Dear Editor:

While reading, “The Case for Bubble Oxygenators” by W. G. Maurer, appearing in the November-December issue of the Journal, I experienced the distinct feeling that the material was familiar. Proceeding to the library, I selected “Annals of Thoracic Surgery” Vol. 17, No. 4, May 1974. On page 459, is an article I wrote over ten years ago, “Blood-Gas Interface Oxygenators Versus Membrane Oxygenators: What Are the Proved Differences?” The beginning of this article bears a remarkable resemblance to the material in the beginning of Mr. Maurer’s article. Not only are the references, observations, and conclusions nearly identical, but the wording is remarkably similar. For example, Mr. Maurer writes:

“Let’s examine these reports to see how they apply to the problem of the extracorporeal oxygenation of blood. Bull and Neurath shook an egg albumin mixture in a glass bottle at 2 degrees centigrade. They found that protein denaturation occurred most rapidly at a 4.8 pH, but virtually no denaturation took place even after 12 hours at a 7.4 pH.”

The older article stated it thusly:

“Let us now examine these reports to see how closely they apply to the problem of extracorporeal oxygenation of blood. Bull and Neurath (3) shook an egg albumin mixture in a glass bottle at 2°C. Protein denaturation took place most rapidly at pH 4.8, but at pH 7 virtually no denaturation took place even after twelve hours.”

Mr. Maurer’s use of the first person, singular is particularly interesting:

“I will concede that membrane oxygenators (M.O.) are basically different — but certainly not superior to the bubble type oxygenator.”

The older article was a bit more subdued:

“There is little doubt that membrane oxygenators are basically different from* — blood-gas interface oxygenators.”

Since the older article is not referenced in Mr. Maurer’s article, we must assume that Mr. Maurer is presenting these observations, conclusions, and the written expression of them as his own work. Could it really be that Mr. Maurer read all of those old articles as I did, came to the same conclusions I did, and expressed his observations with remarkably similar language? Ten years later?

Sincerely,

Kenneth L. Kayser

* * *

Dear Editor:

As Mr. Kayser has pointed out I certainly did fail to reference his earlier work and for this I wholeheartedly apologize.

There was never any intention on my part not to credit Mr. Kayser’s excellent article as it provided me with many of the background articles and much of the argument against the blood-gas interface as a major source of protein denaturation.

My article was originally prepared as an oral presentation in a point/counterpoint type format and not for publication. Only after my presentation was solicited for publication did I go back and reference the sources, unfortunately, in my haste to meet the J.E.C.T. publication deadline I failed to reference the manuscript completely.

Again, I apologize to Mr. Kayser and also to my colleagues for my inexcusable oversight.

Sincerely,

William G. Maurer, B.S., C.C.T.

* * *

Volume 16, Number 2, Summer 1984

The Journal of Extra-Corporeal Technology
Dear Editor:

I wish to make a case for a national cooperative perfusion survey. Many books and papers have been written discussing ideal clinical parameters with much time spent discussing and rediscussing specific individual interests of those perfusionists willing and able to contribute to the literature. It is long past due to take subjective discussions and create objective clinical data.

We hear barroom talk regarding a hospital attempting to have pO2’s in the 300 to 400 range with no apparent neurologic problems, groups pumping with ACTs at twice control, groups cooling patients to 15 degrees and groups not cooling at all — the list goes on and on.

The technology is available. My group has created a computer program with a local company with which we have now monitored 1200 patients. The data has given us better insight as to how we run perfusion, but it doesn’t answer the much larger question, “What impact do different methods of perfusion have on patients?”

The enclosed computer perfusion form is an example of what could be used. Our practice is limited to adult cardiac cases. Yet the perfusion form questions can easily be changed to reflect any type of equipment, manner of perfusion, or surgical procedure.

I propose the following:

(A) Create a double blind study approximately 30 days in length. Individual hospitals will not be identified.

(B) Apply for funding from the new AMSECT research fund or local heart associations. This money is for computer time. I will not be paid for my participation.

If you wish to participate, please write me a note describing the type of practice with which you are associated (i.e., adult or pediatric). Please include your anticipated 30 day case load.

Upon receipt of your note, you will be sent a detailed guide to the questionnaire describing what can and cannot be done. I will attempt to comply with every possible nuance of perfusion but within the limits of 60 questions some items will be omitted. After looking at the membership’s proposed changes, a final computer form will be formulated and sent to the participants.

I am convinced that we can pull this formidable task off with cooperation from the membership. A 30-day effort should be all that is necessary to compile a meaningful data base.

Armed with this data, we can advance our field of expertise tremendously.

I look forward to hearing from the membership.

Respectfully,

Richard P. Schultz, P.A., C.C.P.
Northwest Surgical Associates
**EXTRACORPOREAL CIRCULATION SERIES OXYGENATORS**

<table>
<thead>
<tr>
<th>NAME</th>
<th>UNIT #</th>
</tr>
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<tbody>
<tr>
<td></td>
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</tr>
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</table>

1. Demog. number: Assigned by computer... was ________
2. Previous entry #: Assigned by computer... was ________
3. DATE OF USE: Month ________, Day ________, Year ________
4. OXYGENATOR: 1 = H-1500, 2 = BOS 10S, 3 = SHILEY, 4 = COBE II, 5 = CML, 6 = H-1300, 7 = H-1700
5. OXYG SER #: ENTER SER OR LOT #
6. CARDIOT RES: O = NONE, 1 = 0220F, 2 = SHILEY, 3 = COBE, 4 = HARVEY, 5 = J&J, 6 = BCR 3500
7. CARD RES SERIAL: ENTER SER OR LOT #
8. ARTERIAL FILTER: O = NONE, 1 = INTERCEPT, 2 = SHILEY SAF-20, 3 = AF-1025
9. ART FILT SER #: ENTER SER OR LOT #
10. PRIME: 1[ ] = D5LR, 2[ ] = HESPAN, 3[ ] = NORMOSOL-R, 4[ ] = L. RING, 5[ ] = BLOOD ADDED, 6[ ] = BLOOD PRIME, 7[ ] = 10% MAN ADDED TO PRIME: 1[ ] = NONE, 2[ ] = NAHC03, 3[ ] = NEO, 4[ ] = VASOXLYL, 5[ ] = CaC12, 6[ ] = KCl, 7[ ] = LASIX
12. TOTAL PRIME VOL: ENTER TOTAL AMOUNT OF PRIME IN ML
13. PA ASSISTANT: O = UNK, 1 = S MCKEAN, 2 = L COLBURN, 3 = S DUNLAP, 4 = C PETERSEN, 6 = R SCHULTZ, 7 = MD
14. SAT METER #: Enter Meter # (or #'s) in order of use (A/V)
15. EXTRA DEVICES: 1[ ] = SWANK FILT, 2[ ] = PREBYPASS FILT, 3[ ] = CELLSAVER, 4[ ] = HEMO-CONCEN, 5[ ] = BUBBLE TRAP, 6[ ] = DIAFILTER, 7[ ] = SORENSON BLD RECYCLE SYSTEM
16. GRAFTS: Enter number of grafts
17. OPERATION: 1[ ] = AVR, 2[ ] = AVC, 3[ ] = MVR, 4[ ] = MVC, 5[ ] = ASO, 6[ ] = VSD, 7[ ] = LV ANEURYSM
18. OPERATION: 1[ ] = AORTIC ANEUR, 2[ ] = CAROTID ENDART, 3[ ] = OTHER
19. FASTING GLUCOSE: ENTER ACTUAL PRE-OP FBS
20. GASES: ENTER NO OF GASES TAKEN
21. TEMPERATURE: Enter temp in Deg C at time of gas
22. BLOOD FLOW: ENTER FLOW IN LPM \times 10
23. OXYGEN FLOW: LPM \times 10
24. CO2 FLOW: cc div. by 10
25. FIO2: ENTER ACTUAL %
26. Hgb: ENTER Hgb \times 10
27. PO2 (LAB): pO2 div by 10
28. PCO2 (LAB): ENTER ACT PCO2
29. Ph: ENTER LAST TWO DIGITS
30. ARTERIAL SAT: ENTER SAT % AS WHOLE #
31. VENOUS SAT: ENTER ACT % AS WHOLE #
32. VEN SAT (LAB): Enter V Sat % from lab
33. BLD GLUCOSE: ENTER LAB # div by 10
34. MIN. PUMP ON: (any time \geq 200 min is 200)
35. TIME PUMP ON: IN MILITARY TIME
36. PUMP TIME: ENTER TIME IN MINUTES
37. XC TIME: ENTER TIME IN MIN (TOTAL)
38. BSA: ENTER BSA \times 100 ie: 1.87 is 187
39. PRE-OP WEIGHT: ENTER weight in Kg (ROUND TO WHOLE #)
40. CARDIOPLEGIA VOL: ENTER VOL IN CC AND ZERO FOR BLD PLEGIA
41. ICU GLUCOSE: GLUCOSE ON ARRIVAL TO ICU
42. 1hr POST-OP GLU: GLUCOSE 1hr AFTER ARRIVING IN ICU
43. ADDED VOLUME: ENTER AMOUNT IN ml
44. PRE CPB GLU: ENTER GLU VALUE DRAWN IMMED BEFORE BYPASS

Volume 16, Number 2, Summer 1984  The Journal of Extra-Corporeal Technology  43
URINE OUTPUT: ONLY ENTER CPB OUTPUT, IN CC

PLATELETS (PRE): ACTUAL LAB # (LAB # x 1000 IS PLAT COUNT

PLATELETS (POST): ACTUAL LAB # (LAB # x 1000 IS PLAT COUNT

DIABETIC: 0 = NONDIAB, 1 = IN STUDY-INSUL, 2 = INSULIN DIAB-NIS, 3 = ORAL DIAB-NIS, 4 = IN STUDY-ORAL, 5 = NONDIAB-IN STUDY

POST-OP BLEED: 50 is UNK, ENTER TOTAL cc's OUT

DEVICE COMPLICAT: 1[ ] = ART FILTER, 2[ ] = RESERVOIR, 3[ ] = TUBING/CONNECTORS, 4[ ] = 02 DELIVERY, 5[ ] = PUMP, 6[ ] = SARNES, 7[ ] = SAT METER/RESULT

EEG REPORT: 1[ ] = No change or changes with rewarming or anes.,
2[ ] = Non-sign. changes other than #1 or #4,
3[ ] = Sign. changes,
4[ ] = Changes with questionable or unk sign,

EEG ON/AFTER BYP: 1[ ] = NO CHANGE, 2[ ] = NOR p PUMP, 3[ ] = SLOW ON REWARM, 4[ ] = DIMIN ACT, 5[ ] = POSS CHANGES, 6[ ] = DEFIN CHANGES, 7[ ] = TRANS CHANGES,

NEURO COMP: 0 = NO, 1 = MILD (Perf), 2 = MILD(Non-perf), 3 = SEV(perf), 4 = SEV(non-perf), 5 = CONFUSION, 6 = SEV(unk-etiol)

ANESTH: 0 = UNK, 1 = J BASS, 2 = J COPPERMAN, 3 = J ROBB 4 = G WRIGHT, 6 = N MECKLEM, 7 = EMANUEL MD

SURGEON: 0 = UNK, 1 = S PAGE, 2 = J BIGELOW, 3 = A KRAUSE, 4 = N SALOMON 7 = E OKIES, 8 = PA, 9 = OTHER,

PERFUSIONIST: 0 = UNK, 1 = S MCKEAN, 2 = L COLBURN, 3 = S DUNLAP, 4 = C PETERSEN, 5 = R KING, 6 = R SCHULTZ

Trans. to new #: Entered later by system if reap performed.

Status: 1 = ALIVE, 2 = DIED OR, 4 = OXYGENATOR CHANGED OR REOP