

# Implementing and Sustaining Improvement in Health Care

Edited by Lisa Schilling, R.N., M.P.H.  
Foreword by Mark Chassin, M.D., M.P.P., M.P.H.



Executive Editor: Steve Berman  
Senior Project Manager: Christine Wyllie, M.A.  
Associate Director, Production: Johanna Harris  
Associate Director, Editorial Development: Diane Bell  
Executive Director: Catherine Chopp Hinckley, Ph.D.  
Vice President, Learning: Charles Macfarlane, F.A.C.H.E.

#### Joint Commission Resources Mission

The mission of Joint Commission Resources (JCR) is to continuously improve the safety and quality of health care in the United States and in the international community through the provision of education, publications, consultation, and evaluation services.

Joint Commission Resources educational programs and publications support, but are separate from, the accreditation activities of The Joint Commission. Attendees at Joint Commission Resources educational programs and purchasers of Joint Commission Resources publications receive no special consideration or treatment in, or confidential information about, the accreditation process.

© 2009 Joint Commission on Accreditation of Healthcare Organizations

Joint Commission Resources, Inc. (JCR), a not-for-profit affiliate of The Joint Commission, has been designated by The Joint Commission to publish publications and multimedia products. JCR reproduces and distributes these materials under license from The Joint Commission.

All rights reserved. No part of this publication may be reproduced in any form or by any means without written permission from the publisher.

Printed in the U.S.A. 5 4 3 2 1

Requests for permission to make copies of any part of this work should be mailed to

Permissions Editor  
Department of Publications  
Joint Commission Resources  
One Renaissance Boulevard  
Oakbrook Terrace, Illinois 60181  
permissions@jcrinc.com

ISBN: 978-1-59940-187-4

Library of Congress Control Number: 2008932067

For more information about Joint Commission Resources, please visit <http://www.jcrinc.com>.

# Table of Contents

Contributors.....vii

Foreword .....ix

## Implementing CHAPTER 1 Sustaining

**Implementing and Sustaining Improvement at Kaiser Permanente.....1**

Lisa Schilling, R.N., M.P.H.; Esther B. Neuwirth, Ph.D.; Jim Bellows, Ph.D.; Melinda Skeath, R.N., C.N.S.; Kristene Cristobal, M.S.; Helen Lau, R.N.

### CHAPTER

## 2

**Closing the Loop: Follow-Up and Feedback in a Patient Safety Program .....17**

Tejal K. Gandhi, M.D., M.P.H.; Erin Graydon-Baker, M.S., R.R.T.; Camilla Nepl Huber; Anthony D. Whittemore, M.D.; Michael Gustafson, M.D., M.B.A.

**Closing the Loop to Sustain Improvements in Patient Safety .....24**

Erin Graydon Baker, M.S., R.R.T.; Tejal Gandhi, M.D., M.P.H.; Pilar Conde; Michael Gustafson, M.D., M.B.A.

### CHAPTER

## 3

**Building and Sustaining a Systemwide Culture of Safety .....31**

Gary R. Yates, M.D.; David L. Bernd; Shannon M. Sayles, R.N., M.A.; Carole A. Stockmeier; Gene Burke, M.D.; Gregory E. Merti, M.D., M.M.M.

**Sustaining a Systemwide Culture of Safety and Performance Excellence .....37**

Shannon M. Sayles, R.N., M.A.; Gary R. Yates, M.D.; David Bernd, M.H.A.; Gene Burke, M.D.; Vicky G. Gray, M.P.H.

### CHAPTER

## 4

**Evidence-Based Practice to Reduce Central Line Infections .....49**

Marta L. Render, M.D.; Suzanne Brungs, R.N.; Uma Kotagal, M.D.; Mary Nicholson, R.N.; Patricia Burns, R.N.; Deborah Ellis, R.N.; Marla Clifton, R.N.; Rosie Fardo, R.N.; Mark Scott, M.D.; Larry Hirschhorn, Ph.D.

**Sustaining Reduction of Central Line–Associated Bloodstream Infections.....56**

Marta L. Render, M.D.; Suzanne Brungs, M.S.N, R.N.; Uma Kotagal, M.D.; Rosie Fardo, R.N.; Mary Nicholson, R.N.; Deborah Ellis, R.N.; Patricia Burns, R.N.; Marla Clifton, R.N.; Larry Hirshhorn, Ph.D.

### CHAPTER

## 5

**Using HFMEA to Assess Potential for Patient Harm from Tubing Misconnections .....63**

Judy Kimchi-Woods, Ph.D., R.N., M.B.A.; John P. Shultz, M.D.

**Sustaining Improvement in Tubing Misconnections to Prevent Patient Harm.....71**

Judy Kimchi-Woods, Ph.D., R.N., M.B.A.

6

**A Model for Building a Standardized Handoff Protocol .....79**

Vineet Arora, M.D., M.A.; Julie Johnson, M.S.P.H., Ph.D.

**Spreading and Sustaining Use of Standardized Handoff Protocols for Residency Training .....88**

Vineet M. Arora, M.D., M.A.PP.; Julie K. Johnson, M.S.P.H., Ph.D.

7

**A Cooperative Approach to Standardizing Care for Patients with AMI or Heart Failure .....99**

Joan Fox, R.N., B.S.N.; Susan Hendrickson, R.N., C.P.H.Q., C.H.E.; Nancy Miller, R.N., B.S.N., M.A.; Colin Parry, R.N., B.S.N.; Darrell Youngman, D.O.

**Implementing and Sustaining Improvement in the Management of Acute Myocardial Infarction and Heart Failure .....104**

Susan Hendrickson, R.N., C.P.H.Q., C.H.E.; Joan Fox, R.N., B.S.N.; Colin Parry, R.N., B.S.N., M.A.

8

**Registration-Associated Patient Misidentification in an Academic Medical Center: Causes and Corrections .....111**

Mark J. Bittle, Dr.PH., M.B.A.; Patricia Charache, M.D.; Daniel M. Wassilchalk, M.H.S.A.

**Taking “AIM” at Lasting Change: Self-Sustaining Improvement in Patient Identification .....119**

Mark J. Bittle, Dr.PH, M.B.A.; Patricia Charache, M.D.

9

**Improving Pediatric Immunization Rates in a Safety-Net Delivery System .....127**

Paul Melinkovich, M.D.; Anne Hammer, B.S.N., R.N.; Amie Staudenmaier, M.Ed.; Michele Berg, M.B.A.

**Sustaining and Spreading Improvement of Immunization Rates .....132**

Paul Melinkovich, M.D.; Anne Hammer, B.S.N., R.N.; Alicia Appel, M.D.

10

**Reducing Perinatal HIV Transmission Among HIV-Infected Pregnant Women .....141**

Rita M. Soza-Vento, Ph.D.; Lakeesha Flowers, M.S.; Alelia E. Munroe, M.P.H.; Kathy Fritz, R.N., A.C.R.N.; Ana Rua-Dobles, R.N., A.C.R.N.; Carmel Munroe, M.A.; Bill Singer, M.S.W., Psy.D., L.C.S.W., C.A.P., C.C.F.C., C.A.R.T.

**Sustaining an Initiative to Reduce Perinatal HIV Transmission Among HIV-Infected Pregnant Women .....147**

Rita M. Soza-Vento, Ph.D.; Alelia E. Munroe, M.P.H.; Kathy Fritz, R.N., A.C.R.N.; Ana Rua-Dobles, R.N., A.C.R.N.; Carmel Munroe, Ph.D.

11

**Implementing a Ventilator Bundle in a Community Hospital .....157**

Paul Youngquist, M.D.; Michelle Carroll, M.S.; Michelle Farber, R.N., C.I.C.; Deborah Macy, R.N., B.S.N.; Pamela Madrid, R.N., M.S., C.C.R.N., C.C.N.S.; Jeanine Ronning, R.N., B.S.N.; Amy Susag, R.N., M.S., C.C.R.N., C.C.N.S.

**Sustaining and Spreading a Ventilator-Associated Pneumonia Initiative .....163**

Paul Youngquist, M.D.; Michelle Farber, R.N., C.I.C.; Pamela Madrid, R.N.; Penny Wheeler, M.D.; Tina L. Kalambokidis Werni, M.P.H.

# 12

**Preventing Falls and Eliminating Injury at Ascension Health .....171**

Ava D. Lancaster, R.N., B.S.N., M.H.S.A., C.I.C., C.P.H.R.M. ; Annette Ayers, R.N., B.S.N., M.H.A.; Brenda Belbot, R.N., B.S.N.; Virginia Goldner, R.N., B.S.N., M.A.O.M., C.N.A.; Linda Kress, R.N., B.S.N.; Donna Stanton, R.N., B.S.N.; Polly Jones, L.C.S.W., C.P.H.Q.; Lora Sparkman, R.N., B.S.N.

**Spreading and Sustaining Improvement in Falls Prevention and Fall-Injury Reduction at Ascension Health .....179**

Ava D. Lancaster, R.N., B.S.N.; Brenda Belbot, R.N., B.S.N.; Virginia Goldner, R.N., B.S.N., M.A.O.M., C.N.A.; Linda Kress, R.N., B.S.N.; Donna Stanton, R.N., B.S.N.; Richard Cardente, R.N., B.S.N., M.B.A.; Ruth Eaker, M.B.A.; Angela Janik, R.N., M.S.N., M.B.A.; Trudy C. Barthels, M.A..

# 13

**Medication Reconciliation in Ambulatory Oncology .....187**

Saul N. Weingart, M.D., Ph.D.; Angela Cleary, R.N., M.S.; Andrew Seger, Pharm.D.; Terry K. Eng, R.N., M.S.; Mark Saadeh, M.D.; Anne Gross, R.N., M.S.; Lawrence N. Shulman, M.D.

**Spreading and Sustaining Medication Reconciliation in Ambulatory Oncology .....195**

Brett Simchowitz; Harper Padolsky; Angela Cleary, R.N., M.S.; Saul N. Weingart, M.D., Ph.D.

# 14

**Using Patient Traffic Control to Reduce Treatment Delays for High-Risk Patients at a VA Hospital .....203**

Brian P. Schmitt, M.D., M.P.H.; Lynn Hoffstadter, M.T. (A.S.C.P), S.B.B., D.L.M.; Sandra Greider, R.N., B.S.N., M.S.A.; Kitty Thomas, R.N., B.S.N.; Estrella Calubaquib, R.N., B.S.N.; Edna Montgomery, R.N., B.S.N.; Gail Robinson, R.N., B.S.N.; Bruce Guay, M.D.; Nirmala Bhoopalam, M.D.; Barbara Temeck, M.D.

**Sustainability and Generalizability of Patient Traffic Control to Time-Sensitive Performance Problems.....210**

Brian P. Schmitt, M.D., M.P.H.; Lynn Hoffstadter, M.T. (A.S.C.P), S.B.B., D.L.M.; Sandra Greider, R.N., B.S.N., M.S.A.; Colleen Novak, M.T. (A.S.C.P); Barbara Temeck, M.D.

# 15

**Sustaining Improvement: What Does It Take? .....219**

Lisa Schilling, R.N., M.P.H.

**Index .....227**

# Contributors

## CHAPTER

### 1

#### Implementing and Sustaining Improvement at Kaiser Permanente

**Lisa Schilling, R.N., M.P.H.**, is Vice President, Performance Improvement and Execution Strategy, Department of Care and Service Quality, Kaiser Permanente, Oakland, California; and a member of *The Joint Commission Journal on Quality and Patient Safety's* Editorial Advisory Board. **Esther B. Neuwirth, Ph.D.**, is Principal Consultant and **Jim Bellows, Ph.D.**, is Director, Center for Evaluation & Innovation, Care Management Institute, Kaiser Permanente. **Melinda Skeath, R.N., C.N.S.**, is Regional Administrator for Quality, Northern California; and **Kristene Cristobal, M.S.**, is a Senior Manager, National Performance Improvement, Department of Care and Service Quality. **Helen Lau, R.N.**, is Program Leader, Department Care, Service and Quality, Kaiser Foundation Health Plan, Inc., Oakland.

## CHAPTER

### 2

#### Closing the Loop to Sustain Improvements in Patient Safety

**Erin Graydon-Baker, M.S., R.R.T.**, is Patient Safety Manager, Brigham and Women's Hospital, Boston; **Tejal Gandhi, M.D., M.P.H.**, is Executive Director, Patient Safety and Quality; **Michael Gustafson, M.D., M.B.A.**, is Executive Director, Center for Clinical Excellence; and **Pilar Condé** is Patient Safety Data Analyst.

## CHAPTER

### 3

#### Sustaining a Systemwide Culture of Safety and Performance Excellence

**Shannon M. Sayles, R.N., M.A.**, is Director of the Sentara Safety Initiative, Sentara Healthcare, Norfolk, Virginia; **Gary R. Yates, M.D.**, is Chief Medical Officer; and **David Bernd, M.D.**, is Chief Executive Officer, Sentara Healthcare.

## CHAPTER

### 4

#### Sustaining Reduction of Central Line-Associated Blood Stream Infections

**Marta L. Render, M.D.**, is Chief, Veterans Affairs (VA) Inpatient Evaluation Center (IPEC), VA Medical Center, Cincinnati; and Project Leader for the Greater Cincinnati Health Council Collaborative for Patient Safety. **Suzanne Brungs, M.S.N, R.N.**, is Project Coordinator, IPEC, VA Medical Center, Cincinnati. **Uma Kotagal, M.D.**, is Vice President for Quality and Transformation, Cincinnati Children's Hospital Medical Center, Cincinnati. **Rosie Fardo, R.N.**, is Infection Control Specialist and Safety Officer, Mercy Mount Airy Hospital, Cincinnati. **Mary Nicholson, R.N.**, is an Infection Control Practitioner, Christ Hospital, Cincinnati. **Deborah Ellis, R.N.**, is an Infection Control Practitioner, St. Elizabeth Medical Center, Edgewood, Kentucky. **Patricia Burns, R.N.**, is an Infection Control Practitioner, St. Elizabeth Medical Center, Edgewood, Kentucky. **Marla Clifton, R.N.**, is an Infection Control Practitioner, The Jewish Hospital, Cincinnati. **Larry Hirshhorn, Ph.D.**, is a Principal, the Center for Applied Research, Philadelphia.

## CHAPTER

### 5

#### Sustaining Improvement in Tubing Misconnections to Prevent Patient Harm

**Judy Kimchi-Woods, Ph.D., R.N., M.B.A.**, is Quality Improvement Coordinator, Columbus Children's Hospital, Columbus, Ohio.

## CHAPTER

### 6

#### Spreading and Sustaining Use of Standardized Handoff Protocols for Residency Training

**Vineet M. Arora, M.D., M.A., P.P.**, is Assistant Professor, Department of Medicine, University of Chicago, Chicago; and **Julie K. Johnson, M.S.P.H., Ph.D.**, is Assistant Professor, Department of Medicine; and Director of Research, American Board of Medical Specialties, Evanston, Illinois.

## Implementing and Sustaining Improvement in the Management of Acute Myocardial Infarction and Heart Failure

**Susan Hendrickson, R.N., C.P.H.Q., C.H.E.**, is Director of Quality and Risk Management, Via Christi Regional Medical Center, Wichita, Kansas; and **Joan Fox, R.N., B.S.N.**, is Clinical Practice Improvement Coordinator. **Colin Parry, R.N., B.S.N.**, is Director of Quality and Infection Control, Wesley Medical Center, Wichita.

## Taking “AIM” at Lasting Change: Self-Sustaining Improvement in Patient Identification

**Mark J. Bittle, Dr.PH, M.B.A.**, formerly Senior Director, Ambulatory Operations Director, Ambulatory Quality and Patient Safety, Johns Hopkins Health System, Baltimore; is Vice President, Ambulatory Services, Johns Hopkins Medicine. **Patricia Charache, M.D.**, is Professor, Pathology, Medicine, and Oncology, Johns Hopkins University School of Medicine; and Director, Quality Assurance and Outcomes Assessment, Johns Hopkins Hospital.

## Sustaining and Spreading Improvement of Immunization Rates

**Paul Melinkovich, M.D.**, is Director of Community Health Services, Denver Health and Hospital Authority, Denver; and **Anne Hammer, B.S.N., R.N.**, is Nurse Manager, Immunization Program. **Alicia Appel, M.D.**, is Assistant Professor of Medicine, University of Colorado School of Medicine, Denver; and Attending Physician, Westside Health Center, Denver Health and Hospital Authority.

## Sustaining an Initiative to Reduce Perinatal HIV Transmission Among HIV-Infected Pregnant Women

**Rita M. Soza-Vento, Ph.D.**, formerly Lead Program Evaluator, is Manager, Evaluation and Research Department, Howard Phillips Center for Children & Families (HPC), Orlando Regional Healthcare, Orlando, Florida. **Alelia E. Munroe, M.P.H.**, is Manager; and **Kathy Fritz, R.N., A.C.R.N.**, is Assistant Manager, Help Understand and Guide Me (HUG-Me), HPC. **Ana Rua-Dobles, R.N., A.C.R.N.**, is Program Coordinator; and **Carmel Munroe, Ph.D.**, is Director, HPC.

## Sustaining and Spreading a Ventilator-Associated Pneumonia Initiative

**Paul Youngquist, M.D.**, is Medical Director, Intensive Care Unit, Mercy Hospital, Coon Rapids, Minnesota. **Michelle Farber, R.N., C.I.C.**, is Infection Control Specialist; and **Pam Madrid, R.N.**, is Critical Care Nurse Specialist, Mercy Hospital. **Penny Wheeler, M.D.**, is Chief Clinical Officer, Allina Hospitals & Clinics, Minneapolis; and **Tina L. Kalambokidis Werni, M.P.H.**, is Performance Measurement and Analysis Manager.

## Spreading and Sustaining Improvement in Fall Prevention and Fall-Injury Reduction at Ascension Health

**Ava D. Lancaster, R.N., B.S.N.**, formerly Patient Safety Officer, Saint Thomas Hospital, Nashville, Tennessee, is Vice President, Quality, Risk and Patient Safety, Sacred Heart Health System, Pensacola, Florida. **Brenda Belbot, R.N., B.S.N.**, is Clinical Practice Manager, St. John Hospital & Medical Center, Detroit. **Virginia Goldner, R.N., B.S.N., M.A.O.M., C.N.A.**, is Director of Med/Surg/IV Therapy/Diabetes Care & Community Outreach, Carondelet St. Joseph's Hospital, Tucson; and **Linda Kress, R.N., B.S.N.**, is a Quality Associate. **Donna Stanton, R.N., B.S.N.**, is Director of Nursing Administration, Providence Health Center, Waco, Texas. **Richard Cardente, R.N., B.S.N., M.B.A.**, is Assistant Director, Ortho-Neuro Services, Saint Thomas Hospital. **Ruth Eaker, M.B.A.**, is Senior Clinical Data Analyst; and **Angela Janik, R.N., M.S.N., M.B.A.**, is Senior Director, Ascension Health Clinical Excellence, St. Louis. **Trudy C. Barthels, M.A.**, is Director, Communications, Ascension Health.

## Spreading and Sustaining Medication Reconciliation in Ambulatory Oncology

**Saul N. Weingart, M.D., Ph.D.**, is Vice President for Patient Safety and Director, Center for Patient Safety, Dana-Farber Cancer Institute, Boston; and chair of *The Joint Commission Journal on Quality and Patient Safety's* Editorial Advisory Board. **Angela Cleary, R.N., M.S.**, is Program Manager, Center for Patient Safety, Dana-Farber Cancer Institute; **Brett Simchowitz** is Clinical Research Coordinator; and **Harper Padolsky** is Research Scholar.

## Sustainability and Generalizability of Patient Traffic Control to Time-Sensitive Performance Problems

---

**Brian P. Schmitt, M.D., M.P.H.**, is Manager, Medicine Service Line, Hines Department of Veterans Affairs (VA) Hospital, Hines, Illinois; and Professor, Department of Medicine, Loyola University Medical Center, Maywood, Illinois. **Lynn Hoffstadter, M.T. (A.S.C.P.), S.B.B., D.L.M.**, is Performance Improvement Manager, Office of the Director, Hines VA Hospital; **Sandra Greider, R.N., B.S.N., M.S.A.**, is Acting Deputy Chief of Nursing, Nursing Service; **Colleen Novak, M.T. (A.S.C.P.)**, is Performance Improvement Health Specialist; and **Barbara Temeck, M.D.**, is Chief of Staff.

## Sustaining Improvement: What Does It Take?

---

**Lisa Schilling, R.N., M.P.H.**, is Vice President, Performance Improvement and Execution Strategy, Department of Care and Service Quality, Kaiser Permanente, Oakland, California; and a member of *The Joint Commission Journal on Quality and Patient Safety's* Editorial Advisory Board.



In the last several years, as shortfalls in health care quality and safety have been increasingly acknowledged, many organizations have devoted considerable time, effort, and resources to improvement. Many accomplishments have followed in the wake of this activity. Some hard lessons have also been learned; among these, as the old adage goes, “do not confuse effort with results” in attempting to successfully improve quality. Good initial results are not sufficient, either. Success depends on the ability to maintain the gains made from the effort and to sustain the improvement. This is often more difficult to accomplish than achieving improvement in the first place.

When improved performance is unable to be sustained, the costs are high. Performance reverts to pre-improvement levels, staff enthusiasm for future efforts is deflated, and the original effort and results cannot easily be recaptured. Therefore, sustainability must be built into the improvement plan from the beginning.

By examining our collective experiences in addressing quality and safety problems, the art and science of quality improvement are able to evolve. Experience with effective, durable quality improvement demonstrates that several key attributes appear to be central to sustainability. From the very beginning of their efforts, improvement teams must consider how their improved processes will be embedded into the routine work of their organizations. Waiting until the end of the project to undertake these tasks is usually too late. Sustaining improvement depends also on the early, enthusiastic engagement of the individuals who will be responsible and accountable for managing the improved process. Finally, it is essential to establish a planned schedule for measuring and monitoring how well the improved process is working, assessing whether it continues to produce its initial results, and enacting corrective actions if the results fall short.

This book provides case studies of health care organizations' implementation of improvement and subsequent experience in sustaining the improvement. Chapters 2–14 each consists of an original article on implementation from *The Joint Commission Journal on Quality and Patient Safety* and a follow-up report on sustainability especially prepared for this book. These case studies offer similar lessons and more. They reflect many of the principles of effective quality improvement that we have come to recognize: collect data and provide feedback, set expectations and delineate accountability, monitor results and be willing to adapt as necessary, and of course, ensure that leaders acculturate the values of quality improvement and commit necessary resources. The case studies also raise other considerations for implementing and sustaining quality improvement, such as compatibility with the practices of high-reliability organizations and the integration of forcing functions, which are just beginning to be understood and widely applied in health care.

This book showcases successes, challenges, and disappointments. From all these experiences there is much to be learned as we, collectively, strive to make the delivery of health care enduringly better.

Mark R. Chassin, M.D., M.P.P., M.P.H.  
President  
The Joint Commission