

**George S. Cembrowski, M.D., Ph.D.**  
**Curriculum Vitae**

Address: 4B1.24 Walter C. Mackenzie Centre  
8440 – 112 Street  
Edmonton, Alberta T6G 2B7

Telephone: (780)-407-3185

Fax: (780) 407-8599

Date of Birth: December 8, 1949

Place of Birth: Coleman, Alberta, Canada

Citizenship: Canadian  
American Immigrant

Marital Status: Married, three children (all American citizens)

Degrees: 1978 M.D., University of Calgary

1975 Ph.D. in Clinical Laboratory Science  
Minor: Computer Science  
University of Wisconsin, Madison

1971 B.Sc. Honors in Chemistry  
University of Alberta, Edmonton

Appointments:

1997 to present Director, Medical Biochemistry  
Regional Laboratories  
Capital Health Authority  
University of Alberta Hospital  
Edmonton, Alberta

1997 to present Associate Professor  
Laboratory Medicine and Pathology  
University of Alberta, Edmonton, Alberta

1988-1997 Clinical Assistant Professor  
Pathology and Laboratory Medicine  
University of Minnesota, Minneapolis, MN

1987-1996 Laboratory Director  
Park Nicollet Clinic, Minneapolis, MN

1983-1987 Assistant Professor  
Pathology and Laboratory Medicine  
University of Pennsylvania School of Medicine  
Director of STAT Laboratory  
Hospital of the University of Pennsylvania  
Philadelphia, PA

1982-1983 Resident in Anatomic Pathology,  
University of Wisconsin, Madison WI

1981-1982 Fellow in Clinical Pathology/Clinical Chemistry,  
University of Wisconsin, Madison WI

1978-1981 Resident in Clinical Pathology  
University of Wisconsin, Madison WI

1971-1975 Research Assistant, Department of Pathology,  
University of Wisconsin, Madison WI

1969-1970 Research Assistant, Department of Chemistry  
Summers University of Alberta, Edmonton Alberta

Minnesota Medical License: 031530 0

Certification: American Board of Pathology  
Clinical Pathology Diplomate, 1982

Professional Societies: Fellow, American Society of Clinical Pathologists  
Fellow, College of American Pathologists  
American Association for Clinical Chemistry  
American Society for Quality  
International Society for Laboratory Hematology

Research Interests:

Laboratory Medicine/Clinical Chemistry  
Clinical Pathological Correlation  
Diabetes and the Clinical Laboratory  
Point of Care Testing  
Analytical Applications and Automation  
Laboratory Utilization  
Quality Control/Quality Improvement  
Statistics, Statistical Data Analysis  
Laboratory Computer Systems  
On-line Data Acquisition and Reduction  
Information Systems  
Data Retrieval Languages  
Medical Decision-Making

Committees:

2007- present	Program Committee Member, International Symposium on Technological Innovations in Laboratory Hematology
2002-present	Board of Directors, International Society of Laboratory Hematology
1999-present	Committee on Laboratory Outliers National Committee for Clin Lab Standards
1998-present	Subcommittee, Communication of Lab Instruments to LIS's National Committee for Clin Lab Standards
1997-present	Path and Lab Med, Capital Health Authority Co-Chair, Quality Council Member, Chem Test Optimization Committee Member, Test Opt Steering Committee
1989-1997	Heme and Clin Microscopy Resource Committee College of American Pathologists
1994-1997	Expert Advisor to CDC Working Group for characterizing the frequency and nature of laboratory errors
1990-1995	EXCEL/MLE Joint Working Group College of American Pathologists
1989-1993	Quality Assurance Committee, College of American Pathologists
1983-1987	Advisor to the Subcommittee on Clin Evaluation of Tests, National Committee for Clinical Laboratory Standards
1985-1987	Clin Chem Technical Advisory Committee, Commonwealth of Pennsylvania
1983-1987	HUP Emergency Department Committee
1986	Organizing Committee for the Centers for Disease Control 1986 Institute on Critical Issues in Health Laboratory Practice
1986	American Association for Clinical Chemistry, Laboratory Quality Assurance Committee

Teaching:

1997- 1999	Instructor, Management for the Path Resident
1985, 1986	Instructor, Pathology 100, Univ of Pennsylvania
1984	Instructor, Pathology 200, Univ of Pennsylvania

Other Activities:

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| 2001- present | Editorial Board, Diabetes Technology and Therapeutics  |
| 1995-1997     | Medical Director, Medical Institute of Minnesota   |
| 1992-1994     | Medical Director, Lakeland Medical Academy   |
| 1991-1992     | Editorial Board, Laboratory Medicine Abstract and Comment  |
| 1989-1991     | Editor, Quality Matters (a quarterly CAP newsletter for Physicians Office Laboratories using Excel-QC control materials) |
| 1984-1987     | Editor, Pepper Laboratory Newsletter ( <i>Turnaround Times</i> )   |
| 1987          | Board of Editors, <i>American Journal of Clinical Pathology</i>  |

## BIBLIOGRAPHY

### Full-Length Publications

1. Toren EC, Jr, Carey RN, Cembrowski GS and Schirmer JA: Computer Controlled Instrument System for Sequential Clinical Chemistry Testing I: Description of Instrumentation and System Features. *Clinical Chemistry* 19: 10; 1114-1121, 1973.
2. Toren EC, Jr, Mohr SA, Busby MG and Cembrowski GS: Computer Controlled Instrument System for Sequential clinical Chemistry Testing II: Evaluation of Instrumental Performance, *Clinical Chemistry* 19: 10; 1122-1127, 1973.
3. Cembrowski GS: The Development of an Intelligent Analyzer for Clinical Chemistry, Ph.D. Thesis, University of Wisconsin, 1975.
4. Busby MG, Cottrell DB, Cembrowski GS and Toren EC, Jr: A Versatile Temperature Controlled Reaction Cuvet, *Clinical Chemistry* 21: 8; 1175-1178, 1975.
5. Cembrowski GS, Westgard JO, Eggert AA and Toren EC, Jr: Trend Detection in Control Data: Optimization and Interpretation of Triggs Technique for Trend Analysis, *Clinical Chemistry* 21: 10; 1396-1405, 1975.
6. Anderson CT Jr, Cembrowski GS and Toren EC, Jr: Computer-Assisted Differential Diagnosis of Laboratory Abnormalities and Follow-up Testing, Evaluation of the Accuracy of a Computer Program, *American Journal of Clinical Pathology* 65: 2; 234-241, 1976.
7. Cembrowski GS, Cottrell DB and Toren EC, Jr: POLAC, A Problem Oriented Language for Analytical Chemistry, *Computers and Chemistry* 1: 45-54, 1976.
8. Cembrowski GS, Larson FC, Huntington RW, III, Selliken JH and Toren EC, Jr: Computer Controlled Instrument System for Sequential Clinical Chemistry Testing III: Application to Liver Assessment, *Clinical Chemistry* 24: 4; 555-561, 1978.
9. Cembrowski GS, Westgard JO, Conover WJ and Toren EC, Jr.: Statistical Analysis of Method Comparison Data, Testing Normality, *American Journal of Clinical Pathology* 72: 1; 21-26, 1979.
10. Cembrowski GS and Huntington RW, III: Probable Fatal Cardiac Dysrhythmia Secondary to Diuretic-Induced Hypokalemia, *American Journal of Forensic Medicine and Pathology* 2: 3; 243-248, 1981.
11. Paton T and Cembrowski GS: Fluorometric Assay of Erythrocyte Protoporphyrin: Simple Screening Test for Lead Poisoning and Iron Deficiency, *Canadian Medical Association Journal* 127: 860-862, 1982.
12. Kurzynski TA, Cembrowski GS and Kimball JL: The Use of CIE for the Detection of Clostridium Difficile Toxin in Stool Extracts: Clinical and Laboratory Correlation, *American Journal of Clinical Pathology* 79: 3; 370-374, 1983.
13. Cembrowski GS, Westgard JO and Kurtycz DFI: Use of Anion Gap for the Quality Control of Electrolyte Analyzers, *American Journal of Clinical Pathology* 79: 6; 688-696, 1983.

14. Cembrowski GS, Wilson MK, Adelmeyer SG and Chang C-K: Evaluation of the Accuracy of the Diff 3/50 with a Cell by Cell Comparison, *American Journal of Clinical Pathology* 80: 3; 333-341, 1983.
15. Bockelman HW, Cembrowski GS, Kurtycz FI, Garber CG, Westgard JO and Weisberg HF: Quality Control of Electrolyte Analyzers: Evaluation of the Anion Gap Average. *American Journal of Clinical Pathology* 81: 2; 219-223, 1984.
16. Cembrowski GS, Chandler EP and Westgard JO: Assessment of "Average of Normals" Quality Control Procedures and Guidelines for Implementation. *American Journal of Clinical Pathology* 81: 4; 492-499, 1984.
17. Cembrowski GS and Mosher DF: Plasma Fibronectin Concentration in Patients with Acquired Consumptive Coagulopathies. *Thrombosis Research* 36: 437-445, 1984.
18. Cembrowski GS and Westgard JO: Quality Control of Multichannel Hematology Analyzers: Evaluation of Bull's Algorithm. *American Journal of Clinical Pathology* 83: 3; 337-345, 1985.
19. Kurzynski TA, Kimball J, Polyak M and Cembrowski GS: Evaluation of the Phadebact and the Bactigen Reagents for Detection of *Neisseria Meningitidis* in Cerebrospinal Fluid. *Journal of Clinical Microbiology* 21: 6; 989-990, 1985.
20. Broome HE, Cembrowski GS, Kahn SN, Martin PL and Patrick CA: Implementation and Use of a Manual Multi-rule Quality Control Procedure. *Laboratory Medicine*, 16: 533-537, 1985.
21. Schifreen RS, Cembrowski GS, Campbell DC, Craig A. et al: A Quantitative Automated Immunoassay for Fibrinogen/Fibrin Degradation Products. *Clinical Chemistry*, 31: 1468-1473, 1985.
22. Douville P, Cembrowski GS and Strauss JF: The Influences of the Between and Within-run Components of Variation on the Mean Rule, *Journal of Automatic Chemistry*, 8: 2; 85-88, 1986.
23. Cembrowski GS, Griffin JH and Mosher DF: Diagnostic efficacy of six plasma proteins in evaluating consumptive coagulopathies: Use of receiver operating characteristic curves to compare antithrombin III, plasminogen,  $\alpha_2$  - plasmin inhibitor, fibronectin, prothrombin and protein C. *Archives of Internal Medicine*, 146: 1997-2002, Oct, 1986.
24. Hackney JR and Cembrowski GS: Need for Improved Instrument and Kit Evaluations, *American Journal of Clinical Pathology*, 86: 3; 391-393, 1986.
25. Landon MB, Cembrowski GS and Gabbe SG: Capillary Blood Glucose Screening for Gestational Diabetes, *American Journal of Obstetrics and Gynecology*, 155: 4; 717-721, 1986.
26. Metzger LF, Stauffer WB, Krupinski AV, Millman RP, Cembrowski GS and Pack AI: Error Detection in Blood Gas Measurement by Duplicate Analysis, *Clinical Chemistry*, 33: 4; 512-517, 1987.
27. Douville P, Cembrowski GS and Strauss J: Evaluation of the Average of Patients, Application to Endocrine Assays, *Clinica Chimica Acta*, 167:173-185, 1987.

28. Lunetzky ES and Cembrowski GS: Performance Characteristics of Bull's Multi-rule Algorithm for the Quality Control of Multichannel Hematology Analyzers. *American Journal of Clinical Pathology* 88: 5; 634-638, 1987.
29. Sigal SH, Cembrowski GS, Shattil SJ, Brown MM, Schifreen RS and Schwartz MW: Prototype Quantitative Assay for Fibrinogen/Fibrin Degradation Products, *Archives of Internal Medicine*, 147:1790-1793, Oct, 1987.
30. Cembrowski GS, Wilson MK, Lunetzky ES and Patrick CC: Optimized Quality Control Procedure for Hematology Analyzers Using Retained Patient Specimens, *American Journal of Clinical Pathology* 89: 2; 203-210, 1988.
31. Cembrowski GS and Vanderlinde RE: Survey of Special Practices Associated with CAP Proficiency Testing in the Commonwealth of Pennsylvania, *Archives of Pathology and Laboratory Medicine*, 112: 374-376, Apr, 1988.
32. Bloch MJ, Cembrowski GS and Lembesis GJ: Longitudinal Study of Error Prevalence in Pennsylvania Physicians' Office Laboratories, *JAMA*, 260: 2; 230-235, 1988.
33. Hackney JR, Cembrowski GS, Walkusky L and Kant J: Evaluation of the Accuracy of the Hematrak 590 with a Cell by Cell Comparison. *Laboratory Medicine* 19: 11; 757-761, 1988.
34. Hackney JR, Cembrowski GS, Prystowski M and Kant J: Automated Reticulocyte Counting by Image Analysis and Flow Cytometry, *Laboratory Medicine*.20, 551-555, 1989.
35. Hackney JR and Cembrowski GS: The use of retained patient specimens for haematology quality control, *Clin Lab Haemat* 12: Suppl 1; 83-89, 1990.
36. Howanitz PJ and Cembrowski GS: Laboratory Phlebotomy, College of American Pathologists Q-Probe Study of Patient Satisfaction and Complications in 23783 Patients, *Archives of Pathology and Laboratory Medicine* 115: 867-872, 1991.
37. Howanitz PJ, Steindel SJ, Cembrowski GS and Long TA: Emergency department STAT test turnaround times: A College of American Pathologists' Q-Probes study for potassium and hemoglobin, *Archives of Pathology and Laboratory Medicine* 116: 122-8 (Feb), 1992.
38. Voss EM, Cembrowski GS, Clasen BL, Spencer ML, Ainslie MB and Haig B: Evaluation of Capillary Collection System for Hemoglobin A1c Specimens. *Diabetes Care* 15: 5; 700-701, 1992.
39. Engebretson MJ and Cembrowski GS: Achieving the health care financing administration limits by quality improvement and quality control: A real-world example. *Arch Pathol Lab Med* 116: 781-787, (July) 1992.
40. Hagemann P, Lunetzky ES and Cembrowski GS: Evaluation of the Use of Patient Duplicates for the Quality Control of Prothrombin Time and Activated Partial Thromboplastin Time Determinations: A Computer Simulation Approach. *Laboratory Medicine* (European Journal) 17: 20-25, 1993.
41. Puckett DH, Cembrowski GS and Engebretson MS: Subpart J: Patient test management requirements for moderate or high complexity testing or both. *J Clin Immunoassay* 16: 1; 38-40, (Spring) 1993.



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44. Voss EM and Cembrowski GS: Performance characteristics of the HemoCue B-Glucose' Analyzer using whole blood samples. *Arch Pathol & Lab Med* 117: 7; 711-713, (July) 1993.
45. Cembrowski GS, Engebretson M, Hackney JR and Carey RN: A systems approach to assure optimal proficiency testing in the hematology laboratory. *Clin in Lab Med* 13: 4; 973-985, 1993.
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51. Cembrowski, GS: Thoughts on quality-control systems: a laboratorian' s perspective. *Clinical Chemistry* 1997; 43: 885-892
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54. Howanitz PJ. Cembrowski GS. [Postanalytical quality improvement: a College of American Pathologists Q-Probes study of elevated calcium results in 525 institutions.](#) *Archives of Pathology & Laboratory Medicine*. 2000; 124(4):504-10, 2000

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58. Ho A, Purdy L, Adrian B, Higa T, Cembrowski G. Measurement of variation in videotaped outpatient phlebotomies: a model for phlebotomy improvement. *Laboratory Medicine* 2002; 33: 3:179-185.
59. Cembrowski GS, Hodgson DL, Etches WS. Strict use of moving averages for quality control of multichannel hematology analyzers requires optimal control of ambient temperature. *Laboratory Hematology* 2002; 8: 200-203.
60. Miller JR, Cembrowski G, Bayrak R, Brown B, Encarnacao J, Lem D, Marfleet M, McTeer S, Seeger R, van Staaldunin F: Clinical Evaluation of the CDI 500 as a Stand-Alone Blood Parameter Monitoring System. *Canadian Perfusion Canadienne* 2003; 13:10-16
61. Cheng CK-W, Lee T, Cembrowski GS: Temporal Approach to Hematological Test Usage in a Major Teaching Hospital: *Laboratory Hematology* 2003: 9:207-213
62. Tran DV, Hofer TL, Lee T, Cembrowski GS: Unique approach to derivation of random error in laboratory assays: Application to Glycohemoglobin Testing Demonstrates Poor Clinical Performance for Immunochemistry Assay: *Diabetes Technology and Therapeutics* 2003: 5:975-978
63. Higgins TN, Hanna AN, Hofer TL, Cembrowski GS. Measurement of inaccuracy and imprecision of HCG methods using dilutions of the WHO 4th IS-HCG standard and a pregnant patient's serum. *Clin Biochem.* 2004; 37:152-4.
64. Cole LA, Sutton JM, Higgins TN, Cembrowski GS. Between-method variation in human chorionic gonadotropin test results. *Clin Chem.* 2004 May;50(5):874-82.
65. Cheng CK, Chan J, Cembrowski GS, van Assendelft OW. Complete blood count reference interval diagrams derived from NHANES III stratification by age, sex, and race. *Lab Hematol.* 2004;10(1):42-53.
66. Carey RN, Cembrowski GS, Garber CC, Zaki Z. Performance characteristics of several rules for self-interpretation of proficiency testing data. *Arch Pathol Lab Med.* 2005 Aug;129(8):997-1003.
67. Binette TM, Cembrowski GS. Diverse influences on blood glucose measurements in the ICU setting. *Chest.* 2005 Oct;128(4):3084-5.
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69. Brindley PG, Butler MS, Cembrowski G, Brindley DN. Falsely elevated point-of-care lactate measurement after ingestion of ethylene glycol. CMAJ. 2007 Apr 10;176(8):1097-9.

## Abstracts

1. Carey RN, Cembrowski GS, Eggert AA and Toren EC, Jr: Floating Point Processor and Input/Output Routines for PDP-12. *DECUSCOPE II*:26, 1972.
2. Cembrowski GS, Toren EC, Jr and Larson FC: Automatic Extension of Screening Studies in the clinical Laboratory. 25th National Meeting of the American Association of Clinical Chemists, New York, NY, July 1973, *Clin Chem* 19, 65, 1973.
3. Toren EC, Jr, Cembrowski GS and Larson FC: Online Computerized Sequential Testing in the Clinical Laboratory. 25th National Meeting of the American Association of Clinical Chemists, New York, NY, July 1973, *Clin Chem* 19, 660, 1973.
4. Cembrowski GS, Westgard JO, Toren EC, Jr and Eggert AA: Detection of Non-Random Trends in Control Data by the Use of Triggs Technique for Trend Analysis. 26th National Meeting of the American Association of Clinical Chemists, Las Vegas, NV, August 1974, *Clin Chem* 20, 1974.
5. Cembrowski GS, Westgard JO, Toren EC, Jr and Conover WJ: Testing the Normality of Method Evaluation Data with the Lilliefors Statistic. 28th National Meeting of the American Association of Clinical Chemists, Houston, TX, August 1976, *Clin Chem* 1162 1976.
6. Cembrowski GS, Eggert AA, Westgard JO and Hicks GP: Application of a Home Computer for Method Evaluation, 31st National Meeting of the American Association of Clinical Chemists, New Orleans, LA, July 1979, *Clin Chem* 25, 1157, 1979.
7. Cembrowski GS, Westgard JO and Groth T: Effects of Data Rounding on the Performance Characteristics of Statistical Quality Control Rules. 32nd National Meeting of the American Association of Clinical Chemists, Boston, MA, July 1980, *Clin Chem* 26, 1050, 1980.
8. Cembrowski GS, Westgard JO, Iyama-Kurtycz D and Eggert AA: Low Power of Anion Gap for the Detection of Errors. 33rd National Meeting of the American Association of Clinical Chemists, Kansas City, KS, July 1981, *Clin Chem* 27, 1059, 1981.
9. Cembrowski GS and Field PC: Use of a Hematofluorometer in the Lead Screening of a High Risk Pediatric Population. 25th Annual Convention of the Canadian Society of Clinical Chemists, Edmonton, Alberta, July 1981.
10. Mosher DF, Cembrowski GS, Griese LL and Choate JJ: Fibronectin, Alpha 2 Antithrombin, and Plasminogen Levels in Patients with Suspected Disseminated Intravascular Coagulation, *Blood* 58, 237a, 1981.
11. Cembrowski GS and Westgard JO: Performance Characteristics of Quality Control Procedures Employing Patient Data Algorithms, presented at the ASCP Spring Meeting, March 1982, *Amer. Journal of Clinical Pathology* 78, 265, 1982.
12. Chandler EP, Cembrowski GS, Westgard JO: Performance Characteristics of the "Mean of Normals" Method of Quality Control, 34th National Meeting of the American Association for Clinical Chemistry, Anaheim, CA, August 1982, *Clin. Chem.*28, 1563, 1982.
13. Bockelman HW, Cembrowski GS, Iyama-Kurtycz DF and Garber CG: Evaluation of the Average of Anion Gaps for Quality Control, 34th National Meeting of the American

- Association for Clinical Chemistry, Anaheim, CA, August 1982, *Clin. Chem.* 28, 1562, 1982.
14. Cembrowski GS, Wilson M and Chang CK: Evaluation of the Accuracy of the Coulter Diff 3/50 with a Cell by Cell Comparison, presented at the ASCP Fall Meeting, October 1982.
  15. Cembrowski GS, Mosher DF and Garber CG: Predictive Value of Fibronectin, Plasminogen and Antithrombin III in Various DIC Syndromes, presented at the ASCP Spring Meeting, April 1983.
  16. Cembrowski GS, Mosher DF and Garber CC: Comparison of the Efficacy of the Newer Coagulation Tests Using ROC Curves, presented at the National Meeting of the Canadian Society of Clinical Chemists, Quebec City, June 1983, *Clin. Biochem* 16, 114, 1983.
  17. Tucker D, Cembrowski GS, Chandler EP and Mijanovich JR: Electrolyte Utilization in Intensive Care Units, presented at the ASCP Fall Meeting, St. Louis, MO, October 1983.
  18. Cembrowski GS, Westgard JO and Gosse JM: Performance Characteristics of Bull's Technique for the Quality Control of the Coulter Analyzer, presented at the ASCP Fall Meeting, St. Louis, MO, October 1983.
  19. Kurzynski T, Kimball J, Polyak M and Cembrowski GS: Evaluation of the Phadebact CSF Test, presented at the 23rd Interscience Conference on Antimicrobial Agents and Chemotherapy, Las Vegas, NV, October 1983. Abstract No. 500.
  20. Cembrowski GS, Hall RM, Patrick CC, Sentigar CA and Dawson DA: Evaluation of the Medlab Quality Control System and the Requirements for the Design of an Improved System, presented at the National Meeting of the Medlab Users Group, Salt Lake City, January 1984.
  21. Douville P, Cembrowski GS, Strauss JF, Knee GR, Westgard JO and Barry PL: Use of "Average of Normals" for the Quality Control of Thyroid Function, presented at the National Meeting of the Clinical Ligand Assay Society, Chicago, IL, April 1984.
  22. Douville P, Cembrowski GS, Strauss JF, Lang CA and Williams SV: Use of Clinical Utility in Evaluating Various Quality Control Procedures, presented at the National Meeting of the American Association for Clinical Chemistry, Washington, D.C., July 1984.
  23. Cembrowski GS, Wilson MK and Patrick CC: Determination of Control Limits for Patient Replicates for the Quality Control of Whole Blood Analyzers, presented at the ASCP Fall Meeting, New Orleans, LA, October 1984.
  24. Douville P, Cembrowski GS and Strauss JF: Use of Likelihood Ratios in Quality Control for the Detection of Allowable Error, presented at the ASCP Fall Meeting, New Orleans, LA, October 1984.
  25. Lang CA, Williams SV, Douville P and Cembrowski GS: Incorporating Utilities for Diagnostic Accuracy and Cost into Technology Assessment, presented at the fall meeting of the Society for Medical Decision Making, November 1984.

26. Cembrowski GS, Brown NM, Sigal HS, Shattil SJ, Schifreen RS and Demyanovich ND: Use of a Completely Automated, Quantitative Assay for Fibrin and Fibrinogen Degradation Products in Serum, *Blood*, November 1984, Supplement.
27. Macchione GS, McIntire TD and Cembrowski GS: Evaluation of the Hybritech Tandem-Visual and the Roche Sensichrome Semiquantitative Serum Assays for beta-HCG, presented at the Spring Meeting of the ASCP, Chicago, IL, March 1985, *American Journal of Clinical Pathology* 83:396, 1985.
28. Schifreen RS, Waller SJ, Schwartz MW, Demyanovich MD, Cembrowski GS, Shattil SJ and Brown WM: Design and Clinical Evaluation of a Quantitative Automated Immunoassay for Fibrin Degradation Products, presented at the Oak Ridge Conference on Advanced Analytical Concepts for the Clinical Laboratory, Charleston, SC, April 1985.
29. Schwartz MW, Jurga-Hall PA, Schifreen RS and Cembrowski GS: Development of A Quantitative Immunoassay for Fibrin(ogen) Degradation Products (FDP), presented at the Xth International Congress on Thrombosis and Hemostasis, San Diego, CA, July 1985.
30. Cembrowski GS, Wilson MK, Lunetzky ES, Patrick CC: An Optimized Quality Control Procedure for Hematology Analyzers Using Replicate Patient Specimens, presented at the fall meeting of the ASCP, Las Vegas, NV, November 1985.
31. Hackney JR, Cembrowski GS, Prystowsky MB, Kant JA: An Evaluation of the Hematrak 590 and Ortho Spectrum for reticulocyte Counts, presented at the fall meeting of the ASCP, Las Vegas, November 1985.
32. Cembrowski GS, Brown NM, Schwartz MW, Schifreen RS and Williams EC: The Effects of Heparin on the Quantitative Removal of Fibrinogen by Commercial FDP Tubes, presented at the fall meeting of the ASCP, Las Vegas, November 1985.
33. Cembrowski GS, Brown NM, Sigal SH, Shattil SJ, Schwartz MW, Schifreen RS: Clinical Evaluation of a Prototype, Fully Automated, Quantitative Assay for Fibrin and Fibrinogen Degradation Products in Serum, presented at the fall meeting of the ASCP, Las Vegas, November 1985.
34. Cembrowski GS, Patrick CC: Use of a Multi-Rule Control chart for the Quality Control of PT and aPTT, presented at the fall meeting of the ASCP, Las Vegas, November 1985.
35. Landon MB, Cembrowski GS and Gabbe SG: Capillary Blood Glucose Screening for Gestational Diabetes, presented at the National Meeting of the Society of Perinatal Obstetricians, San Antonio, TX, January 1986.
36. Cembrowski GS, Macchione J, McIntire D, Knee R, Strauss F and Jacobson S: Evaluation of the Quantitative Hybritech Tandem Assay for Serum hCG, presented at the Spring Meeting of the ASCP, Washington, DC, April 1986.
37. Cembrowski GS, Hackney R, Walkusky L, Stein S and Kant J: Evaluation of the Accuracy of the Geometric Data Hematrak 590 Differential Leukocyte Counter with a Cell by Cell Comparison, presented at the Spring Meeting of the ASCP, Washington, DC, April 1986.

38. Cembrowski GS and Sentigar CA: Evaluation of the Baker System 8000 Hematology Analyzer, presented at the National Meeting of the American Society for Medical Technology, New Orleans, June 1986.
39. Lunetzky ES, Cembrowski GS, Stauffer WB and Metzger LF: Use of Patient Duplicate Testing for the Quality Control of Blood Gas Analyzers, presented at the National Meeting of the AACC, Chicago, July 1986.
40. Bloch MJ, Cembrowski GS, Lembesis GJ, Gasiewski JJ and Bartola J: Longitudinal Study of Error Prevalence in Pennsylvania Physician Office Laboratories, presented at the Fall Meeting of the American Society of Clinical Pathologists, Orlando, FL, September 1986, *American Journal of Clinical Pathology*, 86:404, 1986.
41. Hagemann P, Lunetzky ES and Cembrowski GS: Duplicates for Quality Control in Coagulation: , presented at the XIII International Congress of Clinical Chemistry, The Hague, June, 1987, *Annals of Clinical Biochemistry* 24, 154s,1987
42. Lunetzky ES and Cembrowski GS: Optimized Guidelines for Inter-Instrument Validation, presented at the National Meeting of the AACC, San Francisco, July 1987, *Clinical Chemistry* 33, 909, 1987.
43. Erickson K, Cembrowski GS, Young DS, Doran GP and Davis SJ: Preliminary Evaluation of a Prototype duPont Dimension Clinical Chemistry System, presented at the National Meeting of the AACC, San Francisco, July 1987, *Clinical Chemistry* 33, 965, 1987.
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1. Cembrowski GS and Sullivan AM: Quality Control and Statistics, in Bishop, M.KL., Duben-Von Laufen, J. and Fody, E.P. (eds.): *Clinical Chemistry for the Clinical Laboratory Scientist*. Philadelphia, J.B. Lippincott, 63-100, 1985.
2. Cembrowski GS: The Use of Patient Data for Quality Control. Tiersten, D. (ed.): *Clinical and Economic Practice of Quality Control*, Clinics in Laboratory Medicine. 6:4; 715-733, (Dec) 1986.
3. Cembrowski GS: Analytical Requirements for Clinical Chemistry, in Howanitz, P. (ed) *Quality Assurance in Physicians Office, Bedside and Home Testing*, Chicago, College of American Pathologists, 146-163, 1986.
4. Vanderlinde RE, Goodwin J, Koch D, Scheer D, Steindel S and Cembrowski GS: Guidelines for Providing Quality Stat Laboratory Services, American Association for Clinical Chemistry, 1987.
5. Cembrowski GS: Measurement of Quality, Cost and Utility, in Inhorn, S.L. and Addison, B.V., *Proceedings of the 1986 Institute on Critical Issues in Health Laboratory Practice: Managing the Quality of Laboratory Test Results in a Changing Health Care Environment*, DuPont, 145-150, 1987.
6. Cembrowski GS and Carey RN: Quality Control in Hematology. *Laboratory Quality Management: QC and QA*, ASCP Press, (Chicago), June, 1989.
7. Cembrowski GS, Patrick CC and Sentigar CA: Use of a Multirule Control Chart for the Quality Control of PT and aPTT Analyses. *Laboratory Medicine*, 20: 6; 418-421, 1989.
8. Cembrowski GC and Carey RN: Considerations for the Implementation of Clinically Derived Quality Control Procedures. *Laboratory Medicine* 20: 6; 400-405, 1989.
9. Douville P and Cembrowski GC: An Approach to the Use of Clinical Limits for Quality Control. *Laboratory Medicine* 20: 6; 406-409, 1989.
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11. Cembrowski GS and Carey RN: Quality Control in the 1990s. *Laboratory Medicine* 20: 6; 375-376, 1989.
12. Hackney JR and Cembrowski GS: Evaluation of Intralaboratory Quality Control Schemes in Cavill I(ed), *Quality Control (Methods in Hematology 22)* 2nd Edition, Churchill Livingstone, London, 193-212, 1990.
13. Cembrowski G, Ehrmeyer S and Laessig R: Proficiency Testing Gamesmanship Grows. *CAP Today* 4(2), pp 12,13,22, February, 1990.
14. Mazze RS and Cembrowski GS: Diabetes and the Clinical Laboratory. *Laboratory Medicine* 21: 8; 487-488, 1990.
15. Cembrowski GS: Testing for Microalbuminuria: Promises and Pitfalls. *Laboratory Medicine* 21: 8; 491-496, 1990.
16. Hackney JR and Cembrowski GS: The Use of Retained Patient Specimens for Hematology Quality Control, *Clin. Lab. Haemat.* 12, Suppl. 1: 83-89, 1990

17. Cembrowski GS: The Pursuit of Quality in Clinical Laboratory Analyses (Editorial), *Clinical Chemistry* 36: 9; 1602-1604, 1990.
18. Westgard JO and Cembrowski GS: Relationship of Quality Goals and Measurement Performance to the Selection of QC Procedures for Multi-channel Hematology Analysers, *European Journal of Haematology* Chapter 1: General Quality Assurance, 45: Suppl. 53, 14-18, 1990.
19. Schned ES and Cembrowski GS: Serologic Testing for Lyme Disease, ASCP Immunopathology Check Sample, *Immunopathology* 14: 5; 1990.
20. Voss EM and Cembrowski GS: The Introduction of Bedside Glucose measurement Programs in the Hospital Setting, A Model Program, a monograph sponsored by the LifeScan Corporation.
21. Kiechle FL and Cembrowski GS: Quality Improvement in the Critical Care Laboratory. *Critical Care Report: The Interface Between the Laboratory and Critical Care*, C. Popper (ed), 2: 3; 282-294, 1991.
22. Cembrowski GS and Sullivan AM: Quality Control and Statistics, in Bishop, M.KL., Duben-Von Laufen, J. and Fody, E.P. (eds.): *Clinical Chemistry for the Clinical Laboratory Scientist*, Second Edition. Philadelphia, J.B. Lippincott, 63-101, 1991.
23. Voss EM, Cembrowski GS and Kiechle FL: Clinical laboratory aspects of diabetes mellitus. In-Service Training and Continuing Education Package, *Am Assoc Clin Chem* 10: 13; 1-24, 1992.
24. Cembrowski GS, Steeber DG, Anderson PG and Burnet BE: INR reporting of prothrombin time *MLO*, May, 51-54, 1994.
25. Cembrowski GS and Kiechle FL: Point of Care Testing. *Adv in Pathol & Lab Med* 7: 3-26, (Mosby Yearbook) 1994.
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27. Cembrowski GS and Kelly CA: Innovations in laboratory quality improvement, 1994. *J Clinical Immunoassay* 17:4; (winter) 1994.
28. Strauss S, Cembrowski GS and Adlis SA: CLIA's effect on POLs *Medical Laboratory Observer* 27:6;34-38, June, 1995
29. Strauss S, Cembrowski GS and Adlis SA: Effect of CLIA 88 on Minnesota Physicians' Office Laboratories *POL Adviser* 3: 6; 23-24 Nov/Dec, 1995.
30. Cembrowski GS and Sullivan AM: Quality Control and Statistics, in Bishop, M.KL., Duben-Von Laufen, J. and Fody, E.P. (eds.): *Clinical Chemistry for the Clinical Laboratory Scientist*, Third Edition. Philadelphia, J.B. Lippincott, 61-96, 1996.
31. Cembrowski GS, Anderson PG, Crampton CA, Coupland R, Carey RN: Pump up your PT IQ, *Medical Laboratory Observer* 28:1;46-51, January 1996

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33. O'Hara CD, Chenard G, Cembrowski GS. Optimal evaluation of proficiency testing in the hematology laboratory: a systematic approach. *Sysmex Journal International* 1998(2);72-78
34. Visnapuu, L, Kaufman G, Cembrowski GS: Normal Laboratory Values. pp 2526-2547, In *Merck Manual of Diagnosis and Therapy*. 17<sup>th</sup> Edition, 1999, Beers MH and Berkow R, eds, Merck Research Laboratories, Whitehouse Station, NJ
35. Cembrowski GS: Editorial: Fructosamine III: Prologue or Epitaph? *Diabetes Technology and Therapeutics* 1;1999:455-457
36. Cembrowski GS, Sullivan AM, Hofer TL: Quality Control and Statistics, in Bishop, ML., Duben-Engelkirk, JL. and Fody, EP (eds.): *Clinical Chemistry: Principles, procedures, correlations*, Fourth Edition. Philadelphia, Lippincott, Williams and Wilkins, pp 40-76, 2000.
37. Cembrowski GS and Juco JW: Establishing and verifying reference intervals, American Society of Clinical Pathology, *Clinical Chemistry Check Sample No. CC 99-7(CC-301)*, pp 91-108
38. Cembrowski GS and Carey RN; Editorial: Adding value to proficiency testing programs. *Clinical Chemistry*. 46(1):7-8, 2000 Jan
39. Cembrowski GS. Editorial: Alternate site testing: first do no harm, in *Diabetes Technology and Therapeutics* 2002; 4(1): 45-47.
40. Schifman, RB, Cembrowski, G and Wolk D. Quality Management, pp 369-390 in Clinical Laboratory Management, Lynne S. Garcia, editor in chief, American Society for Microbiology, Washington DC, 2004
41. Cembrowski GS, Martindale RA. Quality Control and Statistics, pp 48-89 in *Clinical Chemistry, Principles, Procedures, Correlations*, , editors, Lippincott, Williams and Wilkins, Philadelphia, 2005

## PRESENTATIONS

### Workshops

1. Improving Statistical Quality Control Procedures: Westgard JO, Cembrowski GS and Thiers RE, presented at the National AACC Meeting in Boston, MA, July 24, 1980.
2. Improving Statistical Procedures: Westgard JO, Cembrowski GS, Barry PL, Carey NR and Sullivan A, presented to the Capital Section of the AACC in Calverton, MD, October 15, 1980.
3. Statistical Quality Control: Procedures and Performance Characteristics: Westgard JO, Barry PL, Cembrowski GS and Chandler PE, presented at the National AACC meeting in Anaheim, CA August 10, 1982.
4. Laboratory Quality Control: Laessig RH, Westgard JD and Cembrowski GS, presented at the Region V ASMT meeting in Milwaukee, WI, September 30, 1983.
5. Improving Statistical Quality Control: Cembrowski GS and Barry PL, presented at the Fall Meeting of the ASCP in St. Louis, MO, October 16, 1983.
6. Improving Statistical Quality Control: Cembrowski GS and Quam EQ, presented at the Spring Meeting of the ASCP in Las Vegas, NE, March 7, 1984.
7. Improving Statistical Quality Control: Cembrowski GS and Douville P, presented at the Fall Meeting of the ASCP in New Orleans, LA, October 31, 1984.
8. Improving Statistical Quality Control: Cembrowski GS, Douville P and Schifreen RS, presented at the Spring Meeting of the ASCP in Chicago, IL, March 31, 1985.
9. Improving Statistical Quality Control: Cembrowski GS, Carey RN and Kurtycz DF, presented at the Fall Meeting of the ASCP, Orlando, FL, September 27, 1986.
10. Advances in Quality Control in the Hematology Laboratory: Cembrowski GS and Barry P, presented as part of the Minnesota Society for Medical Technology 1987 Winter Workshop, Minneapolis, MN, March 4, 1987.
11. Improving Statistical Quality Control: Cembrowski GS, Carey RN and Kurtycz, presented at the Spring Meeting of the ASCP, Kansas City, MO, April 20, 1988.
12. Cost Effective Quality Control in Clinical Chemistry and Hematology: Cembrowski GS, Sentigar C, presented at the Pennsylvania State Societies Meeting of ASMT/AMT, King of Prussia, PA, April 19, 1989.
13. The Evaluation of Portable Blood Glucose Instruments: Carey RN, Koch D, Cembrowski GS, presented at Park Nicollet Medical Center in conjunction with "Diabetes and the Clinical Laboratory", Minneapolis, MN, September 13, 1989.
14. Quality Control Workshop: Carey RN and Cembrowski GS, presented at the Johns Hopkins Hospital, Department of Laboratory Medicine, Baltimore MD, May 15, 1990.
15. Diabetes and the Clinical Laboratory: Cembrowski GS and Voss E, presented at annual meeting of the Montana Society of Medical Technology, Bozeman, MT, April 11, 1991.

## **Symposia**

1. Chairman, First Annual William Pepper Laboratory Symposium, Advances in Quality Control, and presenter of "Quality Control of Hematology and Coagulation Analyses", University of Pennsylvania, Philadelphia, PA, April 18, 1985.
2. "Improving Statistical Quality Control in the Laboratory" presented at Technological Innovations in Laboratory Hematology, sponsored by the University of Calgary and the Foothills Hospital, Banff, Alberta, March 4-7, 1986.
3. "Analytical Goals for Chemistry", presented at the Quality Assurance in Physician Office, Bedside and Home Testing Conference, sponsored by the College of American Pathologists, Atlanta, April 2-4, 1986.
4. "Recent Advances in Clinical Laboratory Medicine: Information Technologies", presented at the Annual Meeting of the Academy of Clinical Laboratory Physicians and Scientists, University of Pennsylvania, June 3-5, 1987
5. Proficiency Testing and Medical Usefulness: Are They Related? Presented at the CAP Conference on The Evaluation of Proficiency Testing Results for Quantitative Methods in Relation to Clinical Usefulness, Jackson WY, September 1987
6. Guidelines for the Optimized Use of Retained Patient Specimens: Theory and Application, presented at "Technical Innovations in Laboratory Hematology, Banff, Alberta, Canada, March 27-30, 1988.
7. Development of Statistical Quality Control - Levey Jennings to Westgard *and* Future Trends in Quality Control for Chemistry and Hematology, presented at "New Directions in Laboratory Quality Control", Hilton Head, SC, May 1, 1988.
8. Chairman, Quality Control in the 1990s, Park Nicollet Medical Foundation and presenter of "Statistical and Clinical Limits" and "Special Procedures Associated with External Quality Control Systems, Park Nicollet Medical Center, Minneapolis, MN, September 22 and 23, 1988.
9. Co-Chairman, Diabetes and the Clinical Laboratory, Park Nicollet Medical Foundation and presenter of "Perils and Pitfalls of the Microalbuminuria Assay, Park Nicollet Medical Center, Minneapolis, MN, September 14-15, 1989.
10. Proficiency Testing under CLIA-88: Co-existing with Big Brother, presented at the Technological Innovations in Laboratory Hematology, 5th International Laboratory Hematology Symposium, Colorado Springs, CO, October 12-16, 1990
11. Cembrowski G.S. and Engebretson M.J., Achieving the HCFA Limits by Quality Improvement and Quality Control: A Real World Example, presented at the CAP Conference, Validation of Clinical Laboratory Methods and Instrumentation, San Diego, CA. October 22, 1991.
12. Cembrowski GS: The Q-Probe concept as it relates to continuous quality improvement. Presented to annual St. Joseph's Hospital Laboratory Medicine Symposium in London, Ontario, April 23, 1992.
13. Cembrowski GS: Quality characteristics of emergency biochemical testing: Timeliness, accuracy and completeness; perceptions vs reality. Presented at the 13th



annual Congress of the Societe Quebecoise de Biochimie Clinique in Sherbrooke Quebec, October 22, 1992.

14. Chairman of "Innovations in Laboratory Quality Improvement", Park Nicollet Medical Foundation and presenter of "Effects of CLIA on Minnesota Physician Office Laboratories" Minneapolis, MN, October 13 and 14, 1994
15. Cembrowski GS: Are phlebotomy services completely satisfying our patient customers? CDC 1995 Institute: *Frontiers in Laboratory Practice Research*, Atlanta, GA, October 1-3, 1995.
15. Cembrowski GS: Building a quality system: a laboratorian's perspective. Clinical Chemistry Forum, Quality for Tomorrow, San Francisco CA, October 24-25, 1996
16. Cembrowski GS: Using patient data for quality control. Presented at "New Approaches to Quality Control", sponsored by the American Association of Clinical Chemistry / Association of Clinical Biochemists, Chicago May 11, 2000 and Cambridge, England Sept 28, 2000
17. Cembrowski GS: The use of patient data for process control: Its time has arrived. Chair and presenter, Experience with optimized averages of patient data program in a highly automated, high volume reference hematology laboratory, presented at the National Meeting of the American Association of Clinical Chemistry, San Francisco, 2000
18. Cembrowski GS: Reshaping proficiency testing: lessons for laboratorians, providers and regulators, Organizer, presented at the National Meeting of the American Association of Clinical Chemistry, Chicago, 2001

## **Other Presentations**

1. Testing for Fibrin Degradation Products by Immunology, Roundtable, presented at the National Meeting of the Clinical Ligand Assay Society, Boston, MA May 7, 1986.
2. Advances in Hematology Quality Control, presented as a video conference broadcast for the Baxter Healthcare Corporation, November 20, 1986.
3. Quality Assurance in Radioimmunoassay, presented to the Nuclear Medicine Service, Veterans Administration Hospital, Portland, OR, August 10, 1989.
4. Cembrowski G. and Carey N.: Application of the Westgard Rules to Immunoassay and Hematology Laboratories, presented as a telephone conference, Telemedicine Canada, December 7, 1989
5. Robust Quality Control for Today's Chemistry Systems, presented at Pathology Grand Rounds, University of Nebraska, Omaha NE, April 4, 1990.
6. New Assays for Diabetes Management: Fructosamine and Microalbumin, presented at Park Nicollet Medical Center in conjunction with "Advanced Diabetes Management: Pathology, Intensification, New Technology", Minneapolis MN, April 5, 1990
7. How Much Accuracy is Enough? QC and PT Implications, presented at Associated Regional and University Pathologists, Salt Lake City UT, August 6, 1990.
8. How Much Accuracy is Enough? QC and PT Implications, presented at Pathology Grand Rounds, University of Minnesota MN, October 3, 1990.
9. PT in 1991: Is Your Laboratory Ready? Presented at the 1991 Baxter Hematology Symposium, Marco Island FL, February 22, 1991.
10. Proficiency Testing in 1991: Have You Optimized your Laboratory's Performance?, presented at the Annual Meeting of the Montana Society of Medical Technologists, Bozeman, MT, April 12, 1991.
11. Proficiency Testing in 1991: Have You Optimized your Laboratory's Performance?, presented at the Annual Meeting of the Minnesota Society for Medical Technologists, Minneapolis MN, May 17, 1991.
12. Presentation - Proficiency Testing in 1991: Have You Optimized your Laboratory's Performance?, presented at the Annual Meeting of the Montana Society of Medical Technologists, Bozeman, MT, April 12, 1991.
13. Presentation - Proficiency Testing in 1991: Have You Optimized your Laboratory's Performance?, presented at the Annual Meeting of the Minnesota Society for Medical Technologists, Minneapolis MN, May 17, 1991.
14. Telephone Conference Presentation - Hematology Quality Control for the 90's, presented by Laboratory Education for North Dakota (LEND), November 12, 1991.
15. Achieving the HCFA limits by Quality Improvement and Quality Control, presented as part of "Proficiency Testing and QC under CLIA 1988" at the Spring Meeting of the College of American Pathologists, Chicago IL, March 27, 1993
16. Telephone Conference Presentation - Making the best use of proficiency test results, presented by Laboratory Education for North Dakota (LEND), October 12, 1993.

17. "Making the best use of proficiency test results" at the Spring Meeting of the College of American Pathologists, Seattle WA, April 9-14, 1994
18. Presentation - How to be a Star Tech in PT result interpretation: CLMA/MSMT/MSSAMT Spring Meeting, Brooklyn Center, MN, May 6, 1994.
19. Diagnosis of normal and abnormal pregnancy with hCG and other serum markers. CLMA/MSMT/MSSAMT Spring Meeting, Duluth MN, May 18, 1995
20. "Diabetes Testing in the 1990s" presented with Dr. R. Bergenstal at the 1995 National Meeting of the American Society of Clinical Laboratory Scientists, Anaheim, CA, July 17-22, 1995
21. The latest thinking in the chemical diagnosis of normal and abnormal pregnancy, presented at University of Calgary School of Medicine, October 13, 1995
22. Telephone Conference Presentation Achieving Total Quality in the Decentralized Hematology Laboratory, American Society of Clinical Pathologists, December 1995
23. "Quality Control Rules" as part of "What Pathologists should do to improve quality in laboratory medicine" presented at the Fall Meeting of the College of American Pathologists, San Diego, CA, September 28, 1996
24. Direct LDL Testing, presented at the 1997 North Dakota SCLS Spring Meeting, Grand Forks ND, April 3, 1997
25. "Establishing and verifying reference intervals: a practical approach" Telephone conference presentation, American Society of Clinical Pathologists, June 1997
26. "Principios basicos e avancados de controle da qualidade", XXXI Congresso Brasileiro De Patologia Clinica Medicina Laboratorial, Belo Horizonte, Brazil, September 12, 1997
27. "The Clinical Tolerance: an Objective for Establishing the Analytical Performance", 18e Congres Annuel de la Societe Quebecoise de Biologie Clinique, Quebec, October 16, 1997

## **College of American Pathologists Reports**

1. Howanitz PJ and Cembrowski GS: Complications of Phlebotomy, Data Analysis and Critique (College of American Pathologists-*QPROBES*), 1990
2. Cembrowski GS and Steindel SJ: Emergency Department Turnaround Time, Data Analysis and Critique, College of American Pathologists, Quality Assurance Services - *QPROBES* 90-13A pp.1-15, 1991.
3. Cembrowski GS: Cholesterol Testing and the Physician Office Laboratory, *CAP/ASIM MLE Newsletter*, August 1990.
4. Lawson NS and Cembrowski GS: Labs winners in CrossLink scheme, *CAP Today*, October pp 21,22, 24, 1991.
5. Voss EM and Cembrowski GS: Essentials of Blood Glucose Meter Usage, in FOCUS ON Physician Office Laboratories, a College of American Pathologists, American Society of Internal Medicine *Physician Office Laboratory Newsletter*, pp 1-3, 1991.
6. Cembrowski GS: Testing for cholesterol in the office or satellite lab, *CAP Today*, pp 26 and 28, January 1991.
7. Cembrowski GS and Howanitz PJ: Short-term studies of the laboratory's role in quality care: Postanalytical QA: Hypercalcemia data analysis and critique. College of American Pathologists Quality Assurance Services *Q-Probes* 91-08A: 1-17, 1992.
8. Cembrowski GS: Educational challenge: intralaboratory quality control. In 1992 *CAP Hematology Surveys*, D, pp 12-18 , College of American Pathologists, Spring 1993.
9. Cembrowski GS: Trouble-shooting "out of range" quality control values in the clinical laboratory. *CAP Today*, 8: 2; (Feb) 46, 1994.
10. Cembrowski GS: Advancing hematology quality control practices. *CAP Today*, 8: 7; (July) 45-47, 1994.
11. Cembrowski GS and Cornbleet PJ: Calibration verification in hematology: what's necessary and what's not. *CAP Today*, spring 1996

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