K973743

APPENDIX 4

Summary of Safety and Effectiveness Information September 30, 1997

OCT 3 1 1997

1. **General Information**

Device Generic Name:	Enzyme Immunoassay, Estradiol	
Device Trade Name:	ACCESS® Estradiol assay	
Applicant's Name and Address:	Beckman Instruments, Inc. 1000 Lake Hazeltine Drive Chaska, MN 55318	Contact: Robert McCormack, Ph.D. 612-368-1384

2. **Predicate Device**
Abbott IMx® Estradiol Kit
Abbott Laboratories
Diagnostics Division
Abbott Park, IL 94547

3. **Device Description**
The ACCESS® Estradiol reagents and the ACCESS® Immunoassay Analyzer comprise the ACCESS® Immunoassay System for the quantitative determination of Estradiol levels in human serum.

4. **Indications for Use**
The ACCESS® Estradiol assay is a paramagnetic particle chemiluminescent immunoassay for the quantitative determination of Estradiol levels in human serum using the ACCESS® Immunoassay System.

5. **Comparison of Technological Characteristics**
The ACCESS® Estradiol assay and the Abbott IMx® Estradiol Kit are for the measurement of estradiol in human serum. Both tests utilize polyclonal rabbit anti-estradiol antibodies for capture and an alkaline phosphatase conjugate. Both tests use multi-point liquid calibrators. The ACCESS® Estradiol assay uses a dioxetane based chemiluminescent substrate while the Abbott IMx® Estradiol Kit uses 4-methylumbelliferyl phosphate as the substrate. The ACCESS® Estradiol assay measures light production from a chemiluminescent reaction, while the Abbott IMx® Estradiol Kit measures a fluorescent product. The ACCESS® Estradiol assay uses calibrators prepared in a human serum matrix while the Abbott IMx® Estradiol Kit uses calibrators prepared in Tris buffer with protein stabilizers. The ACCESS® Estradiol assay uses a competitive assay format with a delayed conjugate addition while the Abbott IMx® Estradiol Kit uses a sequential assay format.

6. **Summary of Studies**
Precision studies: Within run precision ranges from 19.7% CV (39 pg/ml) to 3.1% CV (2167 pg/ml). Total imprecision ranges from 20.0% CV (39 pg/ml) to 5.0% CV (2918 pg/ml).
Accuracy: Spiking recovery studies performed by spiking estradiol into ten serum samples results in recovery ranging from 80% to 115%. Dilution recovery studies performed by diluting 2 patient samples and 2 patient pools from 1:2 to 1:8 with Estradiol Calibrator S0 results in a mean recoveries of 108% to 112%. The average dilution recovery at 1:2 was 106%. In addition, 10 patient samples with estradiol >500 pg/ml were diluted 1:2 with S0 with an average % recovery of 107%.
Correlation: A comparison of estradiol values from 103 samples run in both the ACCESS® Estradiol assay and the Abbott IMx® Estradiol Kit test gives the following statistical data: r= 0.98.
Analytical Sensitivity: The data supports the lowest detectable level of estradiol distinguishable from zero (Estradiol Calibrator S0) as 20 pg/ml.
Analytical Specificity: Estrone sulfate is not detectable when spiked into the S0 calibrator at 3600 pg/ml. Estriol sulfate gives an apparent cross reactivity of 0.004% when spiked into the S0 calibrator at 10,000,000 pg/ml.

7. **Conclusion**
The ACCESS® Estradiol reagents when used with the ACCESS® Immunoassay Analyzer are substantially equivalent to another test for the measurement of estradiol levels now in commercial distribution.

DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service

Food and Drug Administration
2098 Gaither Road
Rockville MD 20850

OCT 31 1997

Michele Z. Burtness
Regulatory Specialist
Beckman Instruments, Inc.
100 Lake Hazeltine Drive
Chaska, Minnesota 55318-1084

Re: K973743
ACCESS® Estradiol Assay
Regulatory Class: I, II
Product Code: CHP, JIS
Dated: September 30, 1997
Received: October 1, 1997

Dear Ms. Burtness:

We have reviewed your Section 510(k) notification of intent to market the device referenced above and we have determined the device is substantially equivalent (for the indications for use stated in the enclosure) to devices marketed in interstate commerce prior to May 28, 1976, the enactment date of the Medical Device Amendments, or to devices that have been reclassified in accordance with the provisions of the Federal Food, Drug, and Cosmetic Act (Act). You may, therefore, market the device, subject to the general controls provisions of the Act. The general controls provisions of the Act include requirements for annual registration, listing of devices, good manufacturing practice, labeling, and prohibitions against misbranding and adulteration.

If your device is classified (see above) into either class II (Special Controls) or class III (Premarket Approval), it may be subject to such additional controls. Existing major regulations affecting your device can be found in the Code of Federal Regulations, Title 21, Parts 800 to 895. A substantially equivalent determination assumes compliance with the Current Good Manufacturing Practice requirements, as set forth in the Quality System Regulation (QS) for Medical Devices: General regulation (21 CFR Part 820) and that, through periodic QS inspections, the Food and Drug Administration (FDA) will verify such assumptions. Failure to comply with the GMP regulation may result in regulatory action. In addition, FDA may publish further announcements concerning your device in the Federal Register. Please note: this response to your premarket notification submission does not affect any obligation you might have under sections 531 through 542 of the Act for devices under the Electronic Product Radiation Control provisions, or other Federal laws or regulations.

Under the Clinical Laboratory Improvement Amendments of 1988 (CLIA-88), this device may require a CLIA complexity categorization. To determine if it does, you should contact the Centers for Disease Control and Prevention (CDC) at (770) 488-7655.

This letter will allow you to begin marketing your device as described in your 510(k) premarket notification. The FDA finding of substantial equivalence of your device to a legally marketed predicate device results in a classification for your device and thus, permits your device to proceed to the market.

If you desire specific advice for your device on our labeling regulation (21 CFR Part 801 and additionally 809.10 for in vitro diagnostic devices), please contact the Office of Compliance at (301) 594-4588. Additionally, for questions on the promotion and advertising of your device, please contact the Office of Compliance at (301) 594-4639. Also, please note the regulation entitled, "Misbranding by reference to premarket notification" (21 CFR 807.97). Other general information on your responsibilities under the Act may be obtained from the Division of Small Manufacturers Assistance at its toll-free number (800) 638-2041 or (301) 443-6597 or at its internet address "http://www.fda.gov/cdrh/dsmamain.html".

Sincerely yours,

Steven Gutman

Steven I. Gutman, M.D., M.B.A.
Director
Division of Clinical
Laboratory Devices
Office of Device Evaluation
Center for Devices and
Radiological Health

Enclosure

INDICATIONS FOR USE STATEMENT

510(k) Number (if known): K973743

Device Name: ACCESS® Estradiol Reagents on the ACCESS® Immunoassay Analyzer

Indications For Use:

The Access Estradiol assay is a paramagnetic particle, chemiluminescent immunoassay for the quantitative determination of estradiol levels in human serum, using the Access Immunoassay System.

SUMMARY AND EXPLANATION

Estradiol (17b - estradiol, 1,3,5 (10) - Estratrien - 3,17b - diol) is a natural estrogen with a molecular mass of 272.3 daltons. Most circulating estradiol is bound to protein. It is estimated that only 1-3% of serum estradiol is free (unbound). In non-pregnant women, estradiol is secreted by the ovary and the corpus luteum. The adrenals and testes (in men) are also believed to secrete minute amounts of estradiol (1). Estradiol levels are lowest at menses and into the early follicular phase and rise in the late follicular phase to a peak just prior to the hLH (human Luteinizing Hormone) surge, initiating ovulation. As the hLH peaks, the levels of estradiol decrease before rising again in the luteal phase. Endometrial growth is stimulated by estradiol and progesterone (secreted by the corpus luteum) in preparation for implantation of a fertilized egg. If conception does not occur, the secretion of estradiol and progesterone by the corpus luteum decreases, initiating menses (2).

Levels of estradiol are useful in monitoring ovulatory status. Because estradiol levels reflect follicular maturation, the measurement of estradiol is a valuable tool in the assessment of sexual development, etiology of amenorrhea, causes of infertility and menopause (3,4). Abnormally high levels in males are indicative of feminizing syndromes such as gynecomastia (5).

(PLEASE DO NOT WRITE BELOW THIS LINE - CONTINUE ON ANOTHER PAGE IF NEEDED)

Concurrence of CDRH, Office of Device Evaluation (ODE)

(Division Sign-Off)
Division of Clinical Laboratory Devices
510(k) Number K973743

✓ Prescription Use