



## Curriculum Vitae

Personal information **Sven Zenker**

Work experience

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02/2019 – CURRENT – Bonn, Germany

**Medical Director, Staff Unit for Medical and Scientific Technology Development & Coordination (MWTEk)**

Commercial Directorate, University of Bonn Medical Center

Founding director of newly established staff unit that coordinates, implements, and advises on large scale projects spanning business units at the interface of medicine, technology, and science. Reports directly to Commercial Director.

02/2019 – CURRENT – Bonn, Germany

**Lecturer, Medical Informatics & Head, Applied Medical Informatics Lab**

Institute for Biometrics, Informatics, and Epidemiology (IMBIE), University of Bonn

12/2016 – CURRENT – Berlin, Germany

**Speaker, Working Group “Consent” of the National Steering Board**

National Medical Informatics Initiative of the Federal Ministry of Education & Science (BMBF)

09/2016 – CURRENT – <http://www.scai-med.org>

**Vice President**

Society for Complex Acute Illness (SCAI)

01/2014 – CURRENT – Bonn, Germany

**Head, Perioperative Medical Technology & Informatics**

Dpt. of Anesthesiology and Intensive Care Medicine, University of Bonn Medical Center

11/2013 – CURRENT – Bonn, Germany

**Attending (“Oberarzt”)**

Dpt. of Anesthesiology and Intensive Care Medicine, University of Bonn Medical Center

08/2008 – 10/2013 – Bonn, Germany

**Staff physician/scientist**

Dpt. of Anesthesiology and Intensive Care Medicine, University of Bonn Medical Center

08/2005 – 07/2008 – Pittsburgh, United States

**Postdoctoral research associate**

Dpt. of Critical Care Medicine, University of Pittsburgh Medical Center (UPMC)

10/2003 – 07/2005 – Cologne, Germany

**Laboratory physician**

Labor Dr. Quade & Kollegen

08/2003 – 10/2003 – Bad Oeynhausen , Germany

**Physician**

Cardiological Clinic, Heart and Diabetes Centre North Rhine Westfalia

01/2002 – 06/2003 – Bonn, Germany

**Physician with preliminary approbation ("Arzt im Praktikum")**

Department of Critical Care Medicine, Medical Policlinic, University of Bonn Medical Center

Education and training

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09/2015 – Düsseldorf, Germany

**Supplementary board certification "Medical Informatics"**

Ärztchamber Nordrhein

09/2013 – Düsseldorf, Germany

**Supplementary board certification "Intensive Care Medicine"**

Ärztchamber Nordrhein

06/2013 – Bonn, Germany

**Habilitation, "Quantitative analysis of biomedical measurements using mechanistic mathematical models"**

Faculty of Medicine, Rheinische Friedrich-Wilhelms-Universität Bonn

05/2012 – Düsseldorf, Germany

**Board certification "Anesthesiology"**

Ärztchamber Nordrhein

06/2011 – Düsseldorf, Germany

**Supplementary board certification "Emergency Medicine"**

Ärztchamber Nordrhein

07/2005 – Bonn, Germany

**Pre-diploma ("Vordiplom"), Physics, Minor Astronomy**

Rheinische Friedrich-Wilhelms-Universität Bonn

06/2003 – Bonn, Germany

**Doctor of Medicine (Dr. med.)**

Faculty of Medicine, Rheinische Friedrich-Wilhelms-Universität Bonn

10/1994 – 11/2001 – Bonn, Germany

**State examination, Medicine**

Faculty of Medicine, Rheinische Friedrich-Wilhelms-Universität Bonn

Additional information

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Erdfelder, F., ..., **Zenker, S.** „Implementation of 2D Barcode Medication Labels and Smart Pumps in Pediatric Acute Care: Lessons Learned“. *Applied Clinical Informatics* 14, Nr. 3 (Mai 2023): 503–12. <https://doi.org/10.1055/a-2077-2457>. **IF: 2.762**

Erdfelder, F., ..., **Zenker, S.** „Enhancing Data Protection via Auditable Informational Separation of Powers Between Workflow Engine Based Agents: Conceptualization, Implementation, and First Cross-Institutional Experiences“. *Studies in Health Technology and Informatics* 302, 317–21. IOS Press, 2023. <https://doi.org/10.3233/SHTI230126>. **IF: 0.781**

Krefting, D., ....., **Zenker, S.** “Herding cats in pandemic times - towards technological and organizational convergence of heterogeneous solutions for investigating and mastering the pandemic in University Medical Centers”; *Medinfo 2023* (accepted)

Heyder, Ralf, NUM Coordination Office, NUKLEUS Study Group, NUM-RDP Coordination (... , **Zenker, S.**), RACOON Coordination, AKTIN Coordination, und GenSurv Study Group. „The German Network of University Medicine: technical and organizational approaches for research data platforms“. *Bundesgesundheitsblatt, Gesundheitsforschung, Gesundheitsschutz* 66, Nr. 2 (Februar 2023): 114–25. <https://doi.org/10.1007/s00103-022-03649-1>. **IF: 1.7**

**Zenker, S.**, Strech, D, Ihrig, K, Jahns, R. Müller, G., Schickhardt, C., Schmidt, G. et al.. „Data Protection-Compliant Broad Consent for Secondary Use of Health Care Data and Human Biosamples for (Bio)Medical Research: Towards a New German National Standard“. *Journal of Biomedical Informatics* 131 (Juli 2022): 104096. <https://doi.org/10.1016/j.jbi.2022.104096>. **IF: 4.5**

Prokosch, H.-U., ..., **Zenker, S.**, Eils, R. „The COVID-19 Data Exchange Platform of the German University Medicine“. *Studies in Health Technology and Informatics* 294 (25. Mai 2022): 674–78. <https://doi.org/10.3233/SHTI220554>. **IF: 0.781**

Marx, G., ..., **Zenker, S.**, et al, „Algorithmic Surveillance of ICU Patients with Acute Respiratory Distress Syndrome (ASIC): Protocol for a Multicentre Stepped-Wedge Cluster Randomised Quality Improvement Strategy“. *BMJ Open* 11, Nr. 4 (1. April 2021): e045589. <https://doi.org/10.1136/bmjopen-2020-045589>. **IF: 2.9**

Rehm, C., Zoller, R., Schenk, A., Müller, N., Strassberger-Nerschbach, N., **Zenker, S.**\*, & Schindler, E.\* (2021). Evaluation of a Paper-Based Checklist versus an Electronic Handover Tool Based on the Situation Background Assessment Recommendation (SBAR) Concept in Patients after Surgery for Congenital Heart

Disease. *Journal of Clinical Medicine*, 10(24), 5724.  
<https://doi.org/10.3390/jcm10245724> (\*equal contributions) **IF: 4.242**

Bild, R., Bialke, M., Buckow, K., Ganslandt, T., Ihrig, K., Jahns, R., Merzweiler, A., Roschka, S., Schreiweis, B., Stäubert, S., **Zenker, S.**, Prasser, F. Towards a comprehensive and interoperable representation of consent-based data usage permissions in the German medical informatics initiative“. *BMC Medical Informatics and Decision Making* 20, Nr. 1 (5. Juni 2020): 103. <https://doi.org/10.1186/s12911-020-01138-6>. **IF: 2.067**

Soehle, M., Dehne, H., Hoeft, A., **Zenker, S.** Accuracy of the Non-Invasive Tcore<sup>TM</sup> Temperature Monitoring System to Measure Body Core Temperature in Abdominal Surgery. *Journal of Clinical Monitoring and Computing*, 11/26/2019 [epub ahead of print]. <https://doi.org/10.1007/s10877-019-00430-9>. **IF: 1.985**

Swigon, D., Stanhope, S.R., **Zenker, S.**, Rubin, J.E. On the importance of the Jacobian determinant in parameter inference for random parameter and random measurement error models. *SIAM Journal on Uncertainty Quantification* 2019 (*in press*) **IF: 1.653**

Tahar, K., ..., **Zenker, S.**, et al., „Integrating Heterogeneous Data Sources for Cross-Institutional Data Sharing: Requirements Elicitation and Management in SMITH“. *Studies in Health Technology and Informatics* 264 (21. August 2019): 1785–86. <https://doi.org/10.3233/SHTI190647>. **IF: 0.781**

Kiefer, N., Oremek, M.J., Hoeft, A., **Zenker, S.** Model-based quantification of left ventricular diastolic function in critically ill patients with atrial fibrillation from routine data: a feasibility study. *Computational and Mathematical Methods in Medicine* 2019  
<https://doi.org/10.1155/2019/9682138>. **IF: 1.545**

Winter, A., Stäubert, S., Ammon, D., Aiche, S., Beyan, O., Bischoff, V., Daumke, P., Decker, S., Funkat, G., Gewehr, J.E., de Greiff, A., Haferkamp, S., Hahn, U., Henkel, A., Kirsten, T., Klöss, T., Lippert, J., Löbe, M., Lowitsch, V., Maassen, O., Maschmann, J., Meister, S., Mikolajczyk, R., Nüchter, M., Pletz, M.W., Rahm, E., Riedel, M., Saleh, K., Schuppert, A., Smers, S., Stollenwerk, A., Uhlig, S., Wendt, T., **Zenker, S.**, Fleig, W., Marx, G., Scherag, A., Löffler, M. Smart Medical Information Technology for Healthcare (SMITH). *Methods of Information in Medicine* 2018. 57 (S 01): e92–105.  
<https://doi.org/10.3414/ME18-02-0004>. **IF: 1.5**

Kiefer, N., Rode, C. Baehner, T., **Zenker, S.**, Hoeft, A. Fasting before Elective Surgery Does Not Result in Hypovolaemia: A Prospective, Observational Study. *European Journal of*

- Pinsky, M.R., Kook Kim, H., **Zenker, S.**, Johnson, L., Shroff, S..  
Differential Effects of Left Ventricular Pacing Sites on Regional  
Contraction Patterns and Global Performance. Journal of  
Cardiothoracic and Vascular Anesthesia.  
doi:10.1053/j.jvca.2016.01.024 **IF: 1.482**
- Erdfelder, F., Grigutsch, D., Hoeft, A., Reider, E., Matot, I., **Zenker, S.**  
Dynamic prediction of the need for renal replacement therapy in  
intensive care unit patients using a simple and robust model. J  
Clin Monit Comput 2015. 1–10. doi:10.1007/s10877-015-9814-4  
**IF: 1.985**
- Zenker, S.**, Kim, H.K., Clermont, G., Pinsky, M.R. Robust Model-Based  
Quantification of Global Ventricular Torsion from Spatially  
Sparse 3-Dimensional Timeseries Data by Orthogonal Distance  
Regression: Evaluation in a Canine Animal Model under  
Different Pacing Regimes. Pacing Clin Electrophysiol. 2013  
Jan;36(1):13-23 **IF: 1.129**
- Gómez, H., Mesquida, J., Hermus, L., Polanco, P., Kim, H.K., **Zenker,**  
**S.**, Torres, A., Namas, R., Vodovotz, Y., Clermont, G., Puyana,  
J.C., Pinsky, M.R. Physiologic responses to severe hemorrhagic  
shock and the genesis of cardiovascular collapse: Can  
irreversibility be anticipated? J Surg Res. 2012 Nov;178(1):358-  
69. **IF: 1.936**
- Kiefer N, Theis J, Putensen-Himmer G, Hoeft A, **Zenker S.** Peristaltic  
pneumatic compression of the legs reduces fluid demand and  
improves hemodynamic stability during surgery: a  
randomized, prospective study. Anesthesiology 2011; 114(3):536-  
44. **IF: 5.879**
- Zenker, S.** Parallel particle filters for online identification of mechanistic  
mathematical models of physiology from monitoring data:  
performance and real-time scalability in simulation scenarios.  
Journal of Clinical Monitoring and Computing 2010;24:319-33  
**IF: 1.985**
- Namas, R., Ghuma, A., Torres, A., Polanco, P., Gomez, H., Barclay, D.,  
Gordon, L., **Zenker, S.**, Hermus, L., Zamora, R., Rosengart,  
M.R., Clermont, G., Peitzman, A., Billiar, T.R., Ochoa, J.,  
Pinsky, M.R., Puyana, J.C., Vodovotz, Y. An Adequately Robust  
Early TNF- $\alpha$  response is a Hallmark of Survival following  
Trauma/Hemorrhage. PLoS ONE 2009; **4(12):e8406 IF: 3.234**
- Zenker, S.**, Polanco, P.M., Torres, A., Clermont, G., Kim, H.K.,  
Vodovotz, Y., Pinsky, M.R., Namas, R.A., Puyana, J.C. Very  
low frequency variability in the peripheral circulation: the  
possibility of plethysmographic quantification. European Journal  
of Anaesthesiology 2009;**26(6):522-4 IF: 2.942**

Kiefer, N., Hoeft, A., **Zenker, S.** Non invasive oscillometric assessment of pulse pressure variation – a feasibility study. Proceedings of the 11<sup>th</sup> World Congress on Medical Physics and Biomedical Engineering 2009 (*paper and oral presentation*)

Gómez, H., Torres, A., Polanco, P. Kim, H.K., **Zenker, S.**, Puyana, J.C., Pinsky, M.R. Use of non-invasive NIRS during a vascular occlusion test to assess dynamic tissue O<sub>2</sub> saturation response. *Intensive Care Medicine* 2008;**34(9)**:1600-7. **IF: 7.214**

**Zenker, S.**, Rubin, J., Clermont, G. From Inverse Problems in Mathematical Physiology to Quantitative Differential Diagnoses. *PloS Computational Biology* 2007, Vol. 3, No. 11 ([doi:10.1371/journal.pcbi.0030204](https://doi.org/10.1371/journal.pcbi.0030204)) **IF: 4.829**

**Zenker, S.**, Polanco, P.M., Kim, H.K., Torres, A., Vodovotz, Y., Clermont, G., Pinsky, M.R., Severyn, D.A., Puyana, J.C. Thresholded area over the curve (TAOC) of spectrometric tissue oxygen saturation (StO<sub>2</sub>) as an indicator of volume resuscitability in porcine hemorrhagic shock. *Journal of Trauma-Injury Infection & Critical Care* 2007 **63(3)** 573-580. **IF: 2.961**

**Zenker, S.**, Haverkamp, F., Klingmüller, D. Growth hormone deficiency in pituitary disease: relationship to depression, apathy and somatic complaints. *European Journal of Endocrinology* 2002 **147(2)** 165-171. **IF: 4.069**

Quade, G., Burde, B., **Zenker, S.**, Goldschmidt, A. CancerNet online - ein Beitrag zur Verbesserung der onkologischen Versorgung. *Zentralblatt für Gynäkologie* 2000 **122(12)** 646-650.

Quade, G., **Zenker, S.**, Burde, B., Riedel, R.R., Goldschmidt, A. Differences in demographic data regarding physicians and patients in the US or abroad using a medically oriented Internet information service. *Studies in Health Technology and Informatics* 2000 **77** 668-672.

### Reviews, Commentaries, and Book Chapters

**Zenker, S.** Transforming measurement into understanding: quantitative bedside decision support. *ICU Management & Practice*. 2016;**16(1)**:46-8.

Clermont, G., and **Zenker, S.** The Inverse Problem in Mathematical Biology. *Math Biosci.* 2015 Feb;**260**:11-5

**Zenker, S.** Introduction to the special issue: papers from the Society for Complex Acute Illness. *J Clin Monit Comput.* 2013 Aug;**27(4)**:373-4

**Zenker, S.** Introduction for the 10th International Conference on

Complexity in Acute Illness abstracts. J Crit Care. 2012 Jun;27(3):313.

Kass, R., Rubin, J., **Zenker, S.** Discussion of Ramsay, J.O., et al., "Parameter estimation for ordinary differential equations: a generalized smoothing approach", Journal of the Royal Statistical Society B 2007 **69(5)** 785

**Zenker, S.**, Clermont, G., Pinsky, M.R. Using mathematical models to improve the utility of quantitative ICU data. In: Vincent JL, editors. Yearbook of Intensive Care and Emergency Medicine 2007. Berlin Heidelberg New York: Springer. pp. 479-492.

Quade, G., Burde, B., **Zenker, S.**, Nagel, W., Goldschmidt, A. Recherche-funktionalität/-algorithmen von Suchsystemen im Internet. In: Victor, N., Blettner, M., Edler, L., Haux, R., Knaup-Gregori, P., Pritsch, M., Wahrendorf, J, Windeler, J. Ziegler, S. (Eds.): Medical Informatics, Biostatistics and Epidemiology for Efficient Health Care and Medical Research. Urban & Vogel Medien und Medizin-Verl., München (1999): 329-332

[Projects](#)

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**Honours and rewards**

**09/2009**

**Best Free Paper Prize** - European Society for Computing and Technology in Anaesthesia and Intensive Care (ESCTAIC)