

# TABLE OF CONTENTS

## **Veterinary Technician's Handbook of Laboratory Procedures, 2nd Edition**

### Part 1 Patient Care Considerations 1

#### **1 The Gold Standard, Standards of Care, and Spectrum of Care: An Evolving Approach to Diagnostic Medicine 3**

*Ryane E. Englar*

##### 1.1 Defining the Gold Standard 3

##### 1.2 Limitations of the Gold Standard 4

##### 1.3 Returning to the Case of the Cat with Stranguria: a Different Perspective on Standards of Care 4

##### 1.4 Limitations to Standards of Care 5

##### 1.5 Spectrum of Care 6

##### References 7

#### **2 Consultation Room Communication Strategies that Facilitate Dialogue on the Diagnostic Approach to Patient Care 9**

*Ryane E. Englar*

##### 2.1 Emergence of Communication as a Clinically Relevant Skill in Human Health Care 9

##### 2.2 The Evolution of Communication in Veterinary Health Care 10

##### 2.3 Communication Skills That Are Essential to Diagnosis-Making 11

##### 2.4 Concepts of Health Literacy and Compliance 13

##### 2.5 Using Easy-to-Understand (Nonmedical) Language 14

##### 2.6 Checking in 15

##### 2.7 Assessing the Client's Knowledge 17

##### 2.8 Signposting 18

##### 2.9 Addressing the Cost of Care 20

##### References 22

## **Part 2 Quick Assessment Tests (QATS) Involving Blood 27**

### **3 Packed Cell Volume 29**

*Sharon M. Dial*

- 3.1 Procedural Definition: What Is this Test About? 29
- 3.2 Procedural Purpose: Why Should I Perform this Test? 29
- 3.3 Equipment 29
- 3.4 Procedural Steps: How Do I Perform this Test? 30
- 3.5 Time Estimate to Perform Test 33
- 3.6 Procedural Tips and Troubleshooting 33
- 3.7 Interpreting Test Results 34
- 3.8 Clinical Case Example(s): Can We Link to the Cases in Chapter 5? 35
- 3.9 Add-On Tests That You May Need to Consider and Their Additive Value 35
- 3.10 Key Takeaways 36
- References 36

### **4 Total Protein as Measured by Refractometry 37**

*Sharon M. Dial*

- 4.1 Procedural Definition: What Is This Test About? 37
- 4.2 Procedural Purpose: Why Should I Perform this Test? 37
- 4.3 Equipment 38
- 4.4 Procedural Steps: How Do I Perform this Test? 38
- 4.5 Time Estimate to Perform Test 42
- 4.6 Procedural Tips and Troubleshooting 43
- 4.7 Interpreting Test Result 43
- 4.8 Clinical Case Example(s) 44
- 4.9 Add-On Tests That You May Need to Consider and Their Additive Values 44
- 4.10 Key Takeaways 44
- Reference 45
- Suggested References 45

### **5 Gross and Microscopic Evaluation of the Buffy Coat 46**

*Sharon M. Dial*

- 5.1 Procedural Definition: What Is This Test About? 46
- 5.2 Procedural Purpose: Why Should I Perform this Test? 46

5.3 Equipment	47
5.4 Procedural Steps: How Do I Perform this Test?	47
5.5 Time Estimate to Perform Test	50
5.6 Procedural Tips and Troubleshooting	53
5.7 Interpreting Test Results	53
5.8 Clinical Case Example(s)	54
5.9 Add-On Tests That You May Need to Consider and Their Additive Value	54
5.10 Key Takeaways	54

Reference 54

## **6 The Blood Film 55**

*Sharon M. Dial*

6.1 Procedural Definition: What Is This Test About?	55
6.2 Procedural Purpose: Why Should I Perform This Test?	55
6.3 Equipment	55
6.4 Procedural Steps: Preparing the Blood Film How Do I Perform This Test?	56
6.5 Time Estimate to Perform Test	64
6.6 Procedural Tips and Troubleshooting	64
6.7 Interpreting Test Results	69
6.8 Clinical Case Example(s)	70
6.9 Add-On Tests That You May Need to Consider and Their Additive Value	70
6.10 Key Takeaways	70

References 70

Suggested Bench-Side Reference 71

## **7 Blood Glucose 72**

*Sharon M. Dial*

7.1 Procedural Definition: What Is This Test About?	72
7.2 Procedural Purpose: Why Should I Perform This Test?	72
7.3 Equipment	73
7.4 Procedural Steps: How Do I Perform This Test?	73
7.5 A Note on Quality Control	73
7.6 Procedure for Patient Samples	74

7.7 Time Estimate to Perform Test	76
7.8 Procedural Tips and Troubleshooting	76
7.9 Interpreting Test Results	77
7.10 Clinical Case Example(s)	78
7.11 Add-On Tests That you May Need to Consider and Their Additive Values	78
7.12 Key Takeaways	78
References	78

## **8 Blood Urea Nitrogen 79**

*Sharon M. Dial*

8.1 Procedural Definition: What Is This Test About?	79
8.2 Procedural Purpose: Why Should I Perform This Test?	79
8.3 Equipment	80
8.4 Procedural Steps: How Do I Perform this Test?	80
8.5 Time Estimate to Perform Test	81
8.6 Procedural Tips and Troubleshooting	81
8.7 Interpreting Test Results	82
8.8 Clinical Case Example(s)	82
8.9 Add-On Tests That You May Need to Consider and Their Additive Value	82
8.10 Key Takeaways	83

## **9 Whole Blood Lactate 84**

*Sharon M. Dial*

9.1 Procedural Definition: What Is This Test About?	84
9.2 Procedural Purpose: Why Should I Perform This Test?	84
9.3 Equipment	85
9.4 Procedural Steps: How Do I Perform This Test?	85
9.5 A Note on Quality Control	85
9.6 Procedure for Patient Samples	85
9.7 Time Estimate to Perform Test	87
9.8 Procedural Tips and Troubleshooting	87
9.9 Interpreting Test Results	87
9.10 Clinical Case Example(s)	88

9.11 Add-On Tests That You May Need to Consider and Their Additive Value 88

9.12 Key Takeaways 88

References 88

## **10 Saline Agglutination Test 89**

*Sharon M. Dial*

10.1 Procedural Definition: What Is This Test About? 89

10.2 Procedural Purpose: Why Should I Perform This Test? 89

10.3 Equipment 89

10.4 Procedural Steps: How Do I Perform This Test? 89

10.5 Time Estimate to Perform Test 91

10.6 Procedural Tips and Troubleshooting 91

10.7 Interpreting Test Results 92

10.8 Clinical Case Example(s) 92

10.9 Add-On Tests That You May Need to Consider and Their Additive Value 92

10.10 Key Takeaways 92

Reference 93

## **11 Activated Clotting Time 94**

*Sharon M. Dial*

11.1 Procedural Definition: ("What Is This Test About?") 94

11.2 Procedural Purpose: Why Should I Perform This Test? 94

11.3 Equipment 94

11.4 Procedural Steps: How Do I Perform This Test? 94

11.5 Time Estimate To Perform Test 96

11.6 Procedural Tips and Troubleshooting 97

11.7 Interpreting Test Results 97

11.8 Clinical Case Example(s) 97

11.9 Add-On Tests That You May Need to Consider and Their Additive Value 97

11.10 Key Takeaways 97

## **Part 3 Quick Assessment Tests (QATS) Involving Urine 99**

### **12 Assessing Urine's Physical Properties 101**

*Ryane E. Englar*

12.1 Procedural Definition: What Is This Test About? 101

12.2 Procedural Purpose: Why Should I Perform This Test?	101
12.3 Equipment	102
12.4 Procedural Steps	103
12.5 Time Estimate to Perform Test	105
12.6 Procedural Tips and Troubleshooting	105
12.7 Interpreting Test Results	106
12.8 Clinical Case Example(s)	111
12.9 Add-On Tests That You May Need to Consider and Their Additive Value	113
12.10 Key Takeaways	113
12.11 Clinical Pearls	114
References	115

## **13 Urine Specific Gravity 116**

*Ryane E. Englar*

13.1 Procedural Definition: What Is This Test About?	116
13.2 Procedural Purpose: Why Should I Perform this Test?	117
13.3 Equipment	117
13.4 Procedural Steps	118
13.5 Time Estimate to Perform Test	124
13.6 Procedural Tips and Troubleshooting	124
13.7 Interpreting Test Results	124
13.8 Clinical Case Example(s)	126
13.9 Add-On Tests That You May Need to Consider and Their Additive Value	127
13.10 Key Takeaways	127
13.11 Clinical Pearls	127
References	128

## **14 Chemical Evaluation of Urine 130**

*Ryane E. Englar*

14.1 Procedural Definition: What Is This Test About?	130
14.2 Procedural Purpose: Why Should I Perform This Test?	132
14.3 Equipment	132
14.4 Procedural Steps	132

14.5 Time Estimate to Perform Test	136
14.6 Procedural Tips and Troubleshooting	136
14.7 Interpreting Test Results	138
14.8 Clinical Case Example(s)	141
14.9 Add-On Tests That You May Need to Consider and Their Additive Value	142
14.10 Key Takeaways	143
14.11 Clinical Pearls	144
References	145

## **15 Urine Sediment Examination 146**

*Sharon M. Dial*

15.1 Procedural Definition: What Is This Test About?	146
15.2 Procedural Purpose: Why Should I Perform This Test?	146
15.3 Equipment	147
15.4 Procedural Steps: How Do I Perform This Test?	147
15.5 Time Estimate to Perform Test	149
15.6 Procedural Tips and Troubleshooting	151
15.7 Interpreting Test Results	152
15.8 Clinical Case Example(s)	157
15.9 Add-On Tests That You May Need to Consider and Their Additive Value	157
15.10 Key Takeaways	157
Reference	157

Suggested Bench-Side References 158

## **Part 4 Quick Assessment Tests (QATS) Involving Feces 159**

### **16 Assessing the Physical Properties of Fecal Matter 161**

*Ryane E. Englar*

16.1 Procedural Definition: What Is This Test About?	161
16.2 Procedural Purpose: Why Should I Perform This Test?	161
16.3 Equipment	164
16.4 Procedural Steps	166
16.5 Time Estimate to Perform Test	166
16.6 Procedural Tips and Troubleshooting	166

16.7 Interpreting Test Results	172
16.8 Clinical Case Example(s)	183
16.9 Add-On Tests That You May Need to Consider and Their Additive Value	183
16.10 Key Takeaways	185
16.11 Clinical Pearls	186
References	187

## **17 Direct Smears 191**

*Ryane E. Englar*

17.1 Procedural Definition: What Is This Test About?	191
17.2 Procedural Purpose: Why Should I Perform This Test?	191
17.3 Equipment	194
17.4 Procedural Steps [1–5, 20, 30, 60–62]	194
17.5 Time Estimate to Perform Test	196
17.6 Procedural Tips and Troubleshooting	196
17.7 Interpreting Test Results	197
17.8 Clinical Case Example(s)	198
17.9 Add-On Tests That You May Need to Consider and Their Additive Value	201
17.10 Key Takeaways	203
17.11 Clinical Pearls	204
References	204

## **18 Fecal Flotation 207**

*Ryane E. Englar and Jeremy Bessett*

18.1 Procedural Definition: What is This Test About?	207
18.2 Procedural Purpose: Why Should I Perform This Test?	210
18.3 Options Available for Fecal Flotation	211
18.4 Equipment	213
18.6 Time Estimate to Perform Fecal Flotation with Fixed-Angle Centrifuge	216
18.7 Brief Consideration of the Procedural Steps in the Event a Swinging Bucket Centrifuge Is Used	217
18.8 Equipment	217
18.9 Procedural Steps	217
18.10 Time Estimate to Perform Passive Fecal Flotation	221



18.11	Procedural Tips and Troubleshooting for Fecal Flotation	221
18.12	Interpreting Test Results	221
18.13	Clinical Case Example(s)	227
18.14	Add-On Tests That You May Need to Consider and Their Additive Value	227
18.15	Key Takeaways	229
18.16	Clinical Pearls	229
	References	230

## **Part 5 Quick Assessment of Body Cavity Fluids 235**

### **19 Body Cavity Fluid Analysis 237**

*Sharon M. Dial*

19.1	Procedural Definition: What Is This Test About?	237
19.2	Procedural Purpose: Why Should I Perform This Test?	237
19.3	Equipment	238
19.4	Procedural Steps: How Do I Perform This Test?	238
19.5	Time Estimate to Perform Test	240
19.6	Procedural Tips and Troubleshooting	240
19.7	Interpreting Test Results	241
19.8	Clinical Case Example(s)	244
19.9	Add-On Tests That You May Need to Consider and Their Additive Value	244
19.10	Key Takeaways	245
	References	245

Suggested Bench-Side References 245

## **Part 6 Clinical Cases 247**

### **20 Clinical Cases 249**

*Jeremy Bessett, with support from Sharon M. Dial*

Case 1:	Fred	249
Case 2:	Bella	253
Case 3:	Benji	258
Case 4:	Mittens	266
Case 5:	Star	272
Case 6:	Earl	277

Case 7: Sammy 281

Case 8: Coffee 286

Case 9: Dexter 291

Case 10: Tabitha 297

Case 11: Ace 301

Case 12: Timothy 304

Case 13: Duckie 307

Case 14: Angel 311

Case 15: Chase 314

Index 321.