

Cambridge Elements

Elements of Improving Quality and Safety in Healthcare
edited by

Mary Dixon-Woods,* Katrina Brown,* Sonja Marjanovic,†
Tom Ling,† Ellen Perry,* Graham Martin,* Gemma Petley,* and
Claire Dipple*

**THIS Institute (The Healthcare Improvement Studies Institute)*

†RAND Europe

MEASUREMENT FOR IMPROVEMENT

Alene Toulany^{1,2} and Kaveh G. Shojania^{2,3}

¹ *The Hospital for Sick Children (SickKids), Toronto,
Ontario, Canada*

² *Faculty of Medicine, University of Toronto, Canada*

³ *Sunnybrook Health Sciences Centre, Toronto,
Ontario, Canada*

THIS.Institute

The Healthcare
Improvement
Studies Institute



CAMBRIDGE
UNIVERSITY PRESS

Cambridge University Press & Assessment
 978-1-009-32605-6 — Measurement for Improvement
 Alene Toulany, Kaveh G. Shojania
 Frontmatter
[More Information](#)



CAMBRIDGE
UNIVERSITY PRESS

Shaftesbury Road, Cambridge CB2 8EA, United Kingdom

One Liberty Plaza, 20th Floor, New York, NY 10006, USA

477 Williamstown Road, Port Melbourne, VIC 3207, Australia

314–321, 3rd Floor, Plot 3, Splendor Forum, Jasola District Centre,
New Delhi – 110025, India

103 Penang Road, #05–06/07, Visioncrest Commercial, Singapore 238467

Cambridge University Press is part of Cambridge University Press & Assessment,
a department of the University of Cambridge.

We share the University's mission to contribute to society through the pursuit of
education, learning and research at the highest international levels of excellence.

www.cambridge.org

Information on this title: www.cambridge.org/9781009326056

DOI: 10.1017/9781009326063

© THIS Institute 2025

This publication is in copyright. Subject to statutory exception and to the provisions of relevant collective licensing agreements, with the exception of the Creative Commons version the link for which is provided below, no reproduction of any part may take place without the written permission of Cambridge University Press & Assessment.

An online version of this work is published at doi.org/10.1017/9781009326063 under a Creative Commons Open Access license CC-BY-NC-ND 4.0 which permits re-use, distribution and reproduction in any medium for non-commercial purposes providing appropriate credit to the original work is given. You may not distribute derivative works without permission. To view a copy of this license, visit <https://creativecommons.org/licenses/by-nc-nd/4.0>

When citing this work, please include a reference to the DOI 10.1017/9781009326063

First published 2025

A catalogue record for this publication is available from the British Library

ISBN 978-1-009-32605-6 Paperback

ISSN 2754-2912 (online)

ISSN 2754-2904 (print)

Cambridge University Press & Assessment has no responsibility for the persistence or accuracy of URLs for external or third-party internet websites referred to in this publication and does not guarantee that any content on such websites is, or will remain, accurate or appropriate.

Every effort has been made in preparing this Element to provide accurate and up-to-date information that is in accord with accepted standards and practice at the time of publication. Although case histories are drawn from actual cases, every effort has been made to disguise the identities of the individuals involved. Nevertheless, the authors, editors, and publishers can make no warranties that the information contained herein is totally free from error, not least because clinical standards are constantly changing through research and regulation. The authors, editors, and publishers therefore disclaim all liability for direct or consequential damages resulting from the use of material contained in this Element. Readers are strongly advised to pay careful attention to information provided by the manufacturer of any drugs or equipment that they plan to use.

Measurement for Improvement

Elements of Improving Quality and Safety in Healthcare

DOI: 10.1017/9781009326063
First published online: January 2025

Alene Toulany^{1,2} and Kaveh G. Shojania^{2,3}

¹ *The Hospital for Sick Children (SickKids), Toronto, Ontario, Canada*

² *Faculty of Medicine, University of Toronto, Canada*

³ *Sunnybrook Health Sciences Centre, Toronto, Ontario, Canada*

Author for correspondence: Kaveh G. Shojania,
kaveh.shojania@sunnybrook.ca

Abstract: The main principles underpinning measurement for healthcare improvement are outlined in this Element. Although there is no single formula for achieving optimal measurement to support improvement, a fundamental principle is the importance of using multiple measures and approaches to gathering data. Using a single measure falls short in capturing the multifaceted aspects of care across diverse patient populations, as well as all the intended and unintended consequences of improvement interventions within various quality domains. Even within a single domain, improvement efforts can succeed in several ways and go wrong in others. Therefore, a family of measures is usually necessary. Clearly communicating a plausible theory outlining how an intervention will lead to desired outcomes informs decisions about the scope and types of measurement used. Improvement teams must tread carefully to avoid imposing undue burdens on patients, clinicians, or organisations. This title is also available as Open Access on Cambridge Core.

Keywords: measurement, family of measures, bias, stakeholder engagement, validity

© THIS Institute 2025

ISBNs: 9781009326056 (PB), 9781009326063 (OC)

ISSNs: 2754-2912 (online), 2754-2904 (print)

Contents

1	Introduction	1
2	Measuring Healthcare Quality	1
3	Measurement Approaches in Action	8
4	Validity Considerations in Measurement	20
5	Concepts and Problems Unique to Measurement for Healthcare Improvement	30
6	Conclusion	37
7	Further Reading	38
	Contributors	39
	References	41