because their higher surface area to weight ratio favors heat loss. For the same reason, pediatric patients can be rewarmed faster than adults. The safe range for a child's core temperature was determined to be between 35.5 to 37.5oC.

The aim of this study was to determine the incidence of hypothermia after surgery in a large pediatric hospital. Hypothermia was defined as temperature < 35.5 oC at arrival in the recovery room.

Conclusions
- We found that 97.9% of pediatric patients undergoing surgery in our institution were normothermic at arrival in the recovery room
- Only 1.9% of our patients were found to be mildly hypothemic

Title
Perioperative Temperature Audit in a Large Pediatric Hospital

Publication
The Anesthesiology Annual Meeting 2007

Authors
Szmuk, P., Curry, B. P., Sheeran, P. W., Farrow-Gillespie, A. C., & Ezri, T.

Publication date
October 2007

Link
http://www.asaabstracts.com/strands/asaabstracts/abstract.htm?year=2007&index=15&absnum=174

EXERGEN CORPORATION

Adult CCU - 临床研究 #22

TEMPERATURE MEASUREMENT IN CRITICALLY ILL ADULTS

Abstract
Despite increasing use of tympanic thermometers in critically ill patients who do not have a pulmonary artery catheter in place, variations in measurements obtained with the thermometers are still a problem.

The objective of this study was to compare the range of variability between tympanic and oral electronic thermometers.

The magnitude of error for the ThermoScan tympanic thermometer differed significantly from that of the Genius II tympanic thermometer and the SureTemp oral thermometer (P < .001). Application of the Bland and Altman method to frame the data on the basis of an accuracy tolerance zone of +/-0.5 degrees C indicated variability with both the oral and tympanic methods. The overall degree of variability was lower for the oral thermometer.

Conclusions
- Oral thermometers provide less variable measurements than do tympanic thermometers.
- Use of oral thermometry is recommended as the best practice method for temperature evaluation in critical care patients when measurement of core temperature via a pulmonary artery catheter is not possible.

Title
Temperature measurement in critically ill adults: a comparison of tympanic and oral methods.

Publication
American Journal of Critical Care

Authors
Giuliano, K. K., Giuliano, A. J., Scott, S. S., MacLachlan, E., Pysznik, E., Elliot, S., & Woytowicz, D.

Publication date
July 2000

Link
https://www.ncbi.nlm.nih.gov/pubmed/10888148

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Methods Paper - 临床研究 #21

A BRIEF REPORT ON THE NORMAL RANGE OF FOREHEAD TEMPERATURE AS DETERMINED BY NONCONTACT, HANDHELD, INFRARED THERMOMETER

Abstract
[Will be added when PDF is bought]

Conclusions

Title
A brief report on the normal range of forehead temperature as determined by noncontact, handheld, infrared thermometer

Publication
American Journal of Infection Control

Authors
Ng, D. K., Chan, C., Chan, E. Y., Kwok, K., Chow, P., Lau, W., & Ho, J. C.

Publication date
May 2006

Link
https://www.ajicjournal.org/article/S0196-6553(05)00005-2/abstract

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CL-901-CH-V0

COMPARISON OF TEMPORAL ARTERY AND ORAL TEMPERATURES IN THE EMERGENCY DEPARTMENT

Abstract
[Can't be found online]

Conclusions

Title

Publication

Authors

Publication date

Link

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颞动脉温度计测温

摘要
在Herlev County 医院的肾病科B109病房，我们要审核测温的质量。我们偶然发现了Exergen颞动脉温度计(一种额温计)，决定研究一下这个设备是否比我们在病房里使用的另一种耳温计(FirstTemp -Genius耳温计)更好用。

在部门顾问的协助下，我们草拟了一项计划：使用耳温计、颞动脉温度计及直肠水银温度计测量体温。所有的测量都将在同一病人身上同时进行，共30名患者，每24个周期进行约60次的体温测量。随后，我们将测量值和文献做了比较。

结论
- 这两种设备都对患者很友好，适用于日常无创温度测量。
- 然而，颞动脉温度计的测量值比耳温计更接近直肠温度计。
- 当然 根据我们此次的实验对比并不能准确地确定哪种温度计更优。
- 在适当的条件下，这两种设备都能显示精确的温度测量，尽管颞动脉温度计的测量结果往往更令人信服。

标题
Temporal Temperature Measurement / Mal temperaturen pa panden

发表期刊
Sygeplejersken

作者
Espenhein, A.

发表日期
2006年

链接
https://dsr.dk/sygeplejersken/arkiv/sy-nr-2006-17/maal-temperaturen-paa-panden

[ONLY THE PRINT FRIENDLY PDF OF THE ONLINE ARTIKEL AVAILABLE]

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COMPARISON OF TEMPORAL ARTERY THERMOMETER TO STANDARD TEMPERATURE MEASUREMENTS IN PEDIATRIC INTENSIVE CARE UNIT PATIENTS

Abstract

The objective of this paper is to determine the accuracy of noninvasive infrared temporal artery thermometry compared with rectal, axillary, and pulmonary artery catheter measurements in pediatric intensive care patients, and to determine whether temporal artery temperatures are affected by circulatory shock or by vasopressor use. We hypothesized that temporal artery temperatures do not differ from axillary and rectal temperatures in critically ill children, but temporal artery accuracy is decreased by shock or vasopressor use.

Mean bias was calculated between comparison pairs using each temperature method. Bland-Altman analysis demonstrated wide variability between methods. No significant differences in mean bias were seen between method pairs for all temperatures, but bias was significantly less in pulmonary artery catheter-rectal pairs compared with other method pairs. In febrile (> 38 degrees C) patients, bias in rectal-temporal artery and rectal-axillary was significantly greater than in temporal artery-axillary pairs ($p < .001$). Mean bias in pulmonary artery catheter-rectal pairs was also significantly smaller than in other pairs for all patients ($p = .008$) and febrile patients ($p = .049$). Presence of shock or vasopressor use did not significantly increase bias in any comparison pair. Sensitivity and specificity of both temporal artery and axillary for diagnosing fever were similar and improved with fever definition at temperatures > 38.5 degrees C.

Conclusion

- Temporal artery and axillary temperature measurements showed variability to rectal temperatures but had marked variability in febrile children.
- Neither was sufficiently accurate to recommend replacing rectal or other invasive methods.
- As temporal artery and axillary provide similar accuracy, temporal artery thermometers may serve as a suitable alternative for patients in whom invasive thermometry is contraindicated.

Title

Comparison of temporal artery thermometer to standard temperature measurements in pediatric intensive care unit patients

Publication

Pediatric Critical Care Medicine

Authors

Hebbar, K., Fortenberry, J. D., Rogers, K., Merritt, R., & Easley, K.

Publication date

September 2005

Link

https://www.ncbi.nlm.nih.gov/pubmed/16148817

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有母乳喂养困难的夫妇在肌肤接触母乳喂养期间的新生儿温度

摘要

袋鼠式（肌肤接触）护理有助于维持新生儿的安全温度。然而，人们一直担心婴儿会在母乳喂养时感到寒冷，尤其是在与母亲皮肤接触时。对于母乳喂养有困难的婴儿来说，这种担忧不无道理。研究的目的是测量母乳喂养困难的母亲和婴儿在产后早期的体温，并让他们在母乳喂养期间有机会体验皮肤与皮肤的接触。

在皮肤与皮肤接触期间，大多数婴儿达到并保持温度在36.5～37.6℃之间，即热中性范围，只有极少数例外。

结论

- 研究结论得出婴儿的皮肤接触温度在母乳喂养期间达到并保持在热中性范围。
- 数据表明，如果有机会母亲有能力在皮肤与皮肤接触时调节婴儿的体温。
- 医护人员和家长可以放心，就健康的新生儿体温而言，无论是否有母乳喂养的困难，都可以安全地与母亲进行皮肤接触母乳喂养。

标题

Newborn temperature during skin-to-skin breastfeeding in couples having breastfeeding difficulties

发表期刊

Birth

作者

Chiu, S. H., Anderson, G. C., & Burkhammer, M. D.

发表日期

2005年6月

链接

https://www.ncbi.nlm.nih.gov/pubmed/15918868

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Adult ICU - 临床研究 #16

TEMPORAL SCANNER THERMOMETRY: A NEW METHOD OF CORE TEMPERATURE MEASUREMENT IN INTENSIVE CARE PATIENTS

Abstract

Temperature measurement is a routine task of patient care, with considerable clinical impact, especially in the ICU. This study was conducted to evaluate the accuracy and variability of the Temporal Artery Thermometer (TAT) in ICU patients. Therefore, a convenience sample of 57 adult patients, with indwelling pulmonary artery catheters (PAC) in a 40-bed intensive care unit in a university teaching hospital was used.

The study design was a prospective, descriptive comparative analysis. Body temperature was thereby measured simultaneously with the TAT and the Axillary Thermometer (AT), and was compared with the temperature recording of the PAC. The use of vasoactive medication was recorded.

Mean temperature of all measurements was: PAC: 37.1 degrees C (SD: 0.87), TAT 37.0 degrees C (SD: 0.68) and axillary thermometer: 36.6 degrees C (SD: 0.94). The measurements of the TAT and the PAC were not significantly different (man differnce: 0.14 degrees C; SD: 0.51; p = 0.33); whereas the measurements of the PAC and the AT differed significantly (mean difference: 0.46 degerees C; SD: 0.39; p < 0.001). Mean diference in PAC versus TAT analyses, between patients with vasopressor therapy (0.12 degrees C; SD: 0.55), and without vasopressor therapy (0.19 degrees C; SD: 0.48) was not statistically significant (p = 0.47).

Conclusions

- We can conclude that the temporal scanner has a relatively good reliability with an acceptable accuracy and variability in patients with normothermia.
- The results are comparable to those of the AT, but they do not seem to be sufficient to prove any substantial benefit compared to rectal, oral or bladder thermometry.

Title

Temporal scanner thermometry: a new method of core temperature estimation in ICU patients.

Publication

Scottish Medical Journal

Authors

Myny, D., De Waele, J., Defloor, T., Blot, S., & Colardyn, F.

Publication date

February 2005

Link

https://www.ncbi.nlm.nih.gov/pubmed/15792381

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Pediatric ED - 临床研究 #15

COMPARISON OF THE TEMPORAL ARTERY AND RECTAL THERMOMETRY IN CHILDREN IN THE EMERGENCY DEPARTMENT

Abstract

Rectal thermometry, the criterion standard of temperature measurement in young children, has numerous disadvantages. This study examined the agreement between rectal versus a new temporal artery professional model (TAPM) thermometer and rectal versus a home device temporal artery consumer model (TACM) thermometer, investigated if the TAPM can safely screen for rectal fever, and determined if parents can detect rectal fever using the TACM. DESIGN, OUTCOME MEASURES, AND SUBJECTS: In this cross-sectional agreement emergency department study, 327 children <24 months of age had their temperature measured rectally and by the TAPM and TACM by a single nurse and using the TACM by the parents. Agreements were analyzed by the Bland Altman plots. Temperature cutoff to detect rectal fever > or =38.0 degrees C and > or =38.3 degrees C with sensitivities of > or =90% and > or =95%, respectively, was determined for the TAPM.

The mean difference between the rectal minus TAPM was -0.19 degrees C +/- 0.66 degrees C, and minus the TACM home device, it was +0.11 degrees C +/- 0.66 degrees C. The sensitivities of TAPM temperature of > or =37.7 degrees C to detect rectal fever > or =38.0 degrees C and > or =38.3 degrees C were 90% (95% confidence interval: 0.83; 0.94) and 97% (95% confidence interval: 0.92; 0.99), respectively. The parents detected 67% and 73% of rectal fevers 38.0 degrees C and > or =38.3 degrees C, respectively.

Conclusions

- The TAPM thermometer cannot replace the rectal. However, TAPM temperature of <37.7 degrees C can be safely used as a screen to exclude rectal fever > or =38.3 degrees C in infants 3 to 24 months of age.
- The TACM home device has insufficient ability to detect rectal fever.
- A multicenter trial is needed to validate these results across multiple emergency departments and numerous observers.

Title

Comparison of the temporal artery and rectal thermometry in children in the emergency department

Publication

Pediatric Emergency Care

Authors

Schuh S, Komar L, Stephens D, Chu L, Read S, & Allen U.

Publication date

November 2004

Link

https://www.ncbi.nlm.nih.gov/pubmed/15502654

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Pediatric ED - 临床研究 #14

当体温变化时，直肠温度会延迟吗?

摘要
通过使用颞动脉和直肠温度计，我们跟踪了45名发热(>38.5摄氏度)的婴儿服用解热药物后的温度对比。服药的60和90分钟后，颞动脉温度明显低于直肠温度。当人体动脉温度快速变化时，直肠温度的变化可能会有延迟。

结论
· /

标题
When body temperature changes, does rectal temperature lag?

发表期刊
Journal of Pediatrics

作者
Greenes, D. S., & Fleisher, G. R.

发表日期
2004年9月

链接
https://www.jpeds.com/article/S0022-3476(04)00167-2/pdf

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NON-INVASIVE TEMPORAL ARTERY THERMOMETRY: PHYSICS, PHYSIOLOGY, AND CLINICAL ACCURACY, PRESENTED AT MEDICAL THERMOMETRY FOR SARS DETECTION

Abstract
Temporal artery (TA) thermometry was developed in answer to requests by pediatricians for a replacement for: 1) ear thermometry due to inaccuracy; and 2) rectal thermometry due to parents' (and most clinicians') growing dislike of the method. The underlying technology development spans some 20 years, borrowing heavily from methods invented for industrial processes and medical research. Although the forehead has been used since antiquity to detect fever, its accuracy had always been questionable until physiological artifacts were understood and overcome, and mathematical modeling of arterial heat balance at the skin has made it possible to produce accurate core temperatures entirely non-invasively with just a scan of the forehead. Clinical studies have been conclusive as to TA superiority to ear thermometry, and well on the way to being conclusive as to TA at least as accurate as rectal. The physics are relatively straightforward, but the physiological requirements are not. Underlying physiological artifacts cause errors of more than 2 deg C in non-invasive thermometry and must be reduced by an order of magnitude to provide medically useful temperatures. Patented TA technology incorporates methods of dealing with physiological artifacts to overcome these errors. Mass screening for SARS containment with this method is examined.

Conclusions

- The TA thermometer was validated by initial studies performed by qualified clinical researchers in prestigious institutions.
- Reproducibility of both the instrument and physiological assumptions was established by comparing paired left-right readings.
- Exergen and its clinical research partners concluded that the TA method was indeed suitable for routine clinical use.

Title
Non-invasive temporal artery thermometry: Physics, physiology, and clinical accuracy

Publication
Proceedings of SPIE - The International Society for Optical Engineering

Authors
Pompei, P., & Pompei, M.

Publication date
April 2004

Link
https://www.researchgate.net/publication/228597147_Non-invasive_temporal_artery_thermometry_Physics_physiology_and_clinical_accuracy

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CL-901-CH-V0

儿童颞动脉、直肠和食管核心温度的比较:试用研究结果

摘要
直肠测温法与核心体温有关，是儿童测温的标准。但是，它有许多缺点，因此，需要一种像直肠测温法与核心温度具有类似一致性的替代测温方法。一种新型的非侵入性颞动脉(TA)体温计综合了皮肤表面和环境温度来显示动脉温度。
从80名入选儿童测量的结果中发现，食管探针与直肠探针，直肠电子体温计和TA温度计的组内相关系数分别为0.91,0.95和0.88。食管直肠平均差为0.00±0.18˚C，食管- TA温度计平均差为0.14±0.20˚C。 食管探针与直肠探针，直肠温度计和TA温度计之间关系的线性回归分析得出斜率分别为0.93,0.94和0.89。各斜率彼此之间不相同（P = 0.70）。

结论
- TA温度计和食管温度计的测量结果很吻合。
- 食管对比TA温度计和食管对比直肠温度计结果基本一致。

标题
Comparison of temporal artery, rectal and esophageal core temperatures in children: Results of a pilot study

发表期刊
Journal of Pediatric and Child Health

作者
Al-Mukhaizeem, F., Allen, U., Komar, L., Naser, B., Roy, L., Stephens, D., Read, S., Kim, C., & Schuh, S.

发表日期
2004年9月9日

Link
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2720860/

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颞动脉温度计和肺动脉导管温度计测量值的比较

摘要
作为临床护理的常规部分，体温测量是疾病的关键指标。根据肺动脉导管热敏电阻(PAT)测温的标准，PAT插入对患者有较大的风险，因此需要一种准确甚至精确的无创测温方法。

本研究的目的是测量两种常用的体温采集方法的精度和准确性：PAT被认为是测量标准，而颞动脉温度计（TAT）则适用于温度高于38˚C的患者。

研究对象60例，男41例，女19例，平均年龄60.8岁，97% (n = 58)为心脏术后患者。PAT和TA温度计之间存在统计学上的明显差异（38.33˚C [SD，0.19˚C]对比38.05˚C[SD，0.30˚C]；偏差，-0.49˚F（华氏度）；P <0.001）。60例患者中，有15例(25%)体温差异有临床意义(即>17.28˚C差异)。无TA测量值对比PAT测量值大于0.9˚F（华氏度）（0%；95%置信区间，0 -6%）。

结论
- /

标题
A comparison of measurements from a temporal artery thermometer and a pulmonary artery catheter thermistor

发表期刊
American Journal of Critical Care

作者
Furlong, D., Carroll, D. L., Finn, C., Gay, D., Gryglik, C., & Donahue, V.

发表日期
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NEW PRODUCT REVIEW: TEMPORAL ARTERY THERMOMETRY

Abstract
[WILL BE ADDED WHEN PDF IS BOUGHT]

Conclusions

Title
New product review: temporal artery thermometry

Publication
Journal of PeriAnesthesia Nursing

Authors
Sandlin, D.

Publication date
December 2003

Link

婴儿发热的检测:3个月以下婴儿感知、奶嘴温度和颞动脉温度测量的可靠性

摘要
发烧被认为是婴幼儿的一个重要问题。据报道，在1个月以下的发热婴儿中严重细菌感染的发生率为13%，在1至2个月的婴儿中为10%。指南建议对这些婴儿进行实验室评估，但调查范围可能会受到临床判断的影响。

确定哪一个婴儿是否发烧过并不像看上去那么简单。巴拉夫说道：“对一个没发热但有过发烧记录的儿童而言，应该根据其以往的发烧等级将其归类为发烧。

直肠温度是用于研究婴儿发烧的标准。然而，在急诊科(ED)常见的情况是，仅凭腋窝、鼓膜或奶嘴测温来确定婴儿是否发烧。腋窝和鼓膜温度计在年幼婴儿中是不可信的。对奶嘴温度计的检测有限，似乎需要调整，这可能会让父母感到困惑。颞动脉(TA)温度计最近已经实现了家庭中的使用，由于它的非侵入性，父母们可以很快上手使用。

本研究的目的是确定父母对婴儿发烧感知的可靠度，并确定在检测3个月以下的婴儿发烧时使用TA温度计或奶嘴温度计。

结论
直肠测温仍须是3个月以下婴儿的测温标准。

标题
Detecting fever in young infants: reliability of perceived, pacifier, and temporal artery temperatures in infants younger than 3 months of age

发表期刊
Pediatric Emergency Care

作者
Callanan, D.

发表日期
2003年8月19日

链接
https://www.ncbi.nlm.nih.gov/pubmed/12972820

TEMPORAL ARTERY TEMPERATURE MEASUREMENTS IN HEALTHY INFANTS, CHILDREN, AND ADOLESCENTS

Abstract

A noninvasive temporal artery thermometer that uses arterial heat balance technology has been compared to rectal and ear thermometry and is available in the marketplace. This study was undertaken to establish mean temperatures and temperatures 2 standard deviations above the mean for healthy infants, children, and adolescents. Temperatures were measured in healthy patients 0 to 18 years of age using a noninvasive temporal artery thermometer. Temperatures were measured in 2,346 patients. Mean temperatures and temperatures 2 standard deviations above the mean were: 37.1 degrees C (38.1 degrees C) for 383 infants 0 to 2 months; 36.9 degrees C (37.9 degrees C) for 860 children 3 to 47 months; 36.8 degrees C (37.8 degrees C) for 680 children 4 to 9 years; and 36.7 degrees C (37.8 degrees C) for 423 adolescents 10 to 18 years. There were no significant differences in temperatures in white compared to African-American children, children with or without perspiration on their forehead, or between measurements taken on the left compared to the right side of the forehead. This study provides information about temporal artery temperatures in healthy infants and children that can serve as a basis for interpreting temperature measurements in ill children when the same instrument is used.

Conclusions

- [WILL BE ADDED WHEN PDF IS BOUGHT]

Title

Temporal artery temperature measurements in healthy infants, children, and adolescents

Publication

Clinical Pediatrics

Authors

Roy, S., Powell, K., & Gerson, L. W.

Link

https://www.ncbi.nlm.nih.gov/pubmed/12862347

儿童颞动脉测温法与食管测温法的比较验证

未找到

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COMPARISON OF THE TEMPORAL ARTERY AND RECTAL THERMOMETRY IN CHILDREN IN THE EMERGENCY DEPARTMENT

[THESE LOOK SIMILAIR]

Number 65:
Schuh S, Komar L, Stephens D, Chu L, Read S, Allen U (University of Toronto/Hospital for Sick Children). Comparison of the temporal artery and rectal thermometry in children in the emergency department. Pediatric Academic Societies Annual Meeting, May 3-6, 2003, Seattle, WA.

Number 66:
Schuh S, Komar L, Stephens D, Chu L, Read S, Allen U (University of Toronto/Hospital for Sick Children). Comparison of the temporal artery and rectal thermometry in children in the emergency department. Pediatric Emergency Care, Vol 20, No. 11, Nov 2004

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INSUFFICIENCY IN THERMOMETER DATA

Abstract
[Will be added when PDF is bought]

Conclusions

Title
Insufficiency in thermometer data

Publication
Anesthesia & Analgesia

Authors
Pompei, F.

Publication date
January 2009

Link
https://journals.lww.com/ccmjournal/Citation/2009/01000/Misguided_guidelines_on_noninvasive_thermometry.89.aspx#print-article-link

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红外颞动脉温度计测温

摘要

在许多情况下可能需要避免直肠测温。研究表明，红外测温技术在耳温检测中灵敏度较低。因此，我们测试了一种新的红外温度计，它通过测量颞浅动脉的皮肤和邻近表面温度来估算核心温度。

直肠和颞动脉测量的平均差为0.3°C。其中37例患者出现发热，即直肠温度38°C，其敏感度为53% (95% CI: 41 - 65%)，特异性为96% (95% CI: 90 - 99%)。阳性预测值为90% (95% CI: 77 - 97%)，阴性预测值为73% (95% CI: 64 - 81%)。

结论

- 温度测量最重要的功能是检测是否发烧。
- 如果直肠测量仍然是黄金标准，那么红外测量在颞部区域的敏感度太低(53%)，无法检测入住重症监护病房的成人发热情况。

标题

Infrared temporal temperature measurement

发表期刊

Journal of the Norwegian Medical Association/Tidsskriftet Den Norkse Legeforening

作者

Dybwik, K., & Nielsen, E. W.

发表日期

2003年11月6日

链接

https://tidsskriftet.no/en/2003/11/infrared-temporal-artery-temperature-measurement

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COMPARISON OF TEMPLE TEMPERATURES WITH RECTAL TEMPERATURES IN CHILDREN UNDER TWO YEARS OF AGE

Abstract

We assessed the agreement between rectal and noninvasive temporal artery temperature measurements in infants and children. We also evaluated the temple thermometer as a screening tool for rectal fever in this age group. Finally, we compared the performance of parents with that of nurses in using the temple thermometer. The 95% limits of agreement between the difference in rectal and average temple temperature were -1.03 and +1.52 degrees C. Mean temple temperatures obtained by parents and by nurses were similar (95% limits of agreement, -0.6 degrees C to +0.7 degrees C). A maximum temple temperature cutoff of 37.2 degrees C (99.0 degrees F) distinguished children with rectal fever of > or =38.0 degrees C with 91% sensitivity and 53% specificity. A cutoff of 37.8 degrees C (100.0 degrees F) distinguished moderate rectal fevers (> or =38.5 degrees C) with 97% sensitivity and 84% specificity. A cutoff of 38.3 degrees C (101.0 degrees F) distinguished a high rectal fever (> or =39.0 degrees C) with a sensitivity of 95% and specificity of 95%. In conclusion, temple temperatures do not reliably predict rectal temperatures, but the temple thermometer can be used as an effective screen for clinically important rectal fever in children 3-24 months old. The findings do not support use of temple temperatures to screen young infants for rectal fever > or =38.0 degrees C. Temperatures obtained by parents were comparable to those obtained by nurses.

Conclusions

- [WILL BE ADDED WHEN PDF IS AVAILABLE]

Title

Comparison of temple temperatures with rectal temperatures in children under two years of age

Publication

Clinical Pediatrics

Authors

Siberry, G. K., Diener-West, M., Schappell, E., & Karron, R. A.

Publication date

June/August 2002

Link

https://www.ncbi.nlm.nih.gov/pubmed/12166792

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用于早产儿核心体温度测定的无创红外颞动脉温度测量

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用于婴儿的无创颞动脉温度计的准确性

摘要
本文的目的是评估一种新的无创颞动脉(TA)温度计在测量婴儿体温中的准确性；以直肠温度为标准，比较TA体温计与鼓膜体温计的准确度；比较TA温度计与鼓膜及直肠温度计的易用舒适度。

使用TA、鼓膜和直肠温度计测量所有婴儿的体温。评估TA或鼓膜温度与直肠温度之间的一致性。测定了TA或鼓膜温度计与直肠温度的敏感性和特异性。在每次测量体温后，由专业的观察人员使用标准化量表进行易用舒适度评分。

结论
- TA温度计对婴儿直肠发热情况的检测灵敏度有限。
- 然而在婴儿测温中，TA体温计比鼓膜体温计更准确，比直肠体温计更易用舒适。

标题
Accuracy of a noninvasive temporal artery thermometer for use in infants

发表期刊
Archives of Pediatrics & Adolescent Medicine

作者
Greenes, D. S., & Fleisher, G. R.

发表日期
2001年3月

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White Paper #2

儿童体温计

摘要
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结论
・ ??

标题
Thermometry in children

发表期刊
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作者
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发表日期
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链接
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MEASURING BODY TEMPERATURE: A SIMPLE, EFFECTIVE AND RELIABLE SOLUTION

Abstract
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Conclusion
- ....

Title
Measuring body temperature:A simple, effective and reliable solution

Publication
UMCG

Authors
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Publication date
June 2017

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Case Study #10

SMALL INVESTMENT, LARGE IMPACT

Abstract
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Conclusion
- ....

Title
Small investment, large impact

Publication
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Authors
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Publication date
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Case Study #9

EXERGEN MEDICAL FORMS STRATEGIC DISTRIBUTION PARTNERSHIP WITH INTERNATIONAL MEDICAL TRADE CONSULTANTS OF ISRAEL

Abstract
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Conclusion
- ....

Title
Exergen Medical forms strategic distribution partnership with international medical trade consultants of Israel

Publication
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Authors
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Publication date
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Case Study #8

AFTER UMCG, BEATRIXOORD, CENTRE FOR REHABILITATION IN HAREN, ALSO CHOOSES INFRARED THERMOMETERS FROM EXERGEN

Abstract
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Conclusion
- ....

Title
After UMCG, Beatrixoord, Centre for Rehabilitation in Haren, also chooses infrared thermometers from Exergen

Publication
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Authors
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Publication date
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Case Study #7

UL GRANTS EXERGEN CORPORATION ISO 13485:2016 CERTIFICATE

Abstract
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Conclusion
- ....

Title
UL grants Exergen Corporation ISO 13485:2016 certificate

Publication
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Authors
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Publication date
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Case Study #6

WHY SEATTLE CHILDREN'S HOSPITAL DECIDED TO ADOPT TEMPORAL ARTERY THERMOMETERS

Abstract
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Conclusion
- ....

Title
Why Seattle Children's Hospital decided to adopt temporal artery thermometers

Publication
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Authors
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Case Study #5

90 PERCENT OF NURSES PREFER THERMOMETER CONNECTED TO VITAL SIGNS MONITOR

Abstract
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Conclusion
- ....

Title
90 percent of nurses prefer thermometer connected to vital signs monitor

Publication
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Authors
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Publication date
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Case Study #4

UNIVERSITY MEDICAL CENTRE GRONINGEN CHOOSES TAT-5000 OF EXERGEN MEDICAL AS STANDARD THERMOMETER THROUGHOUT HOSPITAL

Abstract
....

Conclusion
- ....

Title
University Medical Centre Groningen chooses TAT-5000 of Exergen Medical as standard thermometer throughout hospital

Publication
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Authors
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Publication date
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Case Study #3

TEMPORAL ARTERY THERMOMETRY VERY COMFORTABLE FOR PRETERM NEONATES

Abstract
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Conclusion
- ....

Title
Temporal Artery Thermometry very comfortable for preterm neonates

Publication
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Authors
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Publication date
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Case Study #2

APPEALS COURT UPHOLDS EXERGEN TEMPORAL ARTERY THERMOMETER PATENT INFRINGEMENT BY HELEN OF TROY'S BRAUN AND VICKS FOREHEAD THERMOMETERS

Abstract
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Conclusion
- ....

Title
Appeals Court Upholds Exergen Temporal Artery Thermometer Patent Infringement by Helen of Troy's Braun and Vicks Forehead Thermometers

Publication
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Authors
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Case Study #1

HOSPITALS SAVE 1,4 MILLION EURO BY ADOPTING TAT- 5000 TEMPORAL ARTERY THERMOMETER

Abstract
....

Conclusion
- ....

Title
Hospitals Save 1,4 million Euro By Adopting TAT- 5000 Temporal Artery Thermometer

Publication
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Authors
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Publication date
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