

FUTURE US BLOOD BANKING MARKET
Growth Opportunities and Business Expansion Strategies

Table of Contents

Worldwide Technology and Market Overview

A. Major Blood Typing, Grouping and Infectious Disease Screening Tests

1. Blood Typing and Grouping Tests

- a. ABO
- b. Antibody Panels
- c. Antibody Screening
- d. Antigen Typing
- e. Antiglobulin Test
- f. Crossmatch
- g. HLA Typing
- h. Rh
- i. Other Blood Groups

2. Infectious Disease Screening Tests

- a. AIDS
 - Structure and Composition
 - Classification
 - Origin of AIDS
 - Animal Lentivirus Systems
 - Virus Receptors
 - HIV Infections in Humans
 - Pathogenesis & Pathology
 - Overview of Course of HIV Infection
 - CD4T Lymphocytes and Memory Cells
 - Monocytes and Macrophages
 - Lymphoid Organs
 - Neural Cells
 - Viral Coinfections
 - Clinical Findings
 - Plasma Viral Load
 - Pediatric AIDS
 - Neurologic Disease
 - Opportunistic Infections
 - Protozoa
 - Fungi
 - Bacteria

Table of Contents (continued)

- Viruses
 - Cancer
 - Immunity
 - Laboratory Diagnosis
 - Virus Isolation
 - Serology
 - Detection of Viral Nucleic Acid or Antigens
 - Epidemiology
 - Worldwide Spread of AIDS
 - United States
 - Routes of Transmission
 - Prevention, Treatment, And Control
 - Antiviral Drugs
 - Vaccines Against HIV
 - Transmission of HIV in Blood Products
 - HIV Transmission in Transplant and Artificial Insemination Recipients
 - Diagnostic Tests
 - Enzyme Immunoassay Interpretation
 - Specificity, Sensitivity, and Predictive Value of Enzyme Immunoassay
 - Competition Assays
 - Western Blot Technique
 - Immuno-Fluorescence Assay (IFA)
 - Radioimmunoprecipitation
 - HIV-1/HIV-2 Combination Testing
 - Methods of HIV-Antigen Detection
 - Antigen Assays and Blood Screening
 - Urine Tests
 - DNA Probes
 - Overview
 - Quantitative Polymerase Chain Reaction
 - In Situ PCR
 - Needed Improvements
 - Viral Load/Drug Resistance Testing
 - Genotype and Phenotype Testing
 - Blood Banking Considerations
- b. Hepatitis
- Hepatitis A
 - Hepatitis B
 - Structure and Composition
 - Replication of Hepatitis B Virus

Table of Contents (continued)

- Hepatitis C
- Hepatitis D (Delta Hepatitis)
- Hepatitis E
- Hepatitis G
- Hepatitis Virus Infections In Humans
 - Pathology
- Clinical Findings
- Laboratory Features
 - Hepatitis A
 - Hepatitis B
 - Hepatitis C
 - Hepatitis D
 - Hepatitis E
- Virus-Host Immune Reactions
- Epidemiology
 - Hepatitis A
 - Hepatitis B
 - Hepatitis C
 - Hepatitis D (Delta Agent)
- Vaccines and Drugs
- c. Cytomegalovirus
 - Background
 - Chorioretinitis
 - Gastrointestinal
 - Central Nervous System Disease
 - Diagnostic Tests
 - Vaccines and Drugs
- d. Syphilis
 - Background
 - Diagnostic Tests
 - Vaccines and Drugs
- e. West Nile Virus
 - Background
 - Clinical Syndromes
 - Diagnostic Tests
 - Vaccines and Drugs
- f. Parvovirus B19
 - Microbiology
 - Epidemiology
 - Clinical Syndromes
 - Erythema Infectiosum Slapped (cheek)
 - Adult Polyarthropathy

Table of Contents (continued)

- Transient Aplastic Crisis
- Transient Pancytopenia
- Red Cell Aplasia in the Immunocompromised
- Perinatal Infections
- Diagnosis
- Treatment
- g. Creutzfeldt-Jakob's Disease
 - Background
 - Transmission
 - Diagnostic Tests
 - Major Commercial and Academic Players
 - Bayer
 - Disease Sciences/BioTec Global
 - Imperial College School of Medicine
 - Ortho-Clinical Diagnostics
 - Pall
 - ProMetic Life Sciences
 - Proteome Sciences/Idexx
 - Q-One Biotech
 - Serono
 - U.S. Agricultural Research Service
 - Drugs
 - Vaccines
- h. Malaria
- i. Chagas Disease
- j. Babesiosis

3. Pathogen Reduction

4. Leukocyte Reduction

- Background
- Methods

B. Instrumentation Review: Operating Characteristics, Features and Selling Prices of Leading Automated and Semiautomated Analyzers Manufactured by:

- Abbott
- Beckman Coulter/Danaher
- Bio-Rad
- BioMerieux
- Gen-Probe
- Grifols

Table of Contents (continued)

- Immucor
- Nanosphere
- Ortho-Clinical Diagnostics
- Roche
- Sarstedt
- Siemens
- Tecan

C. Major in Vitro Diagnostic Technologies And Their Potential Applications

1. Molecular Diagnostics

- a. Overview
- b. NAT

2. Monoclonal and Polyclonal Antibodies

3. Immunoassays

- a. Technological Principle
- b. Chemiluminescence
- c. Enzyme Immunoassays (EIA)
 - Overview
 - ELISA
 - EMIT
 - Electrochemical
- d. Radioimmunoassays (RIA)
- e. Immunoprecipitation
- f. Affinity Chromatography

4. Microtitration Plates

5. IT and Automation

6. Lasers

7. Robotics

8. Synthetic Red Cell Substitutes

9. Genetically Engineered Blood Components

- a. Albumin
- b. Factor VIII
- c. Alpha-2 Antiplasmin
- d. Antithrombin III
- e. Factor IX
- f. Von Willebrand's Factor
- g. Fibrinogen
- h. t-PA

10. Blood Preservation

11. Autologous Blood Transfusion/Freezing

Table of Contents (continued)

U.S.A.

- A. Executive Summary
- B. Business Environment
 - 1. Overview
 - 2. Health Care Expenditures
 - 3. Cost Consciousness
 - 4. Industry Consolidation
 - 5. Managed Care
 - 6. Hospitals
 - 7. Admissions
 - 8. Length of Stay
 - 9. Industry Diversification
 - 10. Physician Demographics
 - 11. Population Aging
 - a. Chronic Illnesses
 - b. Disease Incidence
 - c. Susceptibility to Latrogenesis
 - d. Multiple Illness Cases
 - 12. Laboratory Regulations
- C. Market Structure
- D. Market Size, Growth and Major Suppliers'
Sales and Market Shares for Blood Typing, Grouping
and Infectious Disease Screening Tests

Major Product Development Opportunities

- A. Blood Typing and Grouping
- B. Infectious Disease Screening
- C. Auxiliary

Alternative Market Penetration Strategies

- A. Internal Development
- B. Collaborative Arrangements
- C. University Contracts

Table of Contents (continued)

Potential Market Entry Barriers and Risks

- A. Market Maturity
- B. Cost Containment
- C. Competition
- D. Technological Edge and Limitations
- E. Patent Protection

Competitive Assessments

- Abbott
- Beckman Coulter/Danaher
- Becton Dickinson
- Biokit
- BioMerieux
- Bio-Rad
- Diagast
- DiaSorin
- Fujirebio
- Gen-Probe
- Grifols
- Immucor
- Innogenetics
- Ortho-Clinical Diagnostics
- Orchid CellMark
- Novartis Diagnostics
- Proteome Sciences
- Roche
- Siemens
- Tecan

List of Tables

Major Companies Developing or Marketing
Blood Typing and Grouping Tests

Major Companies Developing or Marketing
HLA Typing Tests

Major Companies Developing or Marketing
AIDS Tests

Major Companies Developing or Marketing
Hepatitis Tests

Major Companies Developing or Marketing
CMV Tests

Major Companies Developing or Marketing
Syphilis Tests

Major Companies Developing or Marketing
Blood Bank Analyzers

Executive Summary Table: U.S.A., Total Blood Bank
Test Volume and Reagent Sales Forecast
by Test Category

U.S.A., Estimated Number of Inpatient and
Ambulatory Surgeries

U.S.A., Facilities Performing Blood
Bank Tests by Market Segment

U.S.A., Hospital Laboratories Performing
Blood Bank Tests by Bed Size

U.S.A., Commercial/Private Laboratories
Performing Blood Bank Tests
by Annual Test Volume Forecast

U.S.A., Facilities Collecting Whole Blood
And Plasma by Market Forecast Segment

U.S.A., Whole Blood and Plasma Collections
By Market Forecast Segment

List of Tables (continued)

U.S.A., All Market Segments Blood Typing
and Grouping Test Volume by Market Forecast
Segment

U.S.A., All Market Segments Blood Typing
And Grouping Test Volume Forecast

U.S.A., Hospital Laboratories Blood
Typing and Grouping Test Volume Forecast

U.S.A., Community and Regional Blood Centers
Blood Typing and Grouping Test Volume Forecast

U.S.A., Commercial/Private Laboratories
Blood Typing and Grouping Test Volume Forecast

U.S.A., Plasma Fractionation Centers Blood
Typing and Grouping Test Volume Forecast

U.S.A., Military Blood Banks Blood Typing
and Grouping Test Volume Forecast

U.S.A., All Market Segments Infectious
Disease Screening Test Volume Forecast
By Market Segment

U.S.A., All Market Segments Infectious
Disease Screening Test Volume Forecast

U.S.A., Community and Regional Centers
Infectious Disease Screening Test Volume Forecast

U.S.A., Plasma Fractionation Centers
Infectious Disease Screening Test Volume Forecast

U.S.A., Hospital Blood Banks
Infectious Disease Screening Test Volume Forecast

U.S.A., Military Blood Banks Infectious
Disease Screening Test Volume Forecast

List of Tables (continued)

U.S.A., All Market Segments Blood Typing
And Grouping Reagent Market Forecast
by Market Segment

U.S.A., All Market Segments Blood Typing
And Grouping Reagent Market Forecast
by Market Segment

U.S.A., Hospital Blood Banks Blood Typing
And Grouping Reagent Market Forecast
by Major Test

U.S.A., Community and Regional Blood Centers
Blood Typing and Grouping Reagent Market Forecast
By Major Test

U.S.A., Commercial/Private Laboratories
Blood Typing and Grouping Reagent Market Forecast
By Major Test

U.S.A., Plasma Fractionation Centers
Blood Typing and Grouping Reagent Market Forecast
By Major Test

U.S.A., Military Blood Banks Blood Typing
And Grouping Reagent Market Forecast by Major Test

U.S.A., All Market Segments Infectious
Disease Screening Reagent Market by Market Forecast
Segment

U.S.A., All Market Segments Infectious
Disease Screening Reagent Market by Market Forecast
Segment

U.S.A., Community and Regional Centers
Infectious Disease Screening Reagent Market Forecast
By Test

List of Tables (continued)

U.S.A., Plasma Fractionation Centers
Infectious Disease Screening Reagent Market Forecast
By Test

U.S.A., Hospital Blood Banks
Infectious Disease Screening Reagent Market Forecast
By Test

U.S.A., Military Blood Banks Infectious
Disease Screening Reagent Market Forecast
By Test

U.S.A., Major Suppliers of Blood Typing
And Grouping Reagents Estimated Sales
And Market Shares

U.S.A., HIV/HTLV Blood Screening Market,
Reagent Sales by Major Supplier

U.S.A., Hepatitis Blood Screening Market,
Reagents Sales by Major Supplier

U.S.A., Hepatitis C Blood Screening Market,
Reagent Sales By Major Supplier

U.S.A., HIV/Hepatitis C NAT Market, Reagent
Sales By Major Supplier

U.S.A., West Nile Virus NAT Market,
Reagent Sales by Major Supplier

U.S.A., CMV Blood Screening Market,
Reagent Sales by Major Supplier

U.S.A., Syphilis Blood Screening Market,
Reagent Sales by Major Supplier