Los Angeles County
Maternal Care Quality Improvement Project
Implementation Guide

CMQCC
CALIFORNIA MATERNAL QUALITY CARE COLLABORATIVE

CDPH
California Department of PublicHealth

MATERNAL, CHILD ADOLESCENT HEALTH
CA Dept of Public Health

COUNTY OF LOS ANGELES
Public Health

Los Angeles County Maternal Care Quality Improvement Project Implementation Guide

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Executive Summary

How soon, my Dear, death may my steps attend
How soon't may be thy lot to lose thy friend

"Before the Birth of One of Her Children"(excerpt)
Anne Bradstreet[1]

For decades, maternal mortality has been used as an indicator for the health of a population. The reflection of the healthcare of a nation can be judged from what happens in the beginning of life and all too often for some women, childbirth is sometimes the marker for the end of life.

Efforts to improve maternal mortality have historically focused on access to early prenatal care. The childbirth process is a reflection of the culmination of that healthcare provided. But healthcare alone is not sufficient in preventing maternal death. Childbirth outcomes are indeed influenced by the prenatal care women receive, but prenatal care alone although necessary, is not sufficient in and of itself to ensure healthy perinatal outcomes. Concerted efforts from providers, hospitals and patients are necessary to address contributors to maternal mortality and morbidity. Often times, the convener for multi-stakeholder coordinated efforts is missing. The Los Angeles County Department of Public Health (LAC DPH); Maternal, Child, and Adolescent Health (MCAH) Program's care quality improvement collaborative focusing on preventing obstetric hemorrhage demonstrates the critical role public health department can play.

The purpose of this Implementation Guide is to provide public health departments with a step-by-step guide to implement a quality care improvement collaborative within their jurisdiction to specifically decrease obstetric hemorrhage. Obstetric hemorrhage, one of the most common causes of maternal death worldwide, is a preventable cause of maternal mortality.

Eleven hospitals responsible for over 32,000 annual deliveries participated in the LAC quality collaborative. Their experiences guided and informed the development of this Implementation Guide. Participating hospitals' annual birth volume (number of deliveries) varied from 594 to 5,253. This Guide includes recommendations on hospital and key stakeholder recruitment and retention in the collaborative. It addresses the development of an administrative hospital and public health infrastructure. Also included are detailed recommendations and examples for maintaining communication among stakeholders, using resources such as email, listservs, Internet communication groups, and electronic surveys, all instrumental in maintaining involvement. The Guide provides examples of education strategies targeting hospitals and providers, such as webinars and electronic updates, as well as strategies focused on patient education. It includes suggested data outcome variables, data collection methods, analysis and reporting strategies. Finally, this Implementation Guide concludes with suggestions on how public health departments can prepare hospitals to sustain obstetric hemorrhage quality improvement initiatives after the collaborative.

Preliminary results from the Los Angeles County quality improvement initiative, undertaken from July 2010 through June 2011, found that hospitals reduced the use of packed red blood cells 4.2 units per 1,000 births and all blood products by 8.3 units per 1,000 births during the first

year. Los Angeles County MCAH has demonstrated that public health departments throughout California can be the impetus and lead in improving the collaboration and quality of care for maternal and child health by focusing on hospital-based care. Thank you for being the lead in your public health department to do the same.

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Introduction to the Implementation Guide

The California Pregnancy-Associated Mortality Review, the first statewide examination of its kind, found that over one-third of pregnancy-related deaths in 2002 and 2003 had a good to strong chance of being prevented. Health care provider factors played a part in 97 percent of these deaths and facility factors in 75 percent. Obstetric hemorrhage was among the five leading causes of death. The review committee determined that 70 percent of hemorrhage deaths had a good to strong potential for being averted.[2]

Quality improvement in maternity care saves lives and reduces complications. The California Maternal Quality Care Collaborative (CMQCC) has led a statewide initiative to address obstetric hemorrhage prevention, recognition, and response. Los Angeles County Department of Public Health (LAC DPH) MCAH has been the pilot to implement these obstetric hemorrhage prevention strategies on a local level.

The Healthy People 2010 recommendations for maternal mortality indicate a benchmark of no more than 3.3 maternal deaths per 100,000 live births. Los Angeles County averaged just over 150,000 births in 68 hospitals during 2001 to 2003. In this same time period, the maternal mortality rate was 14.5 deaths per 100,000 live births. African American rates in Los Angeles County for that same time period are 30 deaths per 100,000 live births, twice the rate for all other racial/ethnic groups. Analysis of the leading causes of maternal mortality in Los Angeles County revealed that 75% of deaths are preventable, with obstetric hemorrhage being the most preventable cause of death.

Often times a convener for quality implementation improvements is missing. With financial assistance from the California Department of Public Health and technical assistance from CMQCC, including its statewide toolkit on "Improving Health Care Response to Obstetric Hemorrhage"[3], from 2008 to 2011, LAC DPH MCAH leveraged its relationships with the MCAH community to mentor and lead a quality care improvement initiative on obstetric hemorrhage among eleven hospitals in the county, impacting over 32,000 births.

This handbook reflects lessons learned, best practices and recommendations for other public health departments to replicate and improve the obstetric hemorrhage collaborative that has been very successful in decreasing maternal morbidity and improving relationships among MCAH stakeholders in Los Angeles County.

Recruitment and Retention of Partner Hospitals

Organize the Collaborative

- Identify Hospitals
  Decide whether to recruit all hospitals in a catchment area or focus on hospitals that fit desired criteria. Desired hospitals might include those with high delivery volumes, high proportion of African-American patients and/or Medi-Cal clients. Write a letter of invitation to participate. The letter should include the background on the collaborative topic as well as hospital requirements for participation. Each invitee should receive a recruitment packet with an invitation, information about the project, and enrollment forms (a sample recruitment packet is shown in Appendix A).

- Allow sufficient time to organize and finalize collaborative membership
  Lessons learned: Holidays and summer vacations may delay recruitment if the decision-makers are unavailable. Use multiple contact strategies to ensure your invitation reaches the decision maker: postage mail, email, telephone. Send materials to decision-makers and individuals who could motivate colleagues to join. The regional perinatal program may be able to provide contact information.

How LAC DPH Organized a Collaborative

LAC DPH sent letters of invitation via postage mail and electronically to 80 individuals at about 50 hospitals. The department contacted chiefs of obstetrics and gynecology departments; the chief executive officer of a health care system; a director of maternal and fetal medicine; a professor of obstetrics and gynecology affiliated with the selected hospital; and nurse managers. Hospitals with available contact numbers were also called. It took about one month to finalize the Los Angeles County collaborative.

Two Months (or as soon as possible) before Starting the Project

- Have each hospital team complete a baseline survey of hemorrhage policies and practice before data collection for the project begins
- Assemble basic information on each hospital to use during the orientation meeting (screen shot of web site, number of beds, number of annual births, and city or area served)
- Poll teams on their availability for monthly meetings once they have committed to join the collaborative.

How LAC DPH Introduced Participating Hospitals to the Project

LAC DPH hosted a half-day meeting to acquaint collaborative members with each other and project staff from DPH and CMQCC

- The information slide on each hospital was shown while the speaker for the team shared the reasons for joining the collaborative and what the team expected to accomplish during the project
- Presentations included aggregate results of the baseline survey; data on maternal mortality; maternal mortality and obstetric hemorrhage; how quality improvement can reduce obstetric hemorrhage; an overview of the project; quality measures; and the project timeline

- Discussed shared expectations and commitment needed from participating hospitals
- Discussed shared resources and support that DPH and CMQCC would provide to hospitals
- Reviewed benefits to hospitals resulting from participation (i.e., decreased morbidity/mortality, improved quality of care, improved Joint Commission compliance).

How Public Health Departments can Keep Hospitals Involved in the Collaborative

- Be available for collaborative members via phone and email
- Provide understanding and support through challenges
- Respond to requests directly or link the collaborative member to someone who can help. Verify whether the problem was solved or if more assistance is needed.
- Ask for opinions and recommendations, and respond to those requests
- Praise accomplishments
- Obtain evaluation feedback-- this can be as simple as one quick question asked in the subject line of an email or a short survey monkey questionnaire
- Send periodic electronic newsletters to reinforce information and recommendations

Administrative Structure and Processes

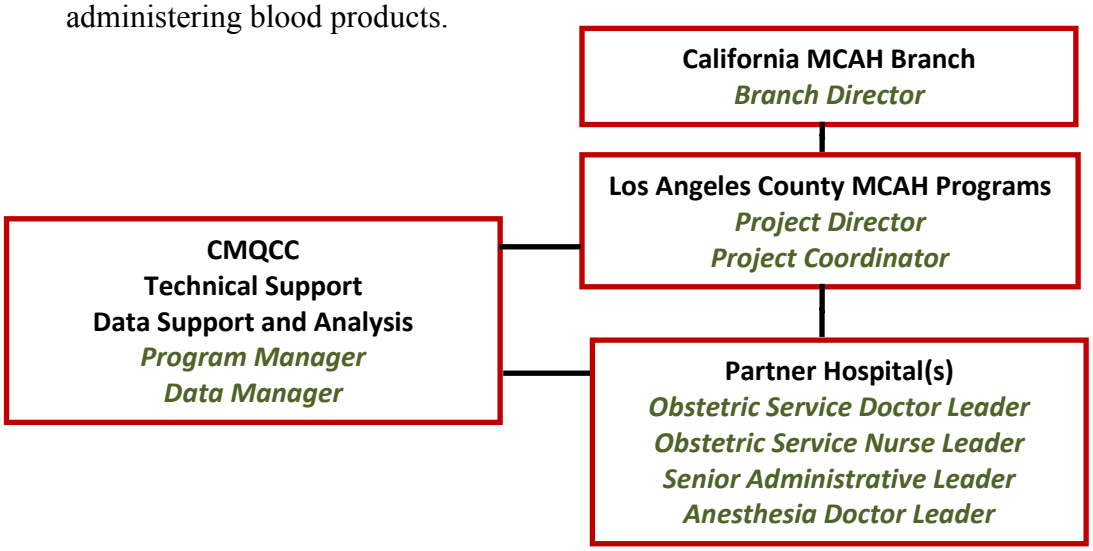
California MCAH Branch
Administered and funded the Local Assistance for Maternal Health Project

Local Department of Public Health
The Department of Public Health convened the collaborative, developed webinars and resources, provided support to member hospitals, and prepared reports to the State MCAH Branch.

California Maternal Quality Care Collaborative (CMQCC)
CMQCC provided technical assistance in the organization and content of the collaborative and during webinars. Provided ongoing data entry tracking and technical support around data entry and data collection to hospitals, and analyzed data and prepared data reports for presentations to the collaborative and reports to the MCAH Branch.

Hospital Teams
Hospitals identified their team leaders, including at least one physician champion, to engage colleagues and lead the project at the facility. Teams implemented the project strategies to reduce morbidity and mortality rates related to obstetric hemorrhage.
Team members:

- Obstetric Service Doctor Leader (e.g., Physician Chief)
  - Physician who participates in the collaborative and the implementation of collaborative quality improvement in obstetrics at their facility
- Obstetric Service Nurse Leader (e.g., Nurse Manager, Nurse Practitioner, Clinical Nurse Specialist)
  - Participates in the collaborative and the implementation of collaborative quality improvement at their facility
- Senior Administrative Leader (e.g., CEO, COO)
  - Participates in collaborative meetings, reviews reports, provides resources, and champions the project at their facility
- Anesthesia Physician Leader
  - Optional, but highly recommended because of their role managing patients and administering blood products.



Collaborative Meetings

- Meet once a month for updates and education. These meetings can be in person, by conference call, or webinar
- Set meeting schedule by the beginning of the project to increase participation. Poll teams on their availability for meetings once they have committed to join the collaborative. Finalize dates and include the schedule in the project orientation packet.

Advice Departments of Public Health can give to Partner Hospitals on Involving Physicians and Staff

- Securing physician "buy-in" from the ***beginning*** of the project is essential to gaining participation. The hospital team should recruit a physician champion or other clinical staff to promote the project to colleagues and staff. Ideally champions are in leadership positions, such as a department chair.
- Show that obstetric hemorrhage is a big issue to prominent staff (e.g., chiefs of labor and delivery or anesthesiology, academic clinicians on staff)
    - Have a physician champion to promote the project
    - Promote the physician champion on posters and presentations. Mention the project and the physician champion at meetings and educational programs when appropriate.
    - Display pictures of prominent staff participating in drills and other collaborative activities
- Publicize how many physicians and nurses attend skills labs
- Make project events enjoyable
    - Staff at one hospital enjoyed playing obstetric hemorrhage jeopardy
    - Give participants inexpensive incentives such as coffee cards and gift certificates
- Get on the agenda
    - Make obstetric hemorrhage a permanent item on regular departmental meetings
    - Attend meetings of participating departments, such as anesthesiology and pharmacy
    - Meet individually with administrators and physician leaders. Share data and show how quality improvement changes can reduce hemorrhage deaths, complications, and associated costs
- Build drills and post-hemorrhage debriefings into everyday practice
    - Integrate into the established education structure
    - Require participation in drills as departmental policy

Rapid-Cycle Change Approach to Quality Improvement
MAP IT: Mobilize Groups, Assess Data, Plan Standards & Changes, Implement Changes, Track Progress

Mobilize the Hospital Team

- Recruit team members, identify roles and responsibilities
- Identify a physician champion

Assess Current Practice

- Complete baseline survey to assess pre-project hemorrhage policies and practice

Plan Strategies for Change

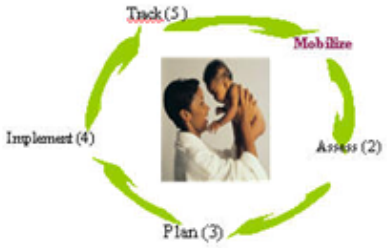
- Set goals
- Decide strategies to implement
- Identify measures of success

Implement Strategies

- Get buy-in from staff. Host an orientation meeting to present on obstetric hemorrhage, quality improvement, baseline survey results, and the project
- Put strategies into practice (educational talks, skills labs, poster sessions; weighing; drills and debriefings; etc.)
- Schedule activities and deadlines

Track Progress

- Collect and analyze data
- Share trends with staff and administration



Adapted from Office of Disease Prevention and Health Promotion; U.S. Department of Health and Human Services. (2010). MAP-IT: A Guide to Using Healthy People 2020 in Your Community. Available at www.healthypeople.gov/2020/implementing/default.aspx

Communication

Good communication informs and builds relationships between collaborative members. This section outlines several strategies to facilitate communication and provide easily accessible resources that accommodates the 24/7 hospital employee schedule.

Online Community Group with Email and File Sharing Supported by an Internet Information Provider

Online community services from commercial providers (e.g., Yahoo!) have the advantage of being free and allowing document access and message retrieval from any computer. Members can view and print materials from the site or download them onto their computer or USB flash drive. Choose a site that provides secure document sharing and a listserv. Secure in this sense means accessible only to authorized individuals, not encrypted. Peer-to-peer sites and sites where members can synchronize with their computer are document sharing sites that are *not* secure. Document sharing sites can store files that are too large to send as email attachments or that some filters block as inappropriate.

How LAC DPH Developed an Online Community Group

Public Health project staff wanted to provide no-cost, combined automated email and document sharing services for the collaborative. The coordinator established a GoogleGroups group at the beginning of the project. The group was not registered in the web directory to prevent nonmembers from accidentally locating the site. To simplify member access, the project coordinator entered members (email addresses and names) directly into the group. Members had to establish a personal Google account to sign in. The group had about 60 members.

The GoogleGroup site stored all project administrative documents, resources, and posted messages. Resources posted included presentations from the orientation meeting; the membership roster; project calendar with meetings and deliverables marked; journal articles; the ACOG practice bulletin on obstetric hemorrhage; sample protocols and forms; drills and grand rounds presentations; monthly webinars; archived newsletters; and links to videos, pod casts, blogs, and YouTube videos. The coordinator monitored messages and uploaded materials. All members could post to the listserv.

Challenges to Maintaining an Online Community

A disadvantage to free services is the potential for unanticipated changes. A few months into the project, Google announced that it would discontinue its files and pages features, and recommended transferring files to other services, such as GoogleDocs. Several LAC collaborative members had difficulty learning to set up their Google account and logging into the site. The coordinator reasoned that members, especially those who were new to online sharing, would not want to log into separate document and automated email sites. The replacement service also had to be free because LAC DPH was piloting an approach to communicating within the collaborative that other public health departments could replicate. Other public health departments may not have funding to support an online community group for their collaborative.

The coordinator identified a replacement service, but the process was lengthy because most groups reviewed lacked sufficient security, provided only one service, or charged a fee. Yahoo!

offered combined automated email and secure file sharing at no cost. The coordinator transferred all GoogleGroup documents to Yahoo! and entered members into the group. Members had to establish a personal Yahoo! account to sign in. The coordinator tracked members to ensure that all transferred to the new site. Appendix C shows the Yahoo! group home and files pages.

Most Used Features
Public Health staff surveyed Los Angeles County collaborative members on their use of the online group. They reported using the automated email; administrative materials; sample protocols and policies; and the patient education brochure. The Department of Public Health hosted monthly webinars and provided supplemental resources (page 19). Members went online to access webinar slides and recordings. The supplemental materials – journal articles, slide sets from conference presentations, and video links – were among the most accessed materials. One team leader regularly forwarded materials and links to the team's physician champion.

Team USB Flash Drives
Team members need an email account and access to a computer to use the online group. Those unable to participate can retrieve materials loaded onto a USB flash drive. The project coordinator can provide one or two USB flash drives loaded with orientation materials, administrative documents, and resources from the online site to the team contacts. Contacts are responsible for lending and updating USB flash drives as new materials are posted online. Facilities should check with their IT Department to determine if USB flash drives are allowed.

Electronic Newsletters
Electronic newsletters are useful for sending short announcements or updates via listserv or email. Use a one page letter to notify members of events and provide opportunities for them to share their accomplishments and announcements related to project activities. Suggested headings:

- Accomplishments (abstracts submitted, presentations, skills labs held, etc.)
- Updates (work in progress)
- Action Items (request for assistance or feedback)
- Upcoming meetings/announcements.

A sample e-newsletter is shown in Appendix D.

Electronic Mailing List or Automated Email
An electronic mailing list or automated email may be used to distribute electronic newsletters. Members of the online community can participate in discussions by posting to the automated email. The Yahoo! automated email sends members an email when new documents are posted to the community group's "Files" page.

Personal Connection is Important
Have a single staff member coordinate the collaborative. The project coordinator communicates with collaborative members, maintains the secure online group, researches and disseminates the latest resources, and prepares presentations and project reports. The coordinator is also the link between partner hospitals and the Department of Public Health. Knowledge of the public health department is particularly useful because collaborative members will ask for assistance not

related to collaborative activities. The coordinator can respond to specific requests and make referrals to other public health programs or staff as appropriate.

Web Site for the General Public

Establish a page at your Department of Public Health Web site to educate the general public on maternal mortality and the work of your collaborative to reduce obstetric hemorrhage. The Los Angeles County Maternal Care Quality Improvement Project maintains a web site at: http://publichealth.lacounty.gov/mch/ReproductiveHealth/LACMQCC/lacmqcc.htm. The site has information on maternal mortality in Los Angeles County, information on the Maternal Care Quality Improvement Project, resources for professionals, and patient education brochures.

Data Collection and Tracking

Collecting and tracking data is the most critical part of evaluating progress toward goals. Hospitals can compare their progress on shared outcome measures against others in the collaborative. Individual teams can use trend data to engage and motivate their colleagues. Evidence of quality improvement and cost savings can be reported to administrators to justify the project and additional resources.

What to Monitor

Most quality improvement experts recommend outcome and process measures to track progress toward overall QI initiative goals. Since obstetric hemorrhage is a comparatively rare event, outcome measures were designed to track hemorrhage and associated events, such as peripartum hysterectomies. These rare events may not show statistically significant improvement from baseline until after the formal collaborative is ended. Therefore, process measures can be a useful way to view the progress made in implementing the protocol. Process measures include the percent of patients assessed for risk of hemorrhage on admission and the percent of staff participating in education modules or in emergency drills. See Appendix E for the outcome and process measures collected during the Los Angeles County collaborative. The measurement grid lists the goals for outcome and process measures; measures; the data collection form to use; data collection method; and where appropriate, the calculation and procedure code for the measure.

When to Collect

Hospitals should collect data on process measures to show progress implementing the project protocol. Measures can be as simple as a one-time check-off showing completion (e.g., staff are measuring cumulative blood loss). Data may also be collected monthly or quarterly to track a timeline to full compliance (e.g., percent of patients whose blood loss was cumulatively measured).

Hospitals should collect outcomes data each month. Collect six months of baseline data for the period before implementation. Baseline data will be compared against data generated during the project (follow-up) at the conclusion of the formal collaborative. Collect at least six months of follow-up data so the baseline and follow-up samples will be large enough to compare.

Accessing Data

Hospitals may need several months to establish data collection processes because data elements will be compiled from multiple sources and departments. For example, the percent of women who were transfused with blood products during the birth admission may require data elements from the blood bank, patient charts, and the delivery log.

Common barriers to timely data collection:

- Coverage (data entry person cannot continue the responsibility and there is no backup for data entry)
- Time limits (staff too busy to enter data, team participates in more than one project that collects data)
- Data difficult to access (data comes from electronic and manual resources, computers unusable for more than one reporting period)

- Not knowing what departments have necessary data
- System issues (the computer systems and workflow of the departments housing data were not designed to report the data required).

How LAC DPH Addressed Late Data Reporting

For some participants of the LAC collaborative, data entry was the most challenging aspect of the project. LAC DPH and CMQCC staff led a two-week drive to get all hospitals caught up on data entry. The program included:

- Emails and phone calls by multiple project leaders to understand why data were late and offer encouragement
- One-on-one data entry assistance
- A letter to the hospital Chief Executive Officer (copied to hospital teams). The letter praised teams for their participation in the project; outlined the expected improvements in patient safety and reduced costs and complications; offered encouragement; and stated the deadline for data collection.
- Reports of data entry status during monthly webinars
- Two guest speakers discussed the importance of data entry and how they integrated data collection and reporting into their daily routines.

The Database

Hospitals entered monthly data into the Institute for Healthcare Improvement (IHI) online tracking system. IHI is a nonprofit organization dedicated to improving health care world wide. CMQCC provided the Los Angeles collaborative technical assistance with data collection, preparation, and analysis. Public health departments may choose to subscribe to IHI to gain access to the online data tool and other resources, or use a simpler data spreadsheet, such as Excel. The advantages and disadvantages of each are outlined in the table below.

	Advantages	Disadvantages
Excel	▪ Readily available program, which is part of Microsoft Office Suite ▪ Inexpensive ▪ Workable, user-friendly ▪ Outcome measures can be defined in data tool ▪ Graphs are easy to produce ▪ Individual hospitals can compare their data reports against the collaborative	▪ Staff time to monitor data collection from hospitals, collect and enter data, and produce reports ▪ Short start-up time ▪ Report requires analysis to be performed
Institute for Healthcare Improvement Data Tool	▪ Workable, user-friendly ▪ Fee includes full-service package with access to IHI quality improvement resources ▪ Outcome measures can be defined in data tool ▪ Service includes listserv and communications platform. Can	▪ Expensive ▪ Start-up training and investment ▪ Staff time to monitor data collection from hospitals ▪ Internet connection necessary to enter data ▪ Requires SAS and programmer to produce reports

	upload project resources to archive. ▪ Users enter own data ▪ Automated reports ▪ Individual hospitals can compare their data reports against the collaborative	▪ Custom report is time-consuming and requires transferring data to SAS and preparing report ▪ Addition of middleman increases chance of error and miscommunication

Webinars for Updates and Learning

Regularly scheduled updates and learning sessions provide partner hospitals formal training on implementing a team approach to prepare for obstetric hemorrhage. These structured meetings are opportunities to share successes, strategies for implementation and problem solving, and exchange support. Monthly meetings over a 12 month period provide sufficient time to review a range of topics and respect members' limited availability for meetings.

Webinar style meetings save participants travel time, parking fees, and accommodate many participants. Web conferencing providers such as AT&T will record webinars for playback. Posting presentations or playback information and supplemental materials to the group's online site will provide 24-hour access to all members registered to the site.

Webinar Structure
Webinars the Los Angeles County Department of Public Health held for the OB Hemorrhage Learning Collaborative had four 15-minute segments: an educational topic, data review and update, leading issue, and open discussion. Initial meetings emphasized education and presented sample documents or protocols to give hospitals a common knowledge base on which to develop hemorrhage policies and procedures. Later meetings allowed more discussion time as members needed less instruction and more guidance implementing strategies and meeting challenges.

Online surveys, such as SurveyMonkey™, are a way for participants to provide feedback and recommend changes to webinars. Los Angeles collaborative members completed a Survey Monkey survey before webinars to choose the discussion priorities for the data challenge and leading issue sessions. Participants completed post-webinar polls to rate the sessions and recommend changes to future sessions. The suggestions prompted the addition of guest speakers, case studies, best practice sharing, and report out/question sessions to the webinars.

- Educational topics covered strategies for initiating and implementing sustainable quality improvement changes in obstetric care. The sessions were:

    1. A review of resources available to collaborative members
    2. Staff education
    3. Quantitative measurement of blood loss
    4. Planning and conducting hemorrhage drills
    5. Initial and continuing risk assessment for hemorrhage
    6. Forms, documentation, and debriefs
    7. Early recognition of obstetric hemorrhage
    8. Sustaining administrative support
    9. Policies and procedures review
    10. Sustainability after the collaborative
    11. Project wrap-up and celebration of achievements

- The data review and update presented aggregate data data entry status and suggestions for overcoming a data collection concern.
- The leading issue was a topic of interest the group selected before the webinar
- The open discussion was a free session for participants to either extend the data review or leading issue or begin a new subject

Slide sets for the webinar sessions are shown in Appendix F. See "Resources" on page 24 for supplemental journal articles, sample documents, and links to online resources compiled for sessions.

Guest speakers bring varied perspectives and insights to webinars. Use your professional networks to connect collaborative members to experts in medicine and quality improvement.

Contact potential speakers in advance to secure their availability. LAC invited authorities in medicine and care quality, which included physicians and nurses that participated in previous CMQCC and LAC obstetric hemorrhage learning collaborative, the CMQCC Director, and the Chief Quality and Safety Officer at a Southern California hospital. Topics were:

- *Running a skills lab*
- *Early recognition of obstetric hemorrhage*
- *Building data collection and reporting into routine duties*
- *Sustaining administrative support*
- *Developing and implementing obstetric hemorrhage policies and procedures*
- *Sustaining quality improvement gains after the collaborative.*

Patient Education

Obstetric hemorrhage can occur after any delivery. All women of reproductive age should know their potential risk, signs of heavy bleeding, and what they should do if they recognize signs of dangerously heavy bleeding. Printed brochures are one way providers can initiate a conversation with their patients. Take-home materials may be reviewed and kept for reference.

Are you at Risk for Heavy Bleeding after having a Baby? is an educational brochure for clinicians to share with women during the prenatal visit or on admission to labor and delivery. The pamphlet was developed by LAC DPH MCAH and tested in focus groups comprising African American, Hispanic, and white women. It is written in simple, understandable language. English and Spanish versions may be downloaded as PDF files from the Los Angeles County Maternal Care Quality Improvement Project Web page.

English
http://publichealth.lacounty.gov/mch/ReproductiveHealth/LACMQCC/Resources/LMAHRamos10-19-09.pdf

Spanish
http://publichealth.lacounty.gov/mch/ReproductiveHealth/LACMQCC/Resources/Patient%20Brochure%20on%20Heavy%20Bleeding%20(Spanish).pdf

"Don't be scared. Be prepared."
~ *Focus group participant*

Sustainability

Only a small percentage of clinical quality improvement projects are able to sustain their results for at least a year after the project concludes. Public health departments can help hospitals find ways to sustain the improvements they attained after the formal project and funding have ended.

How LAC DPH Prepared Partner Hospitals for Sustaining their Improvements after the Collaborative

- Presentations on sustainability were built into two webinars given during the last quarter of the project. One speaker came from a hospital that participated in an earlier obstetric hemorrhage collaborative that sustained its gains over a year. The other was the chief quality and safety officer at a Southern California hospital.
    - *Sustaining Administrative Support* focused on how one health system fully integrated obstetric hemorrhage into its existing safety program.
    - *Sustainability after the Collaborative* focused on three key points: how to create a highly reliable system of care, integrating the project into everyday work, and the role of leadership and staff.
- LAC DPH staff encouraged collaborative members to continue calling on them as an ongoing resource
- LAC DPH promised to send each hospital the final data report to the team and the Chief Executive Officer at the facility. Demonstrable care process and quality improvement can be an effective way for obstetrics departments to gain higher level support to continue their efforts.

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3. Lagrew D, Lyndon A, Main E, Shields L, Melsop K, Bingham D. Obstetric Hemorrhage Toolkit: Improving Health Care Response to Obstetric Hemorrhage. (California Maternal Quality Care Collaborative Toolkit to Transform Maternity Care) Developed under contract ##08-85012 with the California Department of Public Health; Maternal, Child and Adolescent Health Division; Published by the California Maternal Quality Care Collaborative, June 2010. Available at http://cmqcc.org/ob_hemorrhage

Resources

Maternal Death and Obstetric Hemorrhage

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Supplemental Materials to Webinars

Forms and Documentation

American Council of Obstetricians and Gynecologists Antepartum Record Form. Ordering information available at http://www.acog.org/bookstore/ACOG_Antepartum_Record_Plain_P_P327.cfm

American College of Obstetricians and Gynecologists. Medical Records and Documentation (Chapter 8), in Professional Liability and Risk Management: An Essential Guide for Obstetrician-Gynecologists. American College of Obstetricians and Gynecologists, 2005, pp. 65-72.

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Other Online Resources

Academic OB/GYN. Blogcast for the academic OB/GYN physician. Available at http://academicobgyn.com

Bakri Balloon [Video file]. Available at http://www.cookmedical.com/wh/educationResource.do?id=Educational_Video

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Common Errors and Remedies in Managing Obstetric Haemorrhage [Video file]. XXII European Congress of Perinatal Medicine, Granada, Spain, May 26-29, 2010. Available at http://www.oblink.com/display.asp?page=ECPM2010_Presentations

Contemporary OB/GYN.
News articles, journals, CME Units
http://www.modernmedicine.com/modernmedicine/Obstetrics/Gynecology.*Women's.Health/home/40157

D'Alton, M. (March 7, 2008). Obstetric hemorrhage. Revolution Health Podcast. Podcast available at
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COUNTY OF LOS ANGELES
Public Health

JONATHAN E. FIELDING, M.D., M.P.H.
Director and Health Officer

JONATHAN E. FREEDMAN
Chief Deputy Director

Maternal, Child, and Adolescent Health Programs
Reproductive Health Program
Diana Ramos, M.D., M.P.H., Director
600 South Commonwealth Avenue, Suite 800
Los Angeles, California 90005
TEL (213) 639-6415 • FAX (213) 427-6160

www.publichealth.lacounty.gov.

July 7, 2010

Dear Doctor:

On behalf of the Los Angeles Local Assistance for Maternal Health (LA LAMH) Obstetric Learning Collaborative, I would like to invite your Obstetric Service Unit to join the second LA LAMH collaborative. Obstetric (OB) hemorrhage remains a leading cause of pregnancy-related morbidity and mortality, but significant opportunities exist for improved outcomes.

This year-long collaborative builds on the successes of the first collaborative, to develop capacity to prevent, recognize, and respond to OB hemorrhage through the increased use of protocols and drills, and improved access to and training in standard and the most advanced medical, surgical, and blood replacement options. Participation in the collaborative will provide support and resources to help your project team identify and implement strategies to improve processes of care and patient outcomes in your unit. The collaborative will work with experts from the California Maternal Quality Care Collaborative (CMQCC), Los Angeles County-Department of Public Health (LAC DPH), and the first collaborative to develop an Obstetric Hemorrhage Toolkit for delivery hospitals. Your team will develop hemorrhage policies, OB hemorrhage trays, and trainings tailored to your hospital. Your team will learn to work together efficiently using hemorrhage drills and debriefing sessions after OB hemorrhage. Access to an online data tool will enable you to track progress throughout the year.

There is no fee to participate in the LA LAMH OB Learning Collaborative. The California Department of Public Health; Maternal, Child, and Adolescent Health Division provides support through Title V funding.

I hope that you are able to join this collaborative. If you have any questions, please email me or Giannina Donatoni (gdonatoni@ph.lacounty.gov) by July 19, 2010.

Sincerely,

Diana Ramos, M.D., M.P.H.
Director, LA LAMH Obstetric Learning Collaborative

DR:gd
enclosures

Join the LA LAMH Obstetric Learning Collaborative

Engage colleagues, compare your progress against others on shared outcome measures, and keep informed through e-updates. **YOUR 12-MONTH COMMITMENT INCLUDES** monthly teleconferences and three in-person or Web-Ex learning sessions with the collaborative and leaders from CMQCC and LAC DPH; access to the Institute for Healthcare Improvement online reporting and tracking tool; a data training session facilitated by CMQCC; technical assistance and other resources.

REQUIRED MEETINGS

Project Orientation	August 12, 2010
Learning Session #1	November 18, 2010
Learning Session #2	February 17, 2011
Learning Session #3	May 19, 2011
Wrap-up Review	June 9, 2011

SITE PERSONNEL REQUIRED

Obstetric Service Doctor Leader (for example, Obstetrics MD Chief): participates in the collaborative and the implementation of collaborative quality improvement in obstetric services at their facility

Obstetric Service Nurse Leader (for example, Nurse Manager, Nurse Practitioner, Clinical Nurse Specialist): participants in the collaborative and the implementation of collaborative quality improvement in obstetric services at their facility

Senior administrative leader (for example, CEO or COO): participates in some elements of meetings of the collaborative, reviews monthly reports, provides resource support, and champions the project for their facility

OPTIONAL, BUT HIGHLY RECOMMENDED

Anesthesia Doctor Leader: participates in the collaborative based on their critical role in the administration of blood products and patient management (smaller facilities may not have Anesthesiologists available for participation in a collaborative of this type).

REGISTRATION

To join the LA LAMH Obstetric Learning Collaborative, please complete the information below and return no later than July 19, 2010 to Giannina Donatoni via email at gdonatoni@ph.lacounty.gov or by fax: 213-639-1034.

SITE INFORMATION

Hospital Name:_____

Hospital City:_____

Preferred Mailing Address:_____

PARTICIPATION INFORMATION

My organization wishes to participate in this collaborative: _____Yes _____No

If yes, please complete the **CONTACT INFORMATION** on the next page.

If no, please explain briefly why your organization will not be participating:

_____
_____
_____
_____

CONTACT INFORMATION (Identify Key Contact)

Team Member 1 – Obstetric Service MD Leader

Name:_____

Title:_____E-mail:_____

Direct Phone:_____Direct Fax:_____

Team Member 2 –Obstetric Service Nurse Leader

Name:_____

Title:_____E-mail:_____

Direct Phone:_____Direct Fax:_____

Team Member 3 – Senior Administrative Leader

Name:_____

Title:_____E-mail:_____

Direct Phone:_____Direct Fax:_____

Team Member 4 – Anesthesia MD Leader (OPTIONAL but highly recommended)

Name:_____

Title:_____E-mail:_____

Direct Phone:_____Direct Fax:_____

Los Angeles Local Assistance for Maternal Health (LA LAMH)
Executive Summary

Obstetric (OB) hemorrhage is a leading cause of pregnancy-related morbidity and mortality, but significant opportunities exist for improved outcomes. The Los Angeles County – Department of Public Health (LAC DPH) is recruiting hospitals for a year-long OB Hemorrhage Learning Collaborative. The collaborative aims to develop the capacity of obstetric teams to prevent, recognize, and respond to OB hemorrhage through the increased use of protocols and drills, and improved access to and training in medical, surgical, and blood replacement options.

LAC DPH and the California Maternal Quality Care Collaborative (CMQCC) sponsored the first OB Learning Collaborative, which concludes in October 2010. Hospital teams developed and/or implemented: active management of the third stage of labor; debriefing sessions after obstetric hemorrhage; general and massive hemorrhage policies; drills tailored to their facility's policies, protocols, and responder roles; OB hemorrhage carts/trays; procedures for quantifying blood loss; and OB risk assessments for patients being admitted to the Labor and Delivery unit. Participants in the new collaborative will receive support, sample documents, and other resources to develop these instruments and skills in their units. They will also work with experts from CMQCC, LAC DPH, and leaders from the first collaborative to customize an Obstetric Hemorrhage Toolkit for delivery hospitals in Los Angeles County, and collect data to assess progress and improvement in Los Angeles County hospitals.

Collaborative Members Receive:

- Monthly teleconferences and three in-person or Web-Ex learning sessions to assist in implementing strategies
- Access to the Institute for Healthcare Improvement online reporting and tracking tool to assess improvement through data collection
- A data training session facilitated by CMQCC
- Technical assistance – expert mentoring – e-updates, and other resources.

Overall goal: Reduce the risk of maternal hemorrhage through improved prevention, recognition, and response to obstetric hemorrhage.

Objectives

- Improve clinicians' knowledge and identification of patients at-risk for maternal hemorrhage
- Develop general and massive hemorrhage protocols and implement in-hospital obstetric hemorrhage drills based on the protocols to improve management
- Develop monitoring tools to track progress toward goals and for communicating trend charts to hospital leaders.

Appendix B
Orientation Meeting
Agenda

Los Angeles County Maternal Care Quality Improvement Project

OB Hemorrhage Learning Collaborative

3530 Wilshire Boulevard, Suite 700
Los Angeles, CA 90010

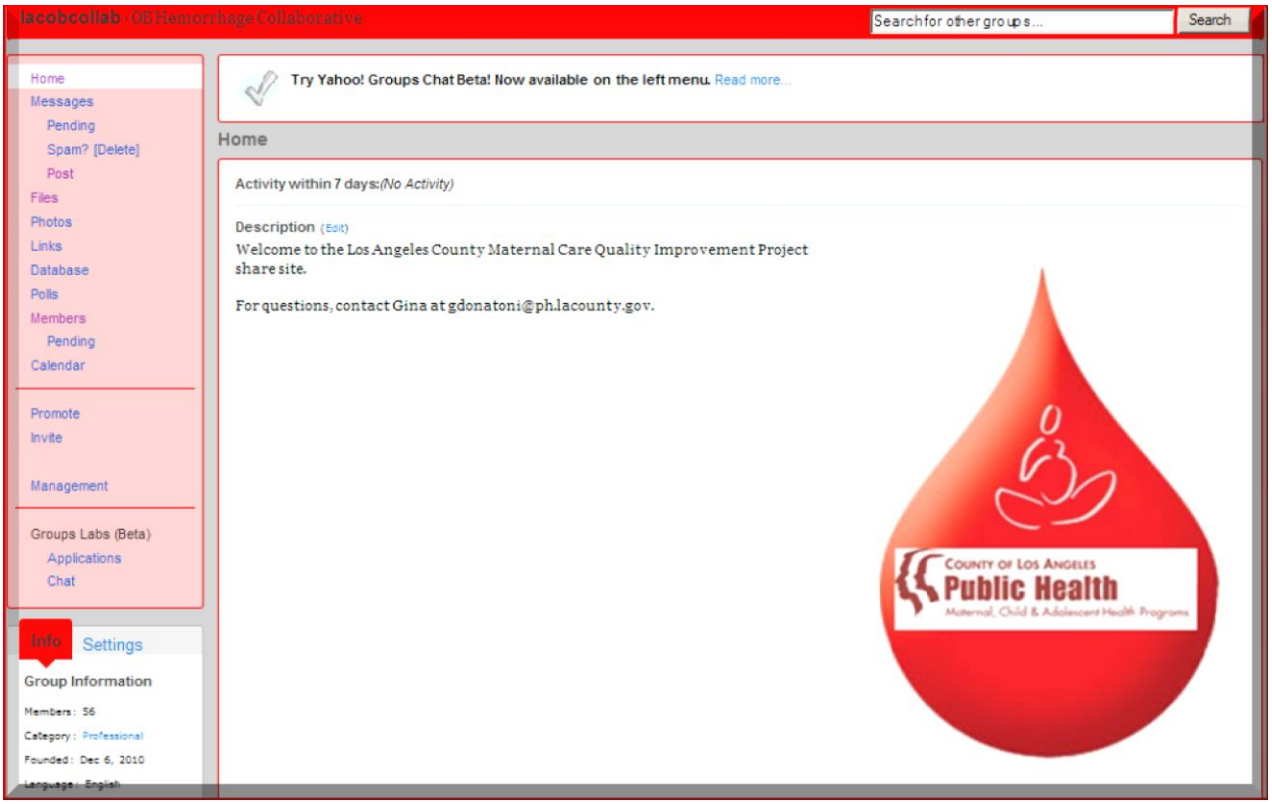
August 12, 2010

Agenda

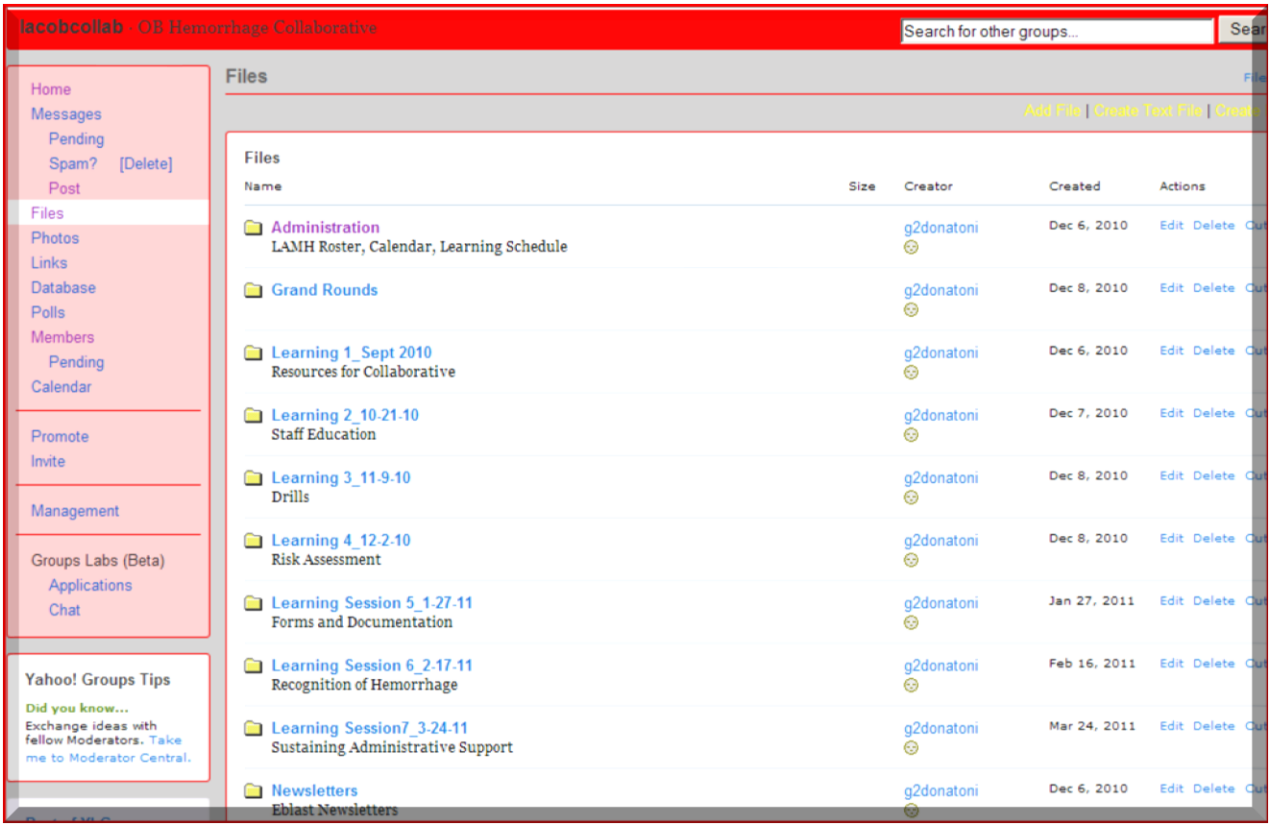
8:00 AM – 8:30 AM	Registration and Breakfast	
8:30 AM – 9:00 AM	Welcome	Diana Ramos, M.D., M.P.H. Director Reproductive Health Program Los Angeles County - Department of Public Health
9:00 AM – 9:30 AM	Introductions	Group
9:30 AM – 10:00 AM	Quality Improvement in Maternal Health: Addressing Postpartum Hemorrhage in CA	Elliot K. Main, M.D. CMQCC Principal Investigator
10:00 AM – 10:15 AM	Questions and Answers	Elliot K. Main, M.D.
10:15 AM – 10:45 AM	Challenges, Successes, and Lessons Learned	L'Tanya M. Simien-Robnett, RN, PHN, MSN Clinical Director, Family Life Center St. Francis Medical Center
10:45 AM – 11:12 AM	Los Angeles County Maternal Care Quality Improvement Project	Diana Ramos, M.D., M.P.H.
11:12AM – 11:13 AM	Project Time Line and Dates	Giannina Donatoni, Ph.D. Los Angeles County – Department of Public Health
11:15AM – 11:30AM	Questions & Answers	Diana Ramos, M.D., M.P.H.

Appendix C
Los Angeles County OB Hemorrhage Learning Collaborative Web Group

Collaborative Home Page



Files Page



Appendix D
Electronic Newsletter

Los Angeles County Maternal Care Quality Improvement Collaborative Newsletter
September 13, 2010

Welcome to our first "eblast" newsletter. This biweekly update will keep you informed of collaborative activities and give you an opportunity to share accomplishments and announcements with other collaborative members. Newsletters will be posted at the OB Hemorrhage Collaborative GoogleGroup.

Newsletters report on four items: Accomplishments (e.g., abstracts submitted and presentations); Updates (e.g., work in progress); Action Items (e.g., request for assistance or feedback); and Upcoming meetings/announcements.

ACCOMPLISHMENTS
The OB Hemorrhage Learning Collaborative orientation meeting was held on August 12, 2010 in Los Angeles. Staff from the 11 collaborating hospitals, the California Maternal Quality Care Collaborative (CMQCC), and the Los Angeles County Department of Public Health attended. Meeting materials are posted at the OB Hemorrhage Collaborative GoogleGroup.

The CMQCC held the IHI Data Training Webinar on August 26, 2010. Representatives from nine hospitals participated. If you missed the conference or want to review materials, you can access the recording at https://stanford.webex.com/stanford/lsr.php?AT=pb&SP=MC&rID=44035192&rKey=ab0614a790c1e48b.

UPDATES
Three hospitals do not have team members identified on the IHI Extranet site. Please enter team member names and assign roles (member, data entry, etc.) and let Valerie Cape (cape@cmqcc.org) know if the data entry role is assigned to someone other than the key contact.

Seven hospitals have team members identified on the IHI Extranet site but have not identified the data entry role. Please notify Valerie Cape (cape@cmqcc.org) who will enter data for your team if it is someone other than the key contact.

ACTION ITEMS NEEDED
Let us know what issues are coming up as you begin to address obstetric hemorrhage. Please answer two questions on areas of concern. We will address the leading issue at our September 20, 2010 web meeting. Access the survey at https://www.surveymonkey.com/s/THYKM2Z.

UPCOMING MEETINGS/ANNOUNCEMENTS
The first monthly web meeting will be on Tuesday, September 20, 2010 from 12:00 PM – 1:00 PM. Before the meeting: download the client software from https://www.webmeeting.att.com. You may need to get permission from your IT administrator.

Join the web meeting on September 20: Go to https://www.webmeeting.att.com. Enter (877)322-9648 in the "Meeting Number" field. Enter 267828 in the "Code" field. Enter your "email address." Enter your full "name." Click Submit.
Call in to access the audio portion: Conference line: (877)322-9648 Participant code: 267828.

Please send announcements and requests you want shared, such as upcoming Grand Rounds presentations, to Gina at gdonatoni@ph.lacounty.gov.

Appendix E
Measurement Grid

Aim 1: Reduce the number of massive hemorrhages and the number of major complications from massive hemorrhage, including transfusions and hysterectomies, for all birthing women in participating hospitals by 50% by June 30, 2011.

Hemorrhage Measures	Calculation	Data Collection Form	Data Collection Method	Procedure Code
A.1 Percent of women* who were transfused with packed red blood cells (PRBCs), Platelets, fresh frozen plasma (FFP), Cryoprecipitate (Cryo) during birth admission	Number of women*transfused with **any blood product** / Total Number of Deliveries*	**Hospital Baseline:** Collect A1, A2, B for March 1, 2010 to June 30, 2011 IHI Extranet	**Monthly Blood Transfusion Data**: From internal source such as blood bank data, patient charts and electronic medical records, for that month's deliveries. If available: Blood loss data recorded in patient record or delivery log.	**ICD-9 Procedure Code for transfusions: 99.0** **CPT Code:** **36430: Transfusion, blood or blood components** *Note: These codes typically do not accurately identify transfusions. We recommend obtaining data from the Blood Bank when possible.*
A.2 Total number of each blood component transfused during birth admissions per total births	Number of PRBCs, Platelets, FFP, Cryo			
B. Percent of women* who were transfused with ≥5 units PRBCs during birth admission	Number of women* who were transfused with >= 5 units **PRBCs** / Total Number of Deliveries*			
NOTE: B is a subset of A				
C. Rate of peripartum hysterectomies* performed during birth admission	Number of peripartum hysterectomies* **with** Placenta Previa and/or Placenta Accreta/Percreta / Total Number of Deliveries* Number of peripartum hysterectomies* **without** Placenta Previa and/or Placenta Accreta/Percreta / Total Number of Deliveries* **Annotate for each hysterectomy:** a) Indication for hysterectomy b) Number of prior cesarean sections c) Number of Days Post-Delivery (Days = 0 if procedure done on day of delivery)			**ICD-9 Procedure Codes** **68.3** Subtotal abdominal hysterectomy **68.39** Other and unspecified subtotal abdominal hysterectomy **68.4** Total abdominal hysterectomy **68.49** Other and unspecified total abdominal hysterectomy **CPT Codes** **59525** Cesarean Hysterectomy **58150** Hysterectomy Total/Partial (Use Post-Partum or with Vaginal) **59160** D&C after delivery

***who gave birth ≥20 0/7 weeks gestation

Aim 1: Reduce the number of massive hemorrhages and the number of major complications from massive hemorrhage, including transfusions and hysterectomies, for all birthing women in participating hospitals by 50% by June 30, 2011.			
Postpartum Deliverables	**Calculation**	**Data Collection Form**	**Data Collection Method**
1. Document that blood loss is cumulatively measured until the woman's immediate recovery status changes to routine postpartum care.	Checklist Yes/No	IHI Extranet	Review patient charts.
2. Pass-on/hand-off report among Labor & Delivery and Post-partum MD and Nursing staff includes whether a woman had a blood loss > 1,000 ml.	Checklist Yes/No	IHI Extranet	

Aim 1: Reduce the number of massive hemorrhages and the number of major complications from massive hemorrhage, including transfusions and hysterectomies, for all birthing women in participating hospitals by 50% by June 30, 2011.			
Hemorrhage Prevention Measures	**Calculation**	**Data Collection Form**	**Data Collection Method**
D. Percent of women (from audited charts) assessed for risk of obstetric hemorrhage on admission	Among the audited charts, the number of women admitted to Labor and Delivery whose risk of obstetric hemorrhage assessment is recorded in the medical record / Total number of admission charts audited per month	IHI Extranet	Chart Review of 20 randomly selected charts per month (10 vaginal deliveries and 10 cesarean deliveries)
E. Percent of women who receive Active Management of Third Stage Labor from audited charts	Among the audited charts, the total number of women who receive Active Management of Third Stage Labor / Total number of charts audited per month	IHI Extranet	Chart Review of 20 randomly selected charts per month (10 vaginal deliveries and 10 cesarean deliveries)

Aim 2: All collaborative participants develop and implement a multidisciplinary team response to massive obstetric hemorrhage by June 30, 2011.			
Hospital Deliverables	**Calculation**	**Data Collection**	**Data Collection Method**
3. General and massive hemorrhage policies and procedures were updated by June 30, 2011.	Date completed Date received by LAC MCAH	Determined by hospital	Hospital records and forms
4. Identify roles and multi-disciplinary team responders for stage 1, 2, and 3 hemorrhages.	Roles defined for stage 1, 2, or 3 hemorrhages: Date completed Date received by LAC MCAH	Determined by hospital	
5. Determine and implement the most desirable method for maintaining accessibility to needed OB hemorrhage supplies, e.g., hemorrhage carts or trays; PIXUS bundles.	Provide the emergency supply maintenance plan to LAC MCAH: Date completed Date received by LAC MCAH	Determined by hospital	
6. Create drills tailored to your hospital policies and procedures and responder roles.	Drill scenarios created: Date completed Date received by LAC MCAH	Determined by hospital	
7. Run 1 multi-disciplinary drill in first and third quarters to identify system and process improvement opportunities.	Drills are performed: Dates completed. Maintain a list of problems identified by the drills and document how and when the problem is resolved. Submit the list to LAC MCAH.	Determined by hospital Drill debrief form.	Sign-in sheets for training session

Aim 2: All collaborative participants develop and implement a multidisciplinary team response to massive obstetric hemorrhage by June 30, 2011.			
Education Measure	**Calculation**	**Data Collection Form**	**Data Collection Method**
F. Percent Non-MD staff who are educated to and involved in the hemorrhage policies and procedures	Number of non-MD staff educated and involved in hemorrhage policies and procedures / All non-MD staff who in the responder pool (defined by hospital)	Determined by hospital	Sign-in sheets for training sessions
G. Percent MDs are educated and involved in the hemorrhage policies and procedures	Number of MDs educated and involved in hemorrhage policies and procedures / All MDs in the responder pool (defined by hospital)	Determined by hospital	
H. Frequency of debrief (troubleshooting) sessions involving MD and non-MD staff that occurred after any hemorrhage with ≥500 mls for vaginal births and ≥1000 mls for cesarean section births that advanced beyond stage 1 to stage 2 or 3 hemorrhages	Document number of debrief (troubleshooting) sessions	Enter into IHI Extranet	

Agenda

Group/Meeting Name: Los Angeles County OB Hemorrhage Learning Collaborative

Date: 09/20/10 Time: from: 12:00 PM to: 1:00 PM

Location: Web Conference: https://www.webmeeting.att.com; Meeting number 8773229648; Code 267828
Teleconference: Call Number 877-322-9648; Access Code 267828

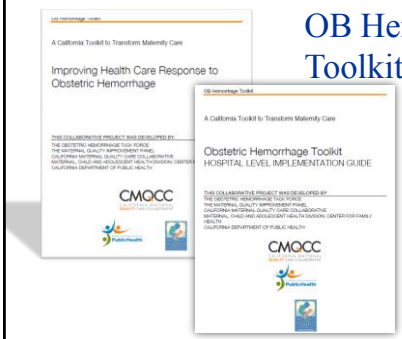
Meeting Leader: Gina Donatoni, Ph.D.

Meeting Objectives:
- Review resources available to collaborative members
- Review status of data collection and of aggregated data collected
- Discuss challenges to data collection and a leading issue of concern

Time	Issue	Lead
12:00 – 12:02	Welcome and Overview of Agenda	G. Donatoni
12:02 – 12:15	Review of Education Resources	G. Donatoni
12:15 – 12:30	Data Review and Update	C. Morton
12:30 – 12:45	Leading Issue: Engaging Private Physicians	D. Ramos
12:45 – 1:00	Open Discussion	Group

Review of Education Resources

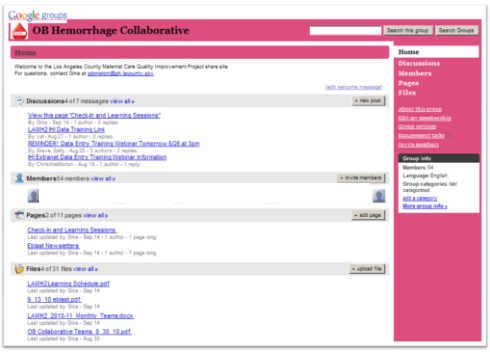
OB Hemorrhage Toolkit



http://www.cmqcc.org/ob_hemorrhage

OB Hemorrhage Toolkit Slides

http://www.cmqcc.org/ob_hemorrhage



http://groups.google.com/group/ob-hemorrhage?hl=en

Grand Rounds and Drills

- Developing drills
- Implementing and evaluating drills
- Staff roles
- Developing protocols
- Risk assessment

Interactive Education

Advanced Practice Strategies
http://www.aps-web.com/elearning/courseexamples/course_506.asp

Podcasts

Postpartum Hemorrhage

- Mary D'Alton, MD, Chair, Department of Obstetrics and Gynecology, Columbia University Medical Center
  http://revolutionhealth.com/healthy-living/pregnancy/experts/postpartum-hemorrhage

Podcasts

Obstetrical Hemorrhage

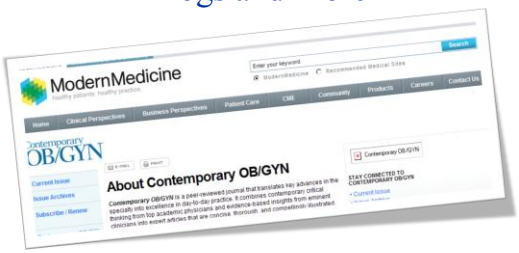
- Mike Hughey, MD, Northwestern University Feinberg School of Medicine; F. Edward Hebert School of Medicine; Naval Undersea Medical Institute
  http://grayhairedobgyn.com/mp3/OBGYN101_0031_Obstetrical_Hemorrhage.mp3

Blogs and More

- OB/GYN Answers
- OB/GYN Cases
- OB/GYN Podcast
- General OB/GYN Topics
- Green Journal
- Grey Journal
- GYN Oncology
- Gynecology
- Lancet
- Obstetrics
- Surgical Videos

http://academicobgyn.com

Blogs and More



http://www.modernmedicine.com/modernmedicine/Obstetrics/Gynecology.*Women's.Health/home/40157

YouTube

- Postpartum Hemorrhage Part 2
  il.youtube.com/watch?v=OcujnM34Jg0&feature=related
- Maternal Bleeding 1
  www.youtube.com/watch?v=Y-nzncA6vB4

Leading Issue

Engaging Private Physicians

1. Grand Rounds to showcase what is new and different (See slide set for professional education at http://www.cmqcc.org/ob_hemorrhage)
2. Review the Hemorrhage Care Guidelines flowchart/table chart/checklist
3. Skill demonstrations for the Cook Balloon and B-Lynch suture technique

Leading Issue cont.

4. Prepare the slide set for professional education in flip chart format to display on Labor and Delivery
5. Reach out to individuals with one-to-one "academic detailing"
6. Strategies 1 – 5 set the stage for team engagement, such as drills.

Appendix F2

Staff Education

Agenda

Group/Meeting Name: Los Angeles County
OB Hemorrhage Learning Collaborative

Date: 10/21/10 Time: from: 12:00 PM to: 1:00 PM

Location: Web Conference: https://www.webmeeting.att.com;
Meeting number: 8773229654; Code: 378831
Teleconference: Call Number: (877)322-9654;
Access Code 378831

Meeting Leader: Diana Ramos, M.D., M.P.H.

Meeting Objectives:
- Learn how to plan and implement a successful Skills Day
- Review status of data collection and of aggregated data collected
- Discuss challenges to data collection and a leading issue of concern

Time	Issue	Lead
12:00 – 12:02	Welcome and Overview of Agenda	D. Ramos
12:02 – 12:15	Staff Education	D. Neal
12:15 – 12:30	Data Review and Update	C. Morton
12:30 – 12:45	Leading Issue: Measuring Blood Loss	D. Ramos
12:45 – 1:00	Open Discussion	Group

Public Health

Staff Education

Public Health

OB Skills Day
Hemorrhage: Identification, Treatment and Outcomes
Oct 2010

Identification

- Blood loss estimation – during the OB skills day 2010 the focus was on PP Hemorrhage identification, we have moved from estimation to weighing all pads for exact blood loss.
  - For one of the examples, the actual pad weight was 1050 – the estimations by staff ranged from 400-800!!!!!

Three different pads, three different amounts……

And the estimate is…….

Identification – part of drill

- Fundal Massage – identification of fundal placement and positioning.
  - Right or left shift
  - Foley placement
  - Visual checking for clots

Vital Signs -

- Is there a change in vital signs
- Look at the patient as a whole – anxiousness, increased respirations, etc
- Need for Oxygen???

Treatment – How to respond!!!

- Get HELP!!!!
- Accurate report – blood loss exact
  - Pad weight
- Continuous fundal massage
- Standing order for Methergine IM
- Ensure stable BP
- Phone call to the MD
- Warmed IV fluid
- Be ready for blood products
- Ensure Consent for Blood Transfusion is done

Treatment – Mock Code (cont)

- Have a Hemorrhage kit – take to the bedside
- Pyxis "Postpartum Hemorrhage Kit" to have meds available at the bedside

Outcomes

- Standardization of approach and items needed at the bedside
- Review of documentation with staff to ensure that it is accurate and timely
- Recognition of inability to "guesstimate" the amount of blood loss by staff
- Review by staff of the video allows the staff to recognize importance of team work, correct and concise info, as well as urgency in report to Physician.

Four Major Recommendations for California Birth Facilities:

- Improve ***readiness*** to hemorrhage by implementing standardized protocols (general and massive).
- Improve ***recognition*** of OB hemorrhage by performing on-going objective quantification of actual blood loss during and after all births.
- Improve ***response*** to hemorrhage by performing regular on-site interprofessional hemorrhage drills.
- Improve r***eporting*** of OB hemorrhage by standardizing definitions and consistency in coding and reporting.

OB Hemorrhage Collaborative Data Collection

- Critical and essential
- Not the whole story
- Critical and essential (bears repeating)
- Not as hard as it may seem at first
- Success requires Local Champion – who is yours?

Every hospital is different – some helpful hints

- Measurement Grid is your friend!
- Make Connections:
  - Blood Bank
  - IT
- Data Entry-single individual (optimal)
  - Data Entry person-needs to comprehend critical importance of this responsibility

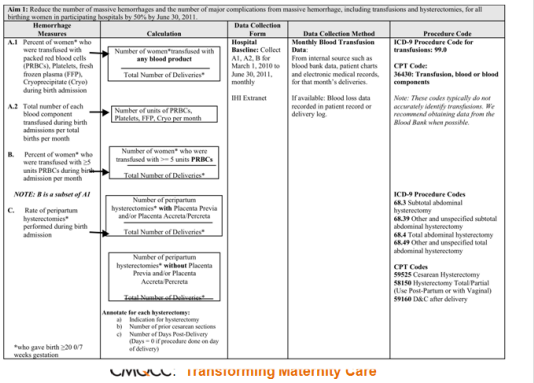
Every hospital is different – some helpful hints

- Measurement Grid is your friend!
- Make Connections:
  - Blood Bank
  - IT
- Data Entry-single individual (optimal)
  - Data Entry person-needs to comprehend critical importance of this responsibility

CMQCC: Transforming Maternity Care

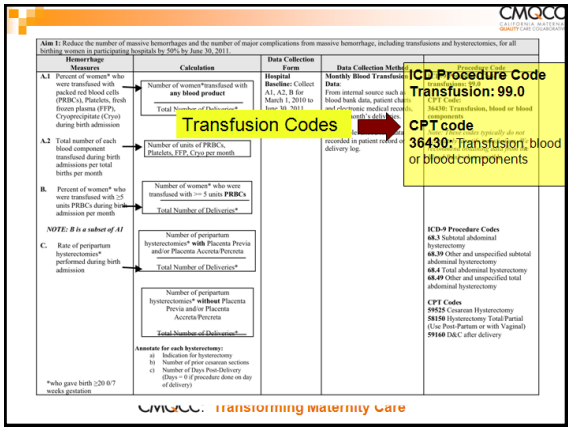
If you have EMR…

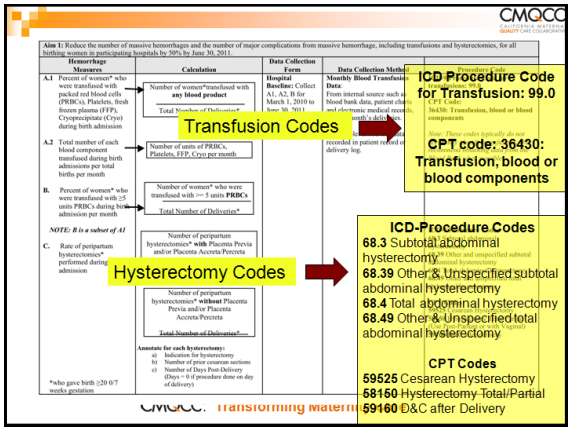
- Identify transfusions, hysterectomies using **ICD-9, CPT Codes**
  - Measures A1, A2, B, C—Refer to the Measurement Grid!
- Do it yourself –OR-
- Contact IT to request the information
- Blood Bank: details, units of blood products per patient
- Cross check patient chart for details



Aim 1: Reduce the number of massive hemorrhages and the number of major complications from massive hemorrhage, including transfusions and hysterectomies, for all birthing women in participating hospitals by 50% by June 30, 2011.

Hemorrhage Measures	Calculation	Data Collection Form	Data Collection Method	Procedure Code
A.1 Percent of women* who were transfused with packed red blood cells (PRBCs), Platelets, fresh frozen plasma (FFP), Cryoprecipitate (Cryo) during birth admission	Number of women*transfused with **any blood product** / Total Number of Deliveries*	**Hospital Baseline:** Collect A1, A2, B for March 1, 2010 to June 30, 2011, monthly IHI Extranet	**Monthly Blood Transfusion Data**: From internal source such as blood bank data, patient charts and electronic medical records, for that month's deliveries. If available: Blood loss data recorded in patient record or delivery log.	**ICD-9 Procedure Code for transfusions: 99.0** **CPT Code: 36430: Transfusion, blood or blood components** *Note: These codes typically do not accurately identify transfusions. We recommend obtaining data from the Blood Bank when possible.*
A.2 Total number of each blood component transfused during birth admissions per total births per month	Number of units of PRBCs, Platelets, FFP, Cryo per month			
B. Percent of women* who were transfused with ≥5 units PRBCs during birth admission per month	Number of women* who were transfused with >= 5 units **PRBCs** / Total Number of Deliveries*			
NOTE: B is a subset of A1				
C. Rate of peripartum hysterectomies* performed during birth admission	Number of peripartum hysterectomies* **with** Placenta Previa and/or Placenta Accreta/Percreta / Total Number of Deliveries*			**ICD-9 Procedure Codes** **68.3** Subtotal abdominal hysterectomy **68.39** Other and unspecified subtotal abdominal hysterectomy **68.4** Total abdominal hysterectomy **68.49** Other and unspecified total abdominal hysterectomy **CPT Codes** **59525** Cesarean Hysterectomy **58150** Hysterectomy Total/Partial (Use Post-Partum or with Vaginal) **59160** D&C after delivery
	Number of peripartum hysterectomies* **without** Placenta Previa and/or Placenta Accreta/Percreta / Total Number of Deliveries*			
	Annotate for each hysterectomy: a) Indication for hysterectomy b) Number of prior cesarean sections c) Number of Days Post-Delivery (Days = 0 if procedure done on day of delivery)			
*who gave birth ≥20 0/7 weeks gestation				





If you DO NOT have EMR…

- Electronic delivery log: Identify transfusions, hysterectomies using **ICD-9, CPT Codes**
  - Measures A1, A2, B, C—Refer to Measurement Grid
- Blood Bank: details, units of blood products per patient
- Cross check patient chart for details

CMQCC: Transforming Maternity Care

Whether you have EMR or not…

- Cost Accounting System
  - Charges for blood products given to OB population
  - Do it yourself -OR- contact someone with access to system
- Very Accurate—everything is charged
- Cross check with blood bank and patient chart for details

CMQCC: Transforming Maternity Care

Warning

ICD-9 codes for transfusions and hemorrhage can be incomplete in the medical record

- Plan to use other methods to fully capture transfusions
  - Blood Bank
  - Cross check patient chart for details
  - Cost Accounting System

CMQCC: Transforming Maternity Care

Make Connections

- Blood Bank
- IT
- Accounting/Management

CMQCC: Transforming Maternity Care

Hospital A: 6800 births annually

- ICD-9 codes: data requests to Blood Bank—OB patients
- eMail request: cc Blood Bank Manager
- BB provides list of OB patients; BB Manager includes specific types of blood per patient to the list
- The QS manager reviews the electronic documentation for any hysterectomies as a second check

Hospital A: 6800 births annually

- ICD-9 codes: data requests to Blood Bank—OB patients
- eMail request: cc Blood Bank Manager
- BB provides list of OB patients; BB Manager includes specific types of blood per patient to the list
- The QS manager reviews the electronic documentation for any hysterectomies as a second check

CMQCC: Transforming Maternity Care

Hospital B: 3600 births annually

- Use electronic delivery log built in MIDAS
  - Data retrieval based on ICD 9 codes
  - MIDAS administrator created reports specific to CMQCC data requirements
  - Verify reports with cross check of patient charts
  - Reports and Patient Chart verification: monthly task
- Education department
  - Monthly reports for # of staff assigned/completed electronic learning modules
- Blood Bank Report
  - All female patients who received any blood products for the preceding month (Obvious outliers—very young or old—removed)
  - Verify reports with cross check of patient charts
  - Verified against CMQCC inclusion criteria (e.g., transfusion during birth admission)

Hospital C: 5500 births annually

- EMR
  - Look up patients who received blood and had hemorrhage (ICD9) coded by MD
  - Hemorrhage information not in our log book—pull charts to review

Hospital D: 1200 births annually

- IT ran a query for blood products given in our department
  - Pull the charts for review
- "I found it easier to review all pts charts on a daily basis M-F for staff accuracy on:

1. Risk assessment on admit
2. Collection of blood volumes after delivery for both vaginal and c/sections, including recovery

- "I could address inaccuracies in a timely manner, which helped us overall with compliance. We are still on a paper chart system."
- "Early on, I made myself available to attend deliveries, educate and assist with measurements for both c/sections and vaginal deliveries"

Hospital E (4800 births annually)

- "I used EMR from my office to review all charts for any patient transfused
- Used the excel spreadsheet from HIM; summarized patient diagnosis, and types/amounts of products. Then referred to a local document that listed # of deliveries monthly
- HIM sent me MR #'s for all OB patients who received any blood products"

QI Pearls

- Culture is 'what we do around here' – culture change is hard work
- Take a deep breath – everything always takes longer than we think or would like it to take

CMQCC: Transforming Maternity Care

Tips for Making Change Happen

- Leaders are critical for championing changes in how things are done here
- Rounding: Be visibly involved in change
- Encourage sharing of concerns (active listening) and seek answers from those raising the questions
- Do not tolerate resistance to change by formal or informal leaders
- Focus on the majority that is 'ready to go'

CMQCC: Transforming Maternity Care

More Tips

- Give encouragement – early mistakes are ok Give praise and rewards for early successes
- Change in behavior will eventually lead to change in attitudes
- Be specific: not 'safer care' but what actually needs to be done; smaller, discrete tasks make change easier to accomplish
- Keep everyone involved by asking for ideas
- A 'lapse' is not a relapse – don't over react

Think about small steps to get back on track

CMQCC: Transforming Maternity Care

Process yields Results!

Past participants say ….

- *"By utilizing these measures, we have a strong team now in the hospital – with different areas working together, and moms are a lot safer."*
- *"This collaborative will not only help us have safer deliveries for moms, but will also help us to develop better teamwork and communication among all disciplines. We know that this will carry over to other areas of maternal care as well."*

CMQCC: Transforming Maternity Care

REMEMBER DATA DEADLINES!

- October 29 – Baseline data entered into IHI extranet
- Monthly Data: due date is the 15th of the following month
  - For example, data for November:
    Due date: December 15

CMQCC: Transforming Maternity Care

Appendix F3
Measuring Blood Loss and Hemorrhage Drills

Agenda

Group/Meeting Name: Los Angeles County
OB Hemorrhage Learning Collaborative

Date: 11/9/10 Time: from: 12:00 PM to: 1:00 PM

Location: Web Conference: https://www.webmeeting att.com;
Meeting number 888622-5357; Code 978849
Teleconference: Call Number (888)622-5357;
Access Code 978849

Meeting Leader: Diana Ramos, MD

Meeting Objectives:
- Identify methods of quantifying blood loss
- Describe how to plan and conduct an OB hemorrhage drill

Time	Issue	Lead
12:00 – 12:05	Welcome and Overview of Agenda	Diana Ramos
12:05 – 12:20	Measuring Blood Loss	Diana Ramos
12:20 – 12:45	Obstetric Hemorrhage Simulation Drills	Gina Donatoni
12:45 – 1:00	Questions and Answers	Group

Press *6 to mute or unmute phone

Techniques for Measuring Cumulative Blood Loss

OB Hemorrhage Toolkit

TABLE OF CONTENTS

A California Toolkit to Transform Maternity Care

Improving Health Care Response to Obstetric Hemorrhage

CMQCC

Measurement of Cumulative Blood Loss

WHAT: Record cumulative blood loss during labor and delivery until status is routine postpartum and patient is physiologically stable

WHY: Recognize potentially life-threatening hemorrhage and manage blood product replacement

WHO: Collaborative effort of nurses, anesthesia, and obstetric providers

Maria Lagrew, MD, Audrey Lyndon RNC, CNM, PhD, Elliott Main, MD, Larry Shields, MD, Kathryn Melsop, MS, Debra Bingham, RN, DrPH. Obstetric Hemorrhage Toolkit: Improving Health Care Response to Obstetric Hemorrhage. (California Maternal Quality Care Collaborative Toolkit to Transform Maternity Care) Developed under contract #408-85812 with the California Department of Public Health, Maternal, Child and Adolescent Health Division; Published by the California Maternal Quality Care Collaborative. June 2010.

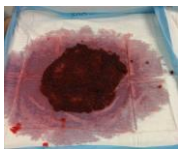
Measurement of Cumulative Blood Loss

- Record percent (%) saturation of blood soaked items. Visual cues improve accuracy.

Photograph courtesy of Diana Ramos, MD

Measurement of Cumulative Blood Loss Percent Saturation of Blood

250 ml



500 ml

1000 ml

Photographs courtesy of Diana Ramos, MD

Measurement of Cumulative Blood Loss

- Collect blood in graduated measurement containers

Toledo P et al. Anesth Analg 2007;105:1736-1740
©2007 by Lippincott Williams & Wilkins ANESTHESIA & ANALGESIA

Measurement of Cumulative Blood Loss

- Weigh saturated items
- Standardize items
- Dry weights posted by scales or on pocket cards
- Work sheet for calculations

Saturated weight grams – dry weight grams = ml blood *

*1 gm blood = 1 ml blood

Measurement of Cumulative Blood Loss

C-Sections

Suction amniotic fluid. Check amount of fluid before delivery of placenta.

Bleeding after placenta delivered represents blood loss.

Simulated Blood for Building Skills Measuring Blood Loss

- Powdered Blood
  - Simulaids: http://www.simulaids.com; phone: 800-431-4310; item #225)
- Simulated Blood Clots
  - Clumps of cornstarch
  - Bits of gauze sponges
  - "Jello-jigglers"

Photograph courtesy of Diana Ramos, MD

David Lagrew, MD, Audrey Lyndon RNC, CNS, PhD, Elliott Main, MD, Larry Shields, MD, Kathryn Melsop, MS, Debra Bingham, RN, Drl Obstetric Hemorrhage Toolkit: Improving Health Care Response to Obstetric Hemorrhage. (California Maternal Quality Care Collaborative 1 Transform Maternity Care) Developed under contract #408-85012 with the California Department of Public Health, Maternal, Child and Adolescent

Simulated Blood for Building Skills Measuring Blood Loss

Imitation Blood Recipe 1

- 1 cup Karo Syrup
- 1 tbsp water
- 2 tbsp red food coloring
- 1 tsp yellow food coloring

Imitation Blood Recipe 2

- 2 cups corn syrup
- 1 cup water
- 10 tbsp maize flour
- 10 tbsp red food coloring
- 10 drops blue food coloring

David Lagrew, MD, Audrey Lyndon RNC, CNS, PhD, Elliott Main, MD, Larry Shields, MD, Kathryn Melsop, MS, Debra Bingham, RN, Drl Obstetric Hemorrhage Toolkit: Improving Health Care Response to Obstetric Hemorrhage. (California Maternal Quality Care Collaborative 1 Transform Maternity Care) Developed under contract #408-85012 with the California Department of Public Health, Maternal, Child and Adolescent Health Division. Published/Author California Maternal Quality Care Collaborative. June 2010.

Suppliers of Calibrated Drapes

- United States Manufacturer: Medline www.medline.com

  Product.pdf: surgical gowns and drapes: http://www.medline.com/international/lit/european%20catalog/english/proxima_english.pdf

OB Hemorrhage Report Measuring Blood Loss

EXAMPLE

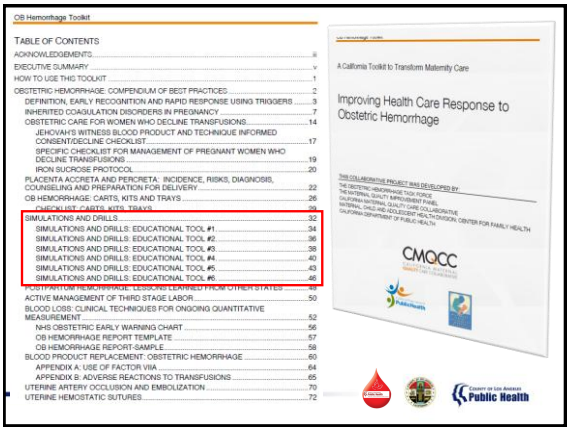
Item	Approx Dry Weight (gms)	"Wet" weight (grams)	Wet weight minus Dry weight = Milliliters of fluid/blood	Total per category
Blue Chux	35	135 (- 35 =)	100 ml	100 ml
Kendall Curity Maternity Pads®	14			
Maxithins®	11	26 + 31 = 57 (- 22 =)	35 ml	35 ml
Cloth soaker pad	465			
Dry lap sponge (large)	22	"Soaked" lap [illegible]0 gms → "Partially wet" [illegible]p = 50gms →	Approx. 60ml blood x 15 = 900ml Approx. 30ml blood x 20 = 600ml	1500 ml
Dry lap sponge (small)				
Graduated container volume		Container w[illegible]e minus estimated [illegible]mniotic fluid volume	Container #1 _____ Container #2 _____ Container #3 _____	
			TOTAL ESTIMATED BLOOD LOSS (ml)	1635 ml

SAMPLE

David Lagrew, MD, Audrey Lynden RNC, CNS, PhD, Elliott Main, MD, Larry Shields, MD, Kathryn Melcop, MS, Debra Bingham, RN, DrPH
Obstetric Hemorrhage Toolkit: Improving Health Care Response to Obstetric Hemorrhage. (California Maternal Quality Care Collaborative I Transform Maternity Care) Developed under contract #4908-85012 with the California Department of Public Health; Maternal, Child and Adolescent Health Division. Published by the California Maternal Quality Care Collaborative, June 2010.

Obstetric Hemorrhage Simulation Drills

Photo from Ogburn, P. Obstetric hemorrhage



Rationale for Hemorrhage Drills

- Serious OB emergencies in 1-2% of pregnancies
- Risk management, not risk reduction
- Improved care quality and safety
- Improved patient and staff satisfaction
- Malpractice
- Cost savings

Hemorrhage Simulation Drills

WHAT: Practice session of a relatively uncommon, critical event

WHY: Assess system weaknesses and strengths
Test policies and procedures
Improve teamwork and communication skills

WHO: Physicians, anesthesiologists, nurses, midwives, clinical laboratory scientists, support staff

David Lagrew, MD, Audrey Lynden RNC, CNS, PhD, Elliott Main, MD, Larry Shields, MD, Kathryn Melcop, MS, Debra Bingham, RN, DrPH
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Activities Leading to Drills

- One-to-one engagement of colleagues
- Promotion of physician champion
- Posters
- Skills labs and demonstrations
  - Bakri Balloon
  - B-Lynch suture
  - Measuring blood loss

Planning Hemorrhage Drills

- Identify objectives
- Identify evaluation measures
- Schedule

Hemorrhage Simulation Drill Components

- Orientation
- Educational Program
- Skills Lab/Demonstration
- Simulation Drill
- Debrief Session

Hemorrhage Simulation Drill Orientation Component

- Introduction
- Maternal mortality data
- Postpartum hemorrhage
- Drills as part of continuous care quality improvement

Orientation: Introduction

- Inform audience they will participate in a hemorrhage drill
- Drills are practice exercises for critical events
- Treat exercise as a real event
- Drills are training
  - Make mistakes to learn and correct deficiencies
  - Supportive, non-putitive

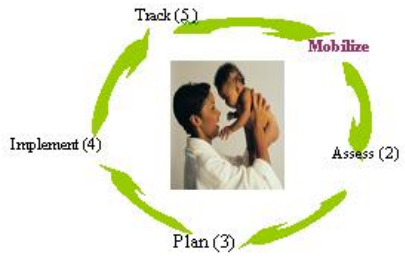
Orientation: Maternal Mortality Data

- California and National
  http://www.cmqcc.org/maternal_mortality
- The Joint Commission, Sentinel Event Alert (Jan 2010)
  http://www.jointcommission.org/SentinelEvents/SentinelEventAlert/sea_44.htm
- Perinatal Indicators
  http://publichealth.lacounty.gov/mch/rep/rep.htm
- Facility
  Risk Management, Patient Safety, Incident Reports

Orientation: Postpartum Hemorrhage

- Postpartum hemorrhage is increasing
- Link to mortality and morbidity
- Risk factors
- Facility Data
  Risk Management, Patient Safety, Incident Reports

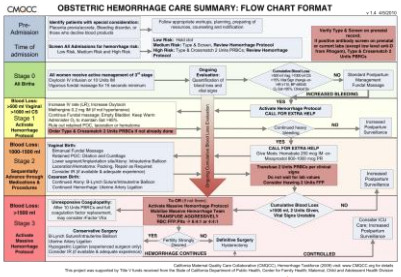
Orientation: Drills and Quality Improvement



Hemorrhage Simulation Drill Educational Program Component

- Review CMQCC OB Hemorrhage Care Guidelines
- Identify roles
- Continuous risk assessment
- Review techniques
- OB hemorrhage cart

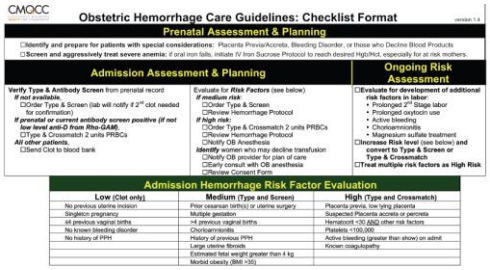
Educational Program: CMQCC Hemorrhage Care Guidelines



Educational Program: Identify Roles

- Anesthesia
- Obstetrician/Gynecologist
- Nurse
- Clinical Laboratory Scientist (Blood Bank)
- Education
- Clerk

Educational Program: Continuous Risk Assessment



Educational Program: Review Techniques

- View Bakri Balloon animation

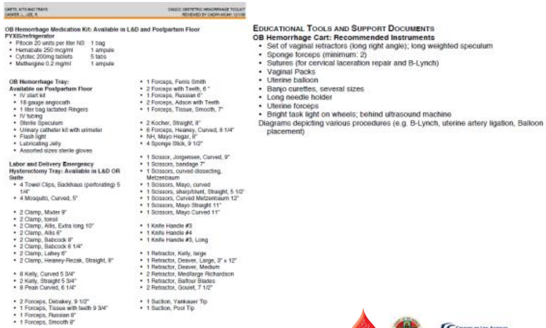
http://www.cookmedical.com/wh/educationResource.do?id=Educational_Video

- View B-Lynch suture video

http://www.medicanalife.com/watch_video.php?v=1293160256268ec

- Demonstrate how to estimate blood loss by percent saturation and weighing

Educational Program: OB Hemorrhage Cart/Kits



OB Hemorrhage Medication Kit: Available in L&D and Postpartum Floor PYXIS/refrigerator
- Pitocin 20 units per liter NS — 1 bag
- Hemabate 250 mcg/ml — 1 ampule
- Cytotec 200mg tablets — 5 tabs
- Methergine 0.2 mg/ml — 1 ampule

OB Hemorrhage Tray: Available on Postpartum Floor
- IV start kit
- 18 gauge angiocath
- 1 liter bag lactated Ringers
- IV tubing
- Sterile Speculum
- Urinary catheter kit with urimeter
- Flash light
- Lubricating Jelly
- Assorted sizes sterile gloves

Labor and Delivery Emergency Hysterectomy Tray: Available in L&D OR Suite
- 4 Towel Clips, Backhaus (perforating) 5 1/4"
- 4 Mosquito, Curved, 5"
- 2 Clamp, Mixter 9"
- 2 Clamp, tonsil
- 2 Clamp, Allis, Extra long 10"
- 2 Clamp, Allis 6"
- 2 Clamp, Babcock 8"
- 2 Clamp, Babcock 6 1/4"
- 2 Clamp, Lahey 6"
- 2 Clamp, Heaney-Rezak, Straight, 8"
- 8 Kelly, Curved 5 3/4"
- 2 Kelly, Straight 5 3/4"
- 8 Pean Curved, 6 1/4"
- 2 Forceps, Debakey, 9 1/2"
- 1 Forceps, Tissue with teeth 9 3/4"
- 1 Forceps, Russian 8"
- 1 Forceps, Smooth 8"
- 1 Forceps, Ferris Smith
- 2 Forceps with Teeth, 6"
- 1 Forceps, Russian 6"
- 2 Forceps, Adson with Teeth
- 1 Forceps, Tissue, Smooth, 7"
- 2 Kocher, Straight, 8"
- 6 Forceps, Heaney, Curved, 8 1/4"
- NH, Mayo Hegar, 8"
- 4 Sponge Stick, 9 1/2"
- 1 Scissor, Jorgensen, Curved, 9"
- 1 Scissors, bandage 7"
- 1 Scissors, curved dissecting, Metzenbaum
- 1 Scissors, Mayo, curved
- 1 Scissors, sharp/blunt, Straight, 5 1/2"
- 1 Scissors, Curved Metzenbaum 12"
- 1 Scissors, Mayo Straight 11"
- 1 Scissors, Mayo Curved 11"
- 1 Knife Handle #3
- 1 Knife Handle #4
- 1 Knife Handle #3, Long
- 1 Retractor, Kelly, large
- 1 Retractor, Deaver, Large, 3" x 12"
- 1 Retractor, Deaver, Medium
- 2 Retractor, Med/large Richardson
- 1 Retractor, Balfour Blades
- 2 Retractor, Goulet, 7 1/2"
- 1 Suction, Yankauer Tip
- 1 Suction, Pool Tip

EDUCATIONAL TOOLS AND SUPPORT DOCUMENTS

OB Hemorrhage Cart: Recommended Instruments
- Set of vaginal retractors (long right angle); long weighted speculum
- Sponge forceps (minimum: 2)
- Sutures (for cervical laceration repair and B-Lynch)
- Vaginal Packs
- Uterine balloon
- Banjo curettes, several sizes
- Long needle holder
- Uterine forceps
- Bright task light on wheels; behind ultrasound machine

Diagrams depicting various procedures (e.g. B-Lynch, uterine artery ligation, Balloon placement)

David Lagrew, MD, Audrey Lyndon RNC, CNS, PhD, Elliott Main, MD, Larry Shields, MD, Kathryn Melsop, MS, Debra Bingham, RN, DrPH. Obstetric Hemorrhage Toolkit: Improving Health Care Response to Obstetric Hemorrhage. (California Maternal Quality Care Collaborative Toolkit to Transform Maternity Care) Developed under contract ##08-85012 with the California Department of Public Health; Maternal, Child and Adolescent Health Division; Published by the California Maternal Quality Care Collaborative, June 2010.

Hemorrhage Simulation Drill Skills Lab/Demonstration Component

- Practice manipulating Bakri Balloon
- Practice B-Lynch suture
- Estimate blood loss by percent saturation and measure by weighing

http://www.cookmedical.com/search.do

Hemorrhage Simulation Drill Drill Scenario Component

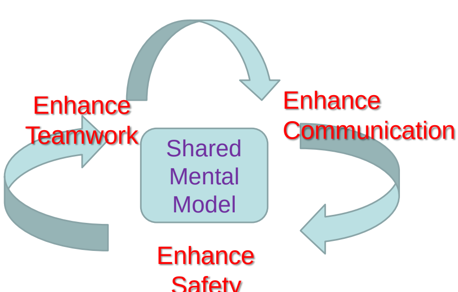
- Tailor to facility's procedures and the objectives and behaviors on which the drill will focus
- Work environment
- Have right props available
- Video or observers

Photo from Ogburn, P. Obstetric hemorrhage.

Situational Awareness and Teamwork

- Common understanding of what is happening and the course to take
- Know roles
- Address people by name
- Make eye contact
- Repeat orders
- Repeat that you are responding to order

Human Factor Goal



Adapted from Pliego JF. High risk obstetrics: The role of clinical simulation. 2009 Regional SUN, May 29, 2009.

SBAR

- Situation: Identify patient's condition
- Background: Patient's background relating to the problem
- Assessment: Appraisal of the patient's condition
- Recommendation: Propose how to treat the problem

http://www.mountainhome.af.mil/photos/mediagallery.asp?galleryID=1873&page=4

Hemorrhage Simulation Drill Debrief Session Component

- Review events
- Systematically discuss key events
- Identify weaknesses and strengths
- Non-punitive
- Supportive

Photo from Ogburn, P. Obstetric hemorrhage.

Drugs for Drills

California Code of Regulations
Title 22 70263
Pharmaceutical Service General Requirements

(q9) Drugs shall not be kept in stock after the expiration date on the label and no contaminated or deteriorated drugs shall be available for use.

(q10) Drugs maintained on the nursing unit shall be inspected at least monthly by a pharmacist.

http://perinatalweb.org/index.php?option=com_content&task=view&id=201&Itemid=398

Obstetrics Simulation Training Resources

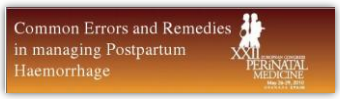
High-Risk Obstetrics: The Role of Clinical Simulation
http://www.laerdal.com/usa/sun/ppt/Jose_Pliego.pdf

Bakri Balloon Video
http://www.cookmedical.com/wh/educationResource.do?id=Educational_Video

B-Lynch Suture Video
http://www.medicanalife.com/watch_video.php?v=1293160256268ec

SBAR Learning Module for Nurses
http://warfieldgraphics.com/CLIENTS/SBAR/index.html

Links to Additional Resources on Postpartum Hemorrhage



http://www.oblink.com/display.asp?page=ECPM2010_Presentations

http://www.oblink.com/content/World-Congress-of-Perinatal-Medicine-2009_Schneider_presentation.htm

Appendix F4
Initial and Continuing Risk Assessment

Group/Meeting Name: Los Angeles County
OB Hemorrhage Learning Collaborative

Date: 12/2/10 Time: from: 12:00 PM to: 1:00 PM

Location: Web Conference: https://www.webmeeting.att.com;
Meeting number 877329654; Code 578202
Teleconference: Call Number (877) 322-9654
Access Code 578202

Meeting Leader: Diana Ramos, M.D., M.P.H.

Meeting Objectives:
- Discuss risk assessment for postpartum hemorrhage
- Review status of data collection and address challenges
- Share members' achievements, challenges, and current activities

Time	Issue	Lead
12:00 – 12:02	Welcome and Overview of Agenda	Diana Ramos
12:02 – 12:15	Initial and Continuing Risk Assessment for Hemorrhage	Gina Donatoni
12:15 – 12:30	Data Review and Update	Christine Morton
12:30 – 12:45	Report-Out from Two Hospitals	Group
12:45 – 1:00	Open Discussion	Group

*6 to mute/*7 to unmute

Hemorrhage Risk Assessment

Case Study
Hemorrhage Following Induction

- 33 year old, gravida 2, para 1
- Oligohydramnios
- Induced at 39 weeks with Cytotec
- 36 hours on Pitocin
- Chorioamnionitis, started on antibiotics
- Postpartum hemorrhage follows vaginal delivery

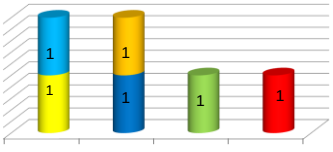
Case Study Cont.
Continuing Risk Assessment

- Hemorrhage risk low on admission
- Hemorrhage risk medium during labor and delivery
  - Chorioamnionitis
  - Over 18 hours on Pitocin
  - Atonic uterus following delivery

State CMQCC Hemorrhage Collaborative

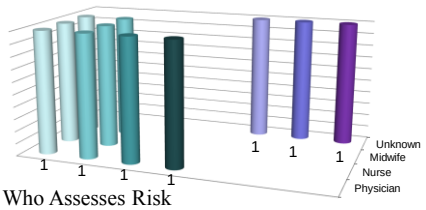
Risk Assessment on Admission
N=7

How Often Assessment Updated
N=6



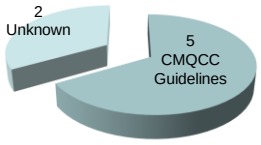
State CMQCC Hemorrhage Collaborative

Time to Assess Risk
N=4



Who Assesses Risk
N=7

State CMQCC Hemorrhage Collaborative

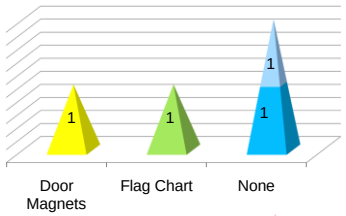


Criteria to Assign Risk
N=7

Low/Medium/High Risk
for Hemorrhage
N=7

State CMQCC Hemorrhage Collaborative

Indicators of Hemorrhage Risk
N=4



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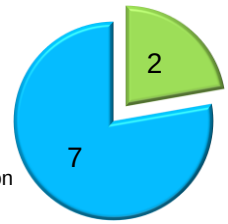
Documents Risk Assessment for Hemorrhage, LAC Baseline Survey

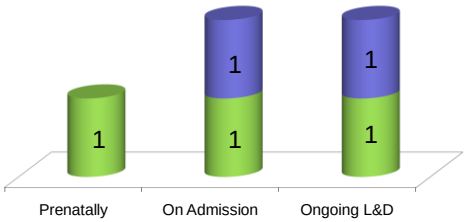


22%
Document
Assessment

78%
No
Documentation

N=9

Timing of Risk Assessments for Hemorrhage, LAC Baseline Survey



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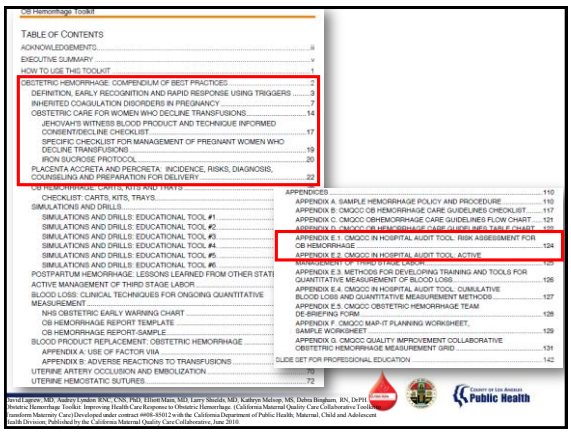


OB Hemorrhage Toolkit

TABLE OF CONTENTS

David Lagrew, MD; Audrey Lyndon, RNC, CNS, PhD; Elliott Main, MD; Larry Shields, MD; Kathryn Melcop, MS; Debra Bingham, RN, DrPH; Obstetric Hemorrhage Toolkit: Improving Health Care Response to Obstetric Hemorrhage. (California Maternal Quality Care Collaborative Toolkit, Transform Maternity Care) Developed under contract #408-85012 with the California Department of Public Health; Maternal, Child and Adolescent Health Division; Published by the California Maternal Quality Care Collaborative, June 2010.

Risk Assessment for Hemorrhage

Assess Risk During Prenatal Period and on Admission to Labor and Delivery

- Coagulation disorders
- History of postpartum hemorrhage
- Large uterine fibroids
- Multiple gestations
- Obesity
- Pregnancy-induced hypertension
- Previous Cesarean section births
- HELLP syndrome (hemolysis, elevated liver enzymes, low platelets)
- Uterine surgery

1. CMQCC Toolkit
2. State of New York Department of Health. Health Advisory: Prevention of maternal deaths through improved management of hemorrhage. August 13, 2004.

Risk Assessment for Hemorrhage

Reassess Risk During Labor and Delivery Stay

- Chorioamnionitis
- Labor over 18 hours
- Low platelet count (<100,000/mcL)
- Magnesium sulfate treatment
- Macrosomia
- Placenta acreta/percreta
- Prolonged use of oxytocin during labor
- Trauma during delivery
- Uterine atony

PROCEDURES

Prenatal, Admission and Ongoing Risk Assessment

- Identify and prepare for patients with special considerations: Placenta Preview/Accreta, Bleeding Disorder, or those who decline blood products
- Screen and aggressively treat severe anemia: if oral iron fails, initiate IV Iron Sucrose Protocol (Best Practice: Iron Sucrose Protocol) to reach desired Hgb/Hct, especially for at-risk mothers

Admission Assessment & Planning	
Verify Type & Antibody Screen from prenatal record ***If not available,*** ☐Order Type & Screen (lab will notify if 2nd clot needed for confirmation) ***If prenatal or current antibody screen positive (if not low level anti-D from Rho-GAM),*** ☐Type & Crossmatch 2 units PRBCs ***All other patients,*** ☐Send Clot to blood bank	Evaluate for ***Risk Factors*** (see below) ***If medium risk:*** ☐Order Type & Screen ☐Review Hemorrhage Protocol ***If high risk:*** ☐Order Type & Crossmatch 2 units PRBCs ☐Review Hemorrhage Protocol ☐Notify OB Anesthesia ***Identify*** women who may decline transfusion ☐Notify OB provider for plan of care ☐Early consult with OB anesthesia ☐Review Consent Form

Ongoing Risk Assessment

☐**Evaluate for development of additional risk factors in labor:**
- Prolonged 2nd Stage labor
- Prolonged oxytocin use
- Active bleeding
- Chorioamnionitis
- Magnesium sulfate treatment

☐**Increase Risk level** (see below) **and convert to Type & Screen or Type & Crossmatch**
☐**Treat multiple risk factors as High Risk**

Admission Hemorrhage Risk Factor Evaluation

Low (Clot only)	Medium (Type and Screen)	High (Type and Cross)
No previous uterine incision	Prior cesarean birth(s) or uterine surgery	Placenta previa, low lying placenta,
Singleton pregnancy	Multiple gestation	Suspected placenta accreta or percreta
≤4 previous vaginal births	>4 previous vaginal births	Hematocrit <30 AND other risk factors
No known bleeding disorder	Chorioamnionitis	Platelets <100,000
No history of PPH	History of previous PPH	Active bleeding (greater than show) on admit
	Large uterine fibroids	Known coagulopathy
	Estimated fetal weight greater than 4 kg	
	Morbid obesity (BMI >35)	

*If admitted patients are started on magnesium sulfate they are at higher risk of postpartum hemorrhage.

David Lagrew, MD, Audrey Lyndon RNC, CNS, PhD, Elliott Main, MD, Larry Shields, MD, Kathryn Melsop, MS, Debra Bingham, RN, DrPH. Obstetric Hemorrhage Toolkit: Improving Health Care Response to Obstetric Hemorrhage. (California Maternal Quality Care Collaborative Toolkit to Transform Maternity Care) Developed under contract ##08-85012 with the California Department of Public Health; Maternal, Child and Adolescent Health Division; Published by the California Maternal Quality Care Collaborative, June 2010.

Sample Hemorrhage Risk Evaluation

OB Hemorrhage Risk Factor Evaluation

Low	Medium	High
☐ Normal vaginal delivery	☐ Prior cesarean birth(s) or uterine surgery	☐ 3 or more previous cesarean sections
☐ No previous uterine incision	☐ Uterine overdistension: multiple gestation, polyhydramnios	☐ Placenta previa bleeding
☐ Singleton pregnancy	☐ Greater than 4 vaginal births	☐ Suspected placenta accreta or percreta
☐ Less than or equal to 4 previous vaginal births	☐ Chorioamnionitis	☐ Hct ≤ 30 **AND** other risk factors
☐ Elective primary cesarean anticipated as uncomplicated	☐ History of previous postpartum hemorrhage	☐ Platelets < 75,000
☐ No known bleeding disorder	☐ Large uterine fibroids	☐ Active bleeding (greater than show on admit)
☐ No history of postpartum hemorrhage	☐ Placenta previa, no bleeding	☐ Known coagulopathy
ACTIONS: Send Retained Sample Reassess as appropriate	☐ Platelets ≤ 100,000 ☐ Greater oxytocin then (> 18 hours) ACTIONS: Send Type and Hold Resend clot every 72 hours Reassess every 72 hours Keep Cumulative Blood Loss Log	ACTIONS: Send Type and Cross Resend clot every 72 hours Reassess every 72 hours Keep Cumulative Blood Loss Log
Other:		

Electronic Medical Records to Document Risk Assessments

- Assigns risk level based on assessment
- Generates orders based on risk level
- Updates chalkboard
- Data collection
- Electronic white board shows risk level, type/screen completed

Based on State OB Collaborative hospital recommendations

Jehovah's Witness Consent/Decline Checklist

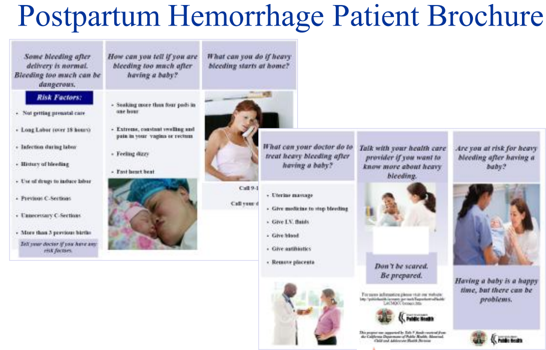
JEHOVAH'S WITNESS BLOOD PRODUCT AND TECHNIQUE INFORMED CONSENT/DECLINE CHECKLIST

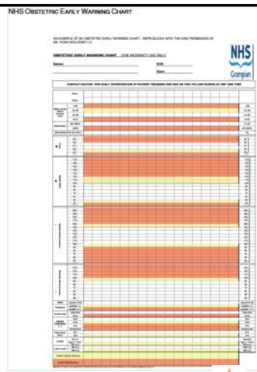
My signature below indicates that I request no blood derivatives other than the ones which I have designated in this consent be administered to me during this hospitalization. My attending physician,__________________M.D. has reviewed and fully explained to me, ***the risks and benefits*** of the following blood products and methods for alternative non-blood medical management and blood conservation available to me. My attending physician__________________M.D. has also **fully explained to me the potential risks associated by not authorizing blood and / or non-blood management during this hospitalization.**

	ACCEPT	DO NOT ACCEPT
COMPONENTS OF HUMAN BLOOD		
Red Blood Cells	______	______
Fresh Frozen Plasma	______	______
Platelets	______	______
Cryoprecipitate	______	______
Albumin	______	______
Plasma Protein Fraction	______	______
INTRAVENOUS FLUIDS WHICH ARE NOT COMPONENTS OF HUMAN BLOOD		
Hetastarch	______	______
Balanced Salt Solutions	______	______
MEDICATIONS WHICH CONTAIN A FRACTION OF HUMAN BLOOD		
Rhogam	______	______
Erythropoeitin	______	______
Human Immunoglobulin	______	______
Tisseel	______	______
TECHNIQUES FOR BLOOD CONSERVATION / PROCESSING		
Hemodilution	______	______
Cell Saver	______	______
Autologous Banked Blood	______	______
Cardiopulmonary Bypass	______	______
Chest Drainage Autotransfusion	______	______
Plasmapheresis	______	______
Hemodialysis	______	______
Other____	______	______

David Lagrew, MD, Audrey Lyndon RNC, CNS, PhD, Elliott Main, MD, Larry Shields, MD, Kathryn Melsop, MS, Debra Bingham, RN, DrPH. Obstetric Hemorrhage Toolkit: Improving Health Care Response to Obstetric Hemorrhage. (California Maternal Quality Care Collaborative Toolkit to Transform Maternity Care) Developed under contract ##08-85012 with the California Department of Public Health; Maternal, Child and Adolescent Health Division; Published by the California Maternal Quality Care Collaborative, June 2010.

Postpartum Hemorrhage Patient Brochure





David Lagrew, MD, Audrey Lyndon RNC, CNS, PhD, Elliott Main, MD, Larry Shields, MD, Kathryn Melsop, MS, Debra Bingham, RN, DrPH. Obstetric Hemorrhage Toolkit: Improving Health Care Response to Obstetric Hemorrhage. (California Maternal Quality Care Collaborative Toolkit to Transform Maternity Care) Developed under contract ##08-85012 with the California Department of Public Health; Maternal, Child and Adolescent Health Division; Published by the California Maternal Quality Care Collaborative, June 2010.

Audit Tool for Risk Assessment

OB HEMORRHAGE TOOLKIT

APPENDIX E.1. CMQCC IN HOSPITAL AUDIT TOOL: RISK ASSESSMENT FOR OB HEMORRHAGE

Topic: Risk Assessment for obstetric hemorrhage is documented in the chart at admission.
Goal: 100% of women are assessed for risk of obstetric hemorrhage on admission by [date].
Instructions: Audit 20 *randomly selected* charts per month (10 Vaginal, 10 cesarean).

	MR# ☐Vaginal Delivery ☐ Cesarean Delivery	MR# ☐Vaginal Delivery ☐ Cesarean Delivery	MR# ☐Vaginal Delivery ☐ Cesarean Delivery	MR# ☐Vaginal Delivery ☐ Cesarean Delivery	MR# ☐Vaginal Delivery ☐ Cesarean Delivery
Risk Assessment is documented in the chart	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐
	MR# ☐Vaginal Delivery ☐ Cesarean Delivery	MR# ☐Vaginal Delivery ☐ Cesarean Delivery	MR# ☐Vaginal Delivery ☐ Cesarean Delivery	MR# ☐Vaginal Delivery ☐ Cesarean Delivery	MR# ☐Vaginal Delivery ☐ Cesarean Delivery
Risk Assessment is documented in the chart	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐
	MR# ☐Vaginal Delivery ☐ Cesarean Delivery	MR# ☐Vaginal Delivery ☐ Cesarean Delivery	MR# ☐Vaginal Delivery ☐ Cesarean Delivery	MR# ☐Vaginal Delivery ☐ Cesarean Delivery	MR# ☐Vaginal Delivery ☐ Cesarean Delivery
Risk Assessment is documented in the chart	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐
	MR# ☐Vaginal Delivery ☐ Cesarean Delivery	MR# ☐Vaginal Delivery ☐ Cesarean Delivery	MR# ☐Vaginal Delivery ☐ Cesarean Delivery	MR# ☐Vaginal Delivery ☐ Cesarean Delivery	MR# ☐Vaginal Delivery ☐ Cesarean Delivery
Risk Assessment is documented in the chart	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐

Total number of audited charts with:
Numerator: _______ Risk Assessment Documented in Chart
Denominator: ________Total Number of Charts Audited

David Lagrew, MD, Audrey Lyndon RNC, CNS, PhD, Elliott Main, MD, Larry Shields, MD, Kathryn Melsop, MS, Debra Bingham, RN, DrPH. Obstetric Hemorrhage Toolkit: Improving Health Care Response to Obstetric Hemorrhage. (California Maternal Quality Care Collaborative Toolkit to Transform Maternity Care) Developed under contract ##08-85012 with the California Department of Public Health; Maternal, Child and Adolescent Health Division; Published by the California Maternal Quality Care Collaborative, June 2010.

Data Review and Update

Christine Morton, Ph.D.
morton@cmqcc.org
650-721-2187

Report-Out November Activities

- Accomplishments
- Challenges
- Current activities
- Next activities planned

Appendix F5
Forms and Documentation

Agenda

Group/Meeting Name: Los Angeles County
OB Hemorrhage Learning Collaborative

Date: 1/27/11 Time: from: 12:00 PM to: 1:00 PM

Location: Web Conference: https://www.webmeeting.att.com;
Meeting number 8882961938; Code 456552
Teleconference: Call Number (888)296-1938;
Access Code 456552

Meeting Leader: Diana Ramos, M.D., M.P.H.

Meeting Objectives:
- Review use of forms/documentation for quality improvement and risk management
- Review status of data collection and of aggregated data collected
- Share team accomplishments and challenges

Time	Issue	Lead
12:00 – 12:02	Welcome and Overview of Agenda	Diana Ramos
12:02 – 12:15	Forms and Documentation	Gina Donatoni
12:15 – !2:30	Data Review and Update	Christine Morton
12:30 – 12:45	Report-Out	Citrus Valley Medical Center Good Samaritan Hospital
12:45 – 1:00	Open Discussion	Group

Forms and Documentation

Case Study

Blood Loss Addressed too Late, Mother Dies after Childbirth

- 35- year old woman
- 6 – 7 cm dilated at routine prenatal visit
- Hospitalized for evaluation
- C-section early next morning
- Bleeding in recovery room
- Crystalloid given for postpartum bleeding
- Expired before surgical intervention possible
- $1 million settlement (Maryland)

Journal of Family Practice. Medical Verdicts. February 2009.
http://www.jfponline.com/Pages.asp?AID=7319

Prenatal Documentation

NAME

DRUG ALLERGY | LATEX ALLERGY ☐ YES ☐ NO

IS BLOOD TRANSFUSION ACCEPTABLE? YES X NO | ANTEPARTUM ANESTHESIA CONSULT PLANNED ☐ YES ☐ NO

PROBLEMS/PLANS
1. Jehovah's Witness
2. Anemia

MEDICATION LIST (Include Dosage) | Start date | Stop date

EDD CONFIRMATION

18–20-WEEK EDD UPDATE

PREPREGNANCY WEIGHT

COMMENTS

SAMPLE

ACOG Antepartum Record Form.
http://www.acog.org/bookstore/ACOG_Antepartum_Record_Plain_P_P327.cfm

Admission History and Physical

Risk Assessment Form

OB Hemorrhage Risk Factor Evaluation

Low	Medium	High
☐ Normal vaginal delivery	☐ Prior cesarean birth(s) or uterine surgery	☐ 3 or more previous cesarean sections
☐ No previous uterine incision	☐ Uterine overdistension: multiple gestation, polyhydramnios	☐ Placenta previa bleeding
☐ Singleton pregnancy	☐ Greater than 4 vaginal births	☐ Suspected placenta accreta or percreta
☐ Less than or equal to 4 previous vaginal births	☐ Choriamnionitis	☐ Hct ≤ 30 **AND** other risk factors
☐ Elective primary cesarean anticipated as uncomplicated	☐ History of previous postpartum hemorrhage	☐ Platelets < 75,000
☐ No known bleeding disorder	☐ Large uterine fibroids	☐ Active bleeding (greater than show on admit)
☐ No history of postpartum hemorrhage	☐ Placenta previa, no bleeding	☐ Known coagulopathy
ACTIONS: Send Retained Sample Reassess as appropriate	☐ Platelets ≤ 100,000	ACTIONS: Send Type and Cross Resend clot every 72 hours Reassess every 72 hours Keep Cumulative Blood Loss Log
	☐ Greater oxytocin then (> 18 hours)	
	ACTIONS: Send Type and Hold Resend clot every 72 hours Reassess every 72 hours Keep Cumulative Blood Loss Log	

Other:

Labor Unit Hand-Off Report

SBAR Form

SBAR Report	Obstetric Patients
Situation	• Identify yourself and where you are calling from • Patient's name and reason for report • Patient was admitted for: • I am concerned about: ○ FHR ○ Contraction Pattern ○ Blood Pressure (give examples) ○ Vaginal Bleeding, etc.
Background	• Gravida___ Para___ @___ weeks gestation • OB or CNM attending • Significant medical and obstetrical history includes: • Problems with current pregnancy are • Relate the complaints by the patient and the pain level
Assessment	• Maternal Vital Signs • FH=Variability, Baseline, Accelerations, Decelerations, Contraction Pattern *NCHD Language: see back of form.* • Significant Lab Values • Intrauterine Resuscitative Measures • Give your conclusions about the present situation. Words like "might be" or "could be" are helpful.
Recommendation	• What I need from you is • Be specific about a time frame • Suggestions for tests/treatments: ○ Liver Function Studies, CMP, UA, Procin, Methergine, Magnesium Level, Coagulation Profile, KB, Antibiotics, Brethine, etc. • Clarify orders, vital sign frequency, under what circumstances to call back.

U:\Redesign\SBAR Perinatal Nov2005.doc

Ascension Health. http://www.premierinc.com/quality-safety/tools-services/safety/safety-share/07-06-downloads/09-sbar-perinatal-report.pdf

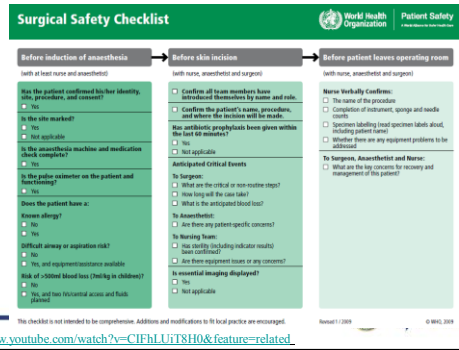
Delivery Room / OR

New York City Department of Health

http://www.health.state.ny.us/professionals/protocols_and_guidelines/maternal_hemorrhage/docs/managing_maternal_hemorrhage_poster.pdf

Delivery Room / OR

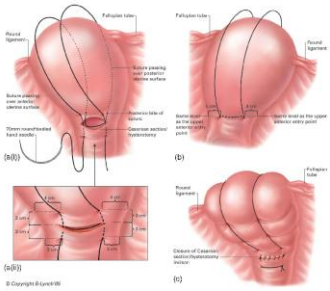
WHO Surgical Safety Checklist



http://www.youtube.com/watch?v=CIFhLUiT8H0&feature=related_

Delivery Room / OR

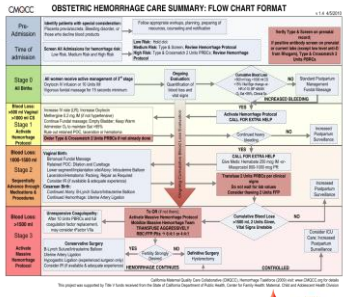
B-Lynch Diagram



http://www.glowm.com/resources/glowm/graphics/figures/v1/0730/pph_2a-c.jpg

Delivery Room / OR

CMQCC Hemorrhage Care Guidelines



Delivery through Recovery

Cumulative Blood Loss Tracking Form

EXAMPLE

Item	Approx Dry Weight (gms)	"Wet" weight (grams)	Wet weight minus Dry weight = Milliliters of fluid/blood	Total per category
Blue Chux	35	135 (- 35 =)	100 ml	100 ml
Kendall Curity Maternity Pads®	14			
Maxithins®	11	26 + 31 = 57 (- 22 =)	35 ml	35 ml
Cloth soaker pad	465			
Dry lap sponge (large)	22	"Soaked" lap = 80 gms → "Partially wet" lap = 50gms →	Approx. 60ml blood x 15 = 900ml Approx. 30ml blood x 20 = 600ml	1500 ml
Dry lap sponge (small)				
Graduated container volume		Container volume minus estimated amniotic fluid volume	Container #1 _____ Container #2 _____ Container #3 _____	
			TOTAL ESTIMATED BLOOD LOSS (ml)	1635 ml

SAMPLE

Post-Hemorrhage CMQCC Debrief Form

PRINT THIS FORM DOUBLE-SIDED; PATIENT STAMP ON BACK OF FORM WILL NOT BE FAXED WITH COMPLETED FORM - *Attach additional pages with notes as needed*

Were the following medications, procedures or blood products used? *(Check if yes, check all that apply)*

Medications
- ☐ High dose misoprostol (800-1000 mcg)
- ☐ Carboprost tromethamine (Hemabate)

Blood Volume/Options
- ☐ Invasive hemodynamic monitoring
- ☐ Blood warmer
- ☐ Rapid fluid infuser (level one machine)
- ☐ Blood cell salvage machine (cell saver)
- ☐ Factor VIIa (non-standard treatment)

Procedures
- ☐ Intrauterine balloons
- ☐ B-Lynch suture
- ☐ Uterine artery ligation
- ☐ Uterine artery embolization
- ☐ Non-pneumatic Anti-shock Garments (NASG; non-standard treatment)

COMMENTS about medications, procedures, or blood products:

- ☐ Primary MD participated in de-brief? *(Check if yes)*
- ☐ Primary RN participated in de-brief? *(Check if yes)*

Post-hemorrhage, the patient required... *(Check if yes, check all that apply)*
- ☐ Intubation
- ☐ Central Line
- ☐ Pressors
- ☐ Arterial Line
- ☐ Admission to ICU
- ☐ Admission to higher acuity unit (e.g., PACU)

Volume of blood lost: ____ mls

Method of Blood Loss Measurement *(Check all that apply)*
- ☐ Visually Estimated Only
- ☐ Formal Estimate using Posters/Pictures
- ☐ Formal Measure by weight
- ☐ Formal Measure by volume collection

Blood Product Transfusion Ratios - Active Hemorrhage Treatment and Resuscitation Period (the first 4-6 hours PP)

Units of PRBCs: _____ Units of FFP: _____

Units of Platelets: _____ Units of Cryo: _____

Thinking about how the obstetric hemorrhage was managed...

Identify what went well *(Check if yes, describe)*
- ☐ Communication went well
- ☐ Teamwork went well
- ☐ Leadership went well
- ☐ Decision-making went well
- ☐ Assessing the situation went well
- ☐ Other

Briefly describe:

Identify opportunities for Improvement: "human factors" *(Check if yes, describe)*
- ☐ Communication needed improvement
- ☐ Teamwork needed improvement
- ☐ Leadership needed improvement
- ☐ Decision-making needed improvement
- ☐ Assessing needed improvement
- ☐ Other

Briefly describe:

Identify opportunities for Improvement: "non-human factors" *(Check if yes, describe)*
- ☐ Delay in blood products availability
- ☐ Equipment issues
- ☐ Medications issues
- ☐ Inadequate support (in-unit or other areas of the hospital)
- ☐ Delays in transporting the patient (within the hospital or to another facility)
- ☐ Other

Briefly describe:

http://www.cmqcc.org/ob_hemorrhage

What Happens When You Don't Have Good Documentation?

- Patient Consequences
- Patient Safety/Quality Improvement Issues
- Malpractice

Consequences of Poor Documentation: Patient Outcomes

- Compromised quality of care
- Increased morbidity and mortality
- Breakdown of patient – physician relationship
- Patient/familial duress

Quality Improvement Consequences

- Joint Commission: Cesarean Section rate for low risk first births, Elective Delivery <39weeks
- Monitoring birth outcome trends

Top Reasons for Malpractice Lawsuits

- Not pursing patient's medical history
- Ignore past developments in subsequent interactions
- Failure to track/review/document tests and referrals
- Communications breakdown
- Medication errors
- Errors obtaining informed consent
- Lack of formalized roles between physicians
- Patient instructions/education poorly documented
- Patient-physician relations

Schoppmann, MJ Esq. Top Reasons Physicians are Sued for Malpractice : http://www.rcms.org/blog/wp-content/uploads/2010/08/Top-Reasons-Physicians-Are-Sued-for-Malpractice.pdf

Overall Recommendations For Documentation

Principles

Documentation

Good documentation:

- Facilitates optimal care
- Reduces chance of error
- Is best defense in lawsuit

ACOG The American College of Obstetricians and Gynecologists Women's Health Care Physicians

Professional Liability and Risk Management: An Essential Guide for Obstetrician-Gynecologists. Module 5. Available to ACOG members at ACOG.org.

Page 1

Risk Management

Documentation

- Be prompt in documenting
- Keep all charts in the office
- Have organized filing system
- Insist on timely filing
- Keep risk assessments/screening forms with chart

Accuracy

Documentation

- Be consistent in word use
- Choose words carefully (e.g., "extraction" vs. "delivery")
- Note all treatment events with time, date, signature

Comprehensiveness

Documentation

- Discussions with patient
- Her response
- Her questions/concerns/comments - both positive and negative

Electronic Medical Record

Documentation

Risk management advantages:

- Legibility
- Automatic dating
- Inclusion of e-mail messages
- Remote access

Electronic Medical Record

Documentation

Risk management advantages:

- Built-in prompts
- Drug interactions flagged
- Dosage levels determined
- Options for standardized wording

Data Review and Update

Christine Morton, Ph.D.
morton@cmqcc.org
650-721-2187

Report-Out of January Activities

- Accomplishments
- Challenges
- Current activities
- Next activities planned

Appendix F6
Recognition of Obstetric Hemorrhage

Agenda

Group/Meeting Name: Los Angeles County OB Hemorrhage Learning Collaborative

Date: 2/17/11 Time: from: 12:00 PM to: 1:00 PM

Location: Web Conference: https://www.webmeeting.att.com; Meeting number 8888306260; Code 753387 Teleconference: Call Number (888) 830-6260; Access Code 753387

Meeting Leader: Diana Ramos, MD

Meeting Objectives:
- Review techniques and signs for identifying postpartum hemorrhage early
- Review status of data collection and of aggregated data collected
- Share team accomplishments and challenges

Time	Issue	Lead
12:00 – 12:02	Welcome and Overview of Agenda	Diana Ramos
12:02 – 12:15	Recognition of Hemorrhage	Elliott Main Gina Donatoni
12:15 – 12:45	Data Review and Update	Kathryn Melsop Christine Morton
12:45 – 1:00	Open Discussion	Group

*6 mute / *7 unmute

Recognition of Hemorrhage

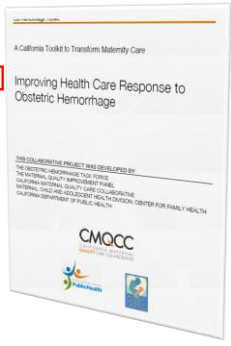
Case Study

- 30-year old woman
- Delivered 1/29/2004
- Complained of pain and dizziness
- Continued bleeding
- Signs of respiratory failure
- Expired 2/11/2004
- Failed to give prompt diagnosis and treatment
- $8.5 Million to family

http://www.messalaw.com/settlements/Medical-Malpractice/

OB Hemorrhage Toolkit

TABLE OF CONTENTS



Maternal Hemorrhage: Early Recognition and Rapid Response

- Recognition of risk factors leading to heightened surveillance
- Standardized measurement of blood loss
- Vital signs as triggers or alerts to prompt intervention

David Lagrew, MD; Audrey Lyndon RNC, CNS, PhD; Elliott Main, MD; Larry Shields, MD; Kathryn Melsop, MS; Debra Bingham, RN, DrPH. Obstetric Hemorrhage Toolkit: Improving Health Care Response to Obstetric Hemorrhage. (California Maternal Quality Care Collaborative Toolkit to Transform Maternity Care) Developed under contract #4908-85012 with the California Department of Public Health; Maternal, Child and Adolescent Health Division; Published by the California Maternal Quality Care Collaborative, June 2010.

Recognition of Risk Factors Leads to Heightened Surveillance

- Coagulation disorders
- History of postpartum hemorrhage
- Large uterine fibroids
- Multiple gestations
- Obesity
- Uterine surgery
- Pregnancy-induced hypertension
- Previous Cesarean births
- HELLP syndrome (hemolysis, elevated liver enzymes, low platelets)

1. CMQCC Toolkit
2. State of New York Department of Health. Health Advisory: Prevention of maternal deaths through improved management of hemorrhage. August 13, 2004.

Recognition of Risk Factors Leads to Heightened Surveillance

- Chorioamnionitis
- Labor over 18 hours
- Low platelet count (<100,000/mcL)
- Magnesium sulfate treatment
- Macrosomia
- Placenta acreta/percreta
- Prolonged use of oxytocin during labor
- Trauma during delivery
- Uterine atony

Heightened Surveillance of Cumulative Blood Loss Leads to Prompt Intervention

- Standardized measurement using calibrated drapes or weighing
- Death can result from slow, constant bleeding
- Hemodynamic changes of pregnancy may mask signs of hemorrhage until patient unstable

Department of Health, NSW. Policy Directive: Maternity-Prevention, Early Recognition, & Management of Postpartum Haemorrhage. 2010
Garcia J. Postpartum Hemorrhage. (PPT).2011

Heightened Surveillance of Clinical Signs Leads to Prompt Intervention

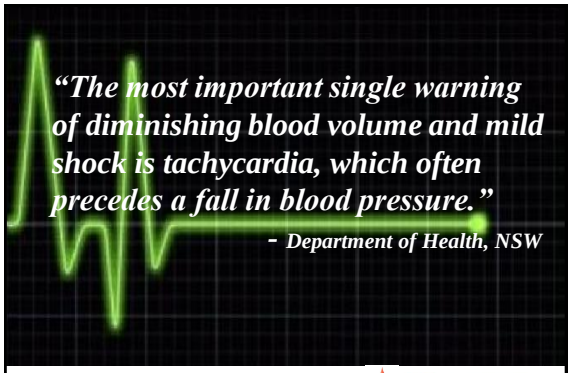
- Most postpartum hemorrhage cases have no risk factors
- Small bleed less likely tolerated if anemic, pregnancy-induced hypertension, small build
- Internal bleeding can be hidden

Garcia J. Postpartum Hemorrhage (PPT). December 2001.
http://embedit.in/osDtCTZYdE

Vital Signs as Triggers for Prompt Intervention

- Heart Rate $\geq$ 110
- Blood Pressure $\leq$ 85/45 (> 15% drop)
- Oxygen Saturation <95%

Kevin Lagrew, MD, Audrey Lyndon, RNC, CNM, PhD, Efrem Mann, MD, Larry Sherlis, MD, Kathryn Melsop, MS, Debra Bingham, RN, DrPH. Obstetric Hemorrhage Toolkit: Improving Health Care Response to Obstetric Hemorrhage. (California Maternal Quality Care Collaborative Toolkit Transform Maternity Care) Developed under contract #4498-85012 with the California Department of Public Health, Maternal, Child and Adolescent Health Division. Published by the California Maternal Quality Care Collaborative. June 2010.



Department of Health, NSW. http://www.health.nsw.gov.au/policies
Image at www.kingdomwordministries.com/read.asp?docid=620

Maternity - Prevention, early recognition and management of postpartum haemorrhage (PPH)

NSW HEALTH PROCEDURES

Table 2: Clinical findings in PPH[8]

	Degree of Shock			
	Compensation	Mild Shock	Moderate Shock	Severe Shock
Blood Loss	900 mls 15%	1200-1500 mls 20-25%	1800-2000 mls 30-35%	2400 mls 40%
BP (systolic)	No change	Minor (postural) fall (80-100 mmHg)	Marked fall (70-80 mmHg)	Profound fall (50-70 mmHg)
Signs & symptoms	Minimal	Weakness, anxiety, ±tachycardia, slow capillary refill, ±oliguria	Tachycardia, restlessness, cold/clammy skin, pallor, oliguria	Collapse, depressed mental state, air hunger, anuria, circulatory arrest if untreated

Finn M, Bowyer L, Carr s, O'Connor V, Vollenhoven B Editors. Chapter14 – Specific Obstetric Emergencies. In *Women's Health - a core curriculum, Elsevier, Australia*, 2005. In Department of Health, NSW. Policy Directive: Maternity – Prevention, Early Recognition and Management of Postpartum Haemorrhage. October 21, 2010.
http://www.health.nsw.gov.au/policies/

Risk Identifiers

EMERGENCY CODES

Every Associate is responsible for ensuring the safety and security of the Medical Center.
For any emergency call the code line, extension **1111**.

Color or Code Name	Description
Code **RED**	FIRE
Code **BLUE**	ADULT MEDICAL EMERGENCY (8 years old or greater)
Code **WHITE**	PEDIATRIC MEDICAL EMERGENCY (0-8 years old)
RAPID RESPONSE TEAM	RAPID RESPONSE TEAM
Code **AMI**	ACUTE MYOCARDIAL INFARCTION
Code **OB**	MATERNAL/FETAL EMERGENCY
Code **PINK**	INFANT ABDUCTION
Code **PURPLE**	CHILD ABDUCTION
Code **YELLOW**	BOMB THREAT
Code **ORANGE**	HAZARDOUS MATERIAL SPILL/RELEASE
Code **GREEN**	PATIENT ELOPEMENT
Code **GRAY**	COMBATIVE PERSON
Code **SILVER**	PERSON WITH A WEAPON AND/OR HOSTAGE SITUATION
Code **SEPSIS**	SEVERE SEPSIS PATIENT IDENTIFIED AND MULTI-DISCIPLINARY TEAM MOBILIZED TO INITIATE THE SEPSIS ORDER SET
Code **TRIAGE ALERT**	HIGH IMPACT EVENT HAS OCCURRED OR MAY OCCUR
Code **TRIAGE INTERNAL**	INTERNAL DISASTER
Code **TRIAGE EXTERNAL**	EXTERNAL DISASTER
Code **TRAUMA TIER I** or **II**	TRAUMA
FULL CAPACITY LEVEL Green/Blue/Orange/Red	FULL CAPACITY LEVEL GREEN: Busy, but not overcrowded BLUE: Overcrowded ORANGE: Severely Overcrowded RED: Dangerously Overcrowded

Courtesy of L'Tanya M. Simien-Robnett, RN, PHN, MSN

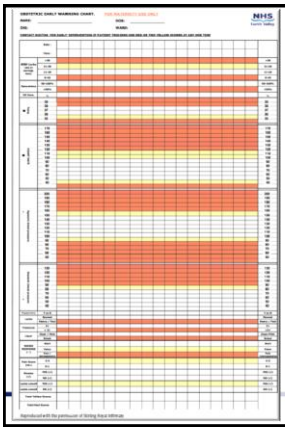
Risk Identifiers

DOOR SIGN

WRIST BAND

DOOR MAGNET

Bracelet: http://best-b2b.com/Products/1110/1114-1/plastic-wristbands-bracelets_611123.html
Magnet: http://www.diytrade.com/china/4/products/1250219/Magnetic_Bar_red_blue_yellow_green.html



Obstetric Early Warning Chart

"Contact doctor for early intervention if patient triggers one red or two yellow scores at any one time."

Royal College of Obstetricians and Gynaecologists. Prevention and management of postpartum hemorrhage. Green-top Guideline No. 52. London RCOG; 2009. http://www.figomacau2010.com/assets/Uploads/asgm/Guidelines/RCOG---UK/No-52-Prevention-and-Management-of-Postpartum-Haemorrhage.pdf

Patient Education

Data Review and Update

Christine Morton, Ph.D.
morton@cmqcc.org
650-721-2187

Kathryn Melsop, M.S.
melsop@cmqcc.org
650-723-4814

Report-Out of February Activities

Appendix F7
Sustaining Administrative Support

Agenda

Group/Meeting Name: Los Angeles County
OB Hemorrhage Learning Collaborative

Date: 3/24/11 Time: from: 12:00 PM to: 1:00 PM

Location: Web Conference: https://www.webmeeting.att.com;
Meeting number 8773229654; Code 396838
Teleconference: Call Number (877)322-9654
Access Code 396838

Meeting Leader: Diana Ramos, M.D.

Meeting Objectives:
- Identify strategies for continued administrative support
- Review status of data collection
- Share team accomplishments and challenges

Time	Issue	Lead
12:00 – 12:02	Welcome and Overview of Agenda	Diana Ramos, M.D.
12:02 – 12:15	Sustaining Administrative Support	Michael Fassett, M.D.
12:15 – 12:45	Data Review and Update	Kathryn Melsop Christine Morton
12:45 – 1:00	Open Discussion	Group

*6 mute / *7 unmute

1

Sustaining Administrative Support

Sustaining Administrative Support

LAC OB Hemorrhage Learning Collaborative

Perinatal Patient Safety Project (PPSP)

- Regional program (early 2004)
- Designed to address/decrease birth-related injuries
- Create Highly Reliable Perinatal Unit in every facility
- Emphasizes human factors techniques, drills, just culture
- Improve teamwork, communication, safety climate

PPSP Working Committee

- Post-implementation working group
  - Maternal-fetal medicine
  - Ob/Gyn
  - Labor/delivery RN administrator
  - Labor/delivery nursing
  - CRNA/Anesthesiology
  - Postpartum RN administrator
- Critical Event Team Training 2x/year
  - OB, Anesthesia, CNM, RN, surgical tech, unit clerk
- Hemorrhage response added as focus
  - Added blood bank representative

Other factors

- Ob/Gyn Chief of Service
  - Regional PPSP Physician Lead
  - Medical Center Physician Quality Director
  - Clinically active on L/D
- Maternal-Fetal Medicine
  - Ob/Gyn Quality Chair
  - Clinically active on L/D
- Labor/delivery RN Administrator
  - Highly-skilled labor/delivery nurse
  - Clinically active on L/D

Data entry

- Regional administrative data (e-mailed)
  - Transfusions
  - Hysterectomies
- Local blood bank data (e-mailed)
  - Units transfused with patient/unit/MD identifiers
- Correlate data
- Data entry while doing in-house call

Data Review and Update

Report-Out of March Activities

Appendix F8

Policies and Procedures

Agenda

Group Meeting Name: Los Angeles County
OB Hemorrhage Learning Collaborative

Date: 4/28/11 Time: from: 12:00 PM to: 1:00 PM

Location: Web Conference: https://www.webmeeting.att.com;
Meeting number 8778075706; Code 575183
Teleconference: Call Number (877)807-5706
Access Code 575183

Meeting Leader: Giannina Donatoni

Meeting Objectives:
- Learn strategies for developing and implementing OB hemorrhage policy
- Review status of data collection
- Share team accomplishments and challenges

Time	Issue	Lead
12:00 – 12:02	Welcome and Overview of Agenda	Giannina Donatoni
12:02 – 12:15	OB Hemorrhage Collaborative – The Road to Policy Implementation	L'Tanya Simien-Robnett
12:15 – 12:45	Data Review and Update	Christine Morton Kathryn Mehop
12:45 – 1:00	Open Discussion	Group

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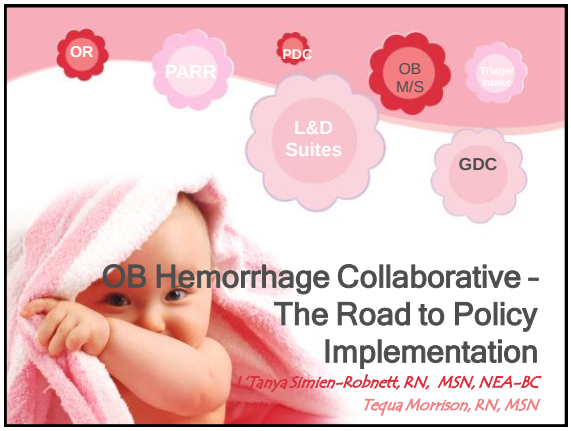
Public Health

OB Hemorrhage Policies and Procedures

Public Health



OB Hemorrhage Collaborative – The Road to Policy Implementation

L'Tanya Simien-Robnett, RN, MSN, NEA-BC
Tequa Morrison, RN, MSN

Overview

1. Assessment of Scope of Project
2. OB Collaborative Practice Committee
3. Supplies
4. Forms & QS Documentation
5. Communication
6. Policy/Procedure & Protocols
7. Education, Drills and Audits.

Assessment and Scope of Project

The California Maternal Quality Care Collaborative (CMQCC) utilized evidence-based practices to decrease preventable maternal morbidity.

The focus was to improve readiness, recognition, response and reporting of Obstetric Hemorrhage by establishing policies/procedures that implement protocols & guide multidisciplinary training for a cooperative & timely response.

Assessment and Scope of Project

- As a team, we sat down and looked at all of the components of the OB Hemorrhage Quality Improvement Charter……and tried to break out the many parts that would require implementation prior to the development of a policy/protocols……

Assessment and Scope of Project

- Take parts of project and break out assignments:
  - Supplies
  - Forms/Documentation
  - MTP Protocol & Blood bank
  - Education (MD/RN)
  - Audits/Drills

OB Collaborative Practice Committee

- OB Collaborative Practice was initiated in November 2009 as a result of the need for an improved communication and working group to get practice changes through in a more organized, collaborative and timely manner.
- OB Collaborative Practice Committee is the working committee that reports to OB Medical Staff Committee. Many areas of evaluation/focus are first evaluated & improved or eliminated by the working group to channel processes, forms, policies, etc to be ready for approval when submitted to OB committee.

Supplies

- Reviewed supply needs as these changes would impact cost and would require a more complex process for approval:
  - Under buttocks drapes
  - Hemorrhage carts
  - Intrauterine Balloon
  - Quick access – hemorrhage medications

Forms & QS Documentation

We had a meeting with the QS coordinator to hardwire changes into our electronic documentation system.

- Admission Hemorrhage Risk assessment
- The OB Delivery Record
- The OB Recovery Record
- The MD Documentation (included active management of the 3rd stage of labor, and quantification of blood loss during procedure)).

Communication

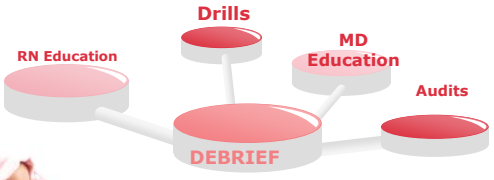
- Quantification of blood loss during delivery
- Quantification of blood loss during recovery
- Communication to Blood bank (MTP protocol –and a hard STOP).
- OB hemorrhage Debrief Form
- Labor & Delivery SBAR Handoff

Policy & Procedure/Protocol

- Policy/Procedure? Protocol? Standardized Procedure?
- OB Hemorrhage Protocol
- Quantitative Measurement of Blood Loss
- MTP (Massive Transfusion Protocol) expand to add OB
- Blood Protocols (4x4X1 then repeat, then cryo).

Education, Drill and Audits

OB Collaborative resulted in better collaboration with RN's and MD's



Challenges

- MD documentation
- Quantification of blood loss and new process
- Inclusion of entire team in debrief once situation stabilizes…
- Education to all physicians
- Access to hemorrhage cart
- Set up of blood freezer in L&D

Areas of Growth/Improvement

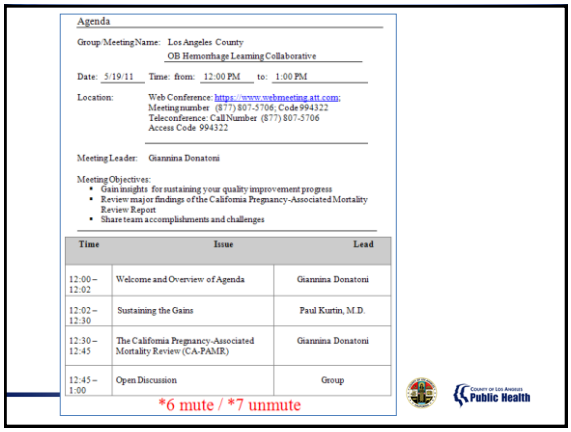
- Access to blood (freezer in L&D)
- MTP protocol
- OB Hemorrhage Protocol
- Quantification of Blood Policy & Procedure
- Aligned documentation for success
- Debrief Documentation
- Supplies (hemorrhage cart)
- Communication (written SBAR handoff)

Continued Opportunities

- Debrief after every event
- Drills, Drills, Drills
- Need for continued audits (when we stop, compliance decreases).

Questions?

Appendix F9
Sustainability after the Collaborative



Agenda

Group/Meeting Name: Los Angeles County
OB Hemorrhage Learning Collaborative

Date: 5/19/11 Time: from: 12:00 PM to: 1:00 PM

Location: Web Conference: https://www.webmeeting.att.com;
Meeting number (877) 807-5706; Code 994322
Teleconference: Call Number (877) 807-5706
Access Code 994322

Meeting Leader: Giannina Donatoni

Meeting Objectives:
- Gain insights for sustaining your quality improvement progress
- Review major findings of the California Pregnancy-Associated Mortality Review Report
- Share team accomplishments and challenges

Time	Issue	Lead
12:00 – 12:02	Welcome and Overview of Agenda	Giannina Donatoni
12:02 – 12:30	Sustaining the Gains	Paul Kurtin, M.D.
12:30 – 12:45	The California Pregnancy-Associated Mortality Review (CA-PAMR)	Giannina Donatoni
12:45 – 1:00	Open Discussion	Group

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County of Los Angeles Public Health

Sustaining the Gains

Paul Kurtin, MD
Chief Quality and Safety Officer
Director, Sadler Center for Quality
Rady Children's Hospital San Diego

Our Challenge

Only 13% of large clinical quality improvement projects hold the gains for at least a year!

The Answer

1. Creating highly reliable systems of care, which do the right thing, the first time, every time, and despite highly complex and risky processes, commit many fewer errors and much less harm than predicted.
2. Change the culture: Not a project but the way we do things around here
3. Specific leadership actions

High Reliability Organizations

- Preoccupation with failure
- Reluctance to simplify interpretations
- Sensitivity to operations
- Resilience
- Deference to expertise

Sensitivity to Operations

- "Latent failures" or loopholes in any system's defenses will always occur because we are human
- Discover latent failures in the course of normal operations before a failure occurs.
- Attentive to the front line where the real work gets done
- Culture: open, speak-up, avoid 'group think"

Sensitivity to Operations

- Maintaining explicit and communicated situational awareness
- Pre and post shift briefing sessions (huddles). "What/who are we worried about; what went well; what could have gone better"?
- Real time information permits early identification and action

Building a HRO: Operational Qualities

- Create a climate where it is safe to report and question assumptions
- Conduct incident reviews (debriefs) frequently and soon after the event
- View close calls as sign of potential danger not success
- Maintain situational awareness of current practices and changes in those practices
- Make knowledge about the system transparent and widely known (process measures)

Maintaining and Supporting Behavioral Change: Situational Awareness

- Huddles
- Leadership rounding
- Support real-time auditing and review
- Support on-going education and training
- Support a 'culture of safety' that is "Just" and encourages reporting and questioning

The Sustaining Organization: Supporting the New Routines

- The #1 enemy of sustaining the gains is the next new initiative
- Must embed the work into routine, everyday practice (the way we do things around here)
- Evolve from 'a project' to on-going, continuous discovery and improvement

Role of Leaders

- Stay engaged
- Seek and welcome in-put
- Support training and education
- Support real-time auditing
- Be patient
- Focus on majority not the outliers
- Celebrate and promote results

Role of Staff

- Actively participate
- Openly share what is working/what's not
- Ask the tough questions: why 5 times
- Be patient
- Expect transient losses of competency
- Be mindful, pay attention
- Keep learning

Supporting Continuous Improvement and Discovery

The way in which Each individual pays attention to and performs their job

plus

The way All individuals inter-relate, interact, and communicate while working, ultimately determines the sustainability of high quality, safe health care.

CDPH California Department of Public Health

THE CALIFORNIA PREGNANCY-ASSOCIATED MORTALITY REVIEW (CA-PAMR)

Report from 2002-2003 Maternal Death Reviews

This project was supported by federal Title V block grant funds received from the California Department of Public Health; Center for Family Health; Maternal, Child and Adolescent Health Division

CMQCC California Maternal Quality Care Collaborative

PUBLIC HEALTH INSTITUTE®

Definitions

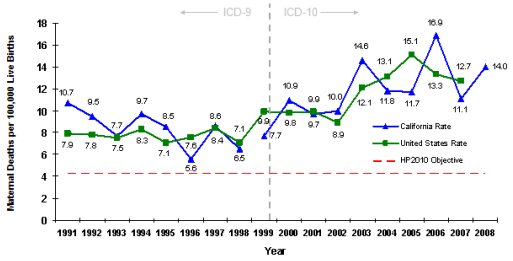
Maternal mortality rate
Number of women who die from pregnancy-related causes within 42 days postpartum/the number of live births in that year) x 100,000.

Pregnancy-Associated Deaths
Death of a woman within one year postpartum from any cause

Pregnancy-Related Deaths
Death of a woman within one year postpartum related to pregnancy or aggravated by the pregnancy or its management

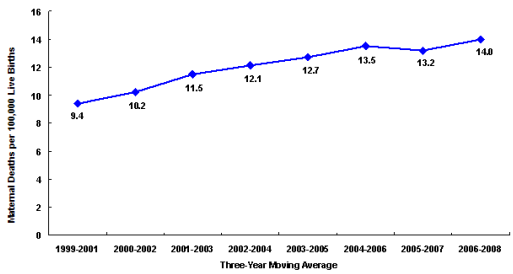
Not-Pregnancy-Related Deaths
Death of a woman within one year postpartum unrelated to pregnancy or its management

Maternal Mortality Rate, California and United States; 1991-2008



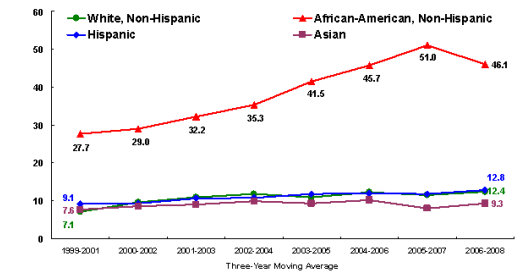
SOURCE: State of California, Department of Public Health, California Birth and Death Statistical Master Files, 1991-2008. Maternal mortality for California (deaths ≤ 42 days postpartum) was calculated using ICD-9 cause of death classification (codes 630-638, 640-646, 650-676) for 1991-1998 and ICD-10 cause of death classification (codes A34, O00-O95,O98-O99) for 1999-2008. United States data and HP2010 Objective were calculated using the same methods. The break in the trend line represents the change from ICD-9 to ICD-10. U.S. data is available through 2007 only. Produced by California Department of Public Health, Maternal, Child and Adolescent Health Division, February, 2011.

Maternal Mortality Rate, Moving Average, California Residents; 1999-2008



SOURCE: State of California, Department of Public Health, California Birth and Death Statistical Master Files, 1970-2008. Maternal mortality for California (deaths ≤ 42 days postpartum) was calculated using the ICD-8 cause of death classification for 1970-1978, ICD-9 classification for 1979-1998 and ICD-10 classification for 1999-2008. Produced by California Department of Public Health, Maternal, Child and Adolescent Health Division, December, 2010.

Maternal Mortality Rates by Race/Ethnicity, California Residents; 1999-2008

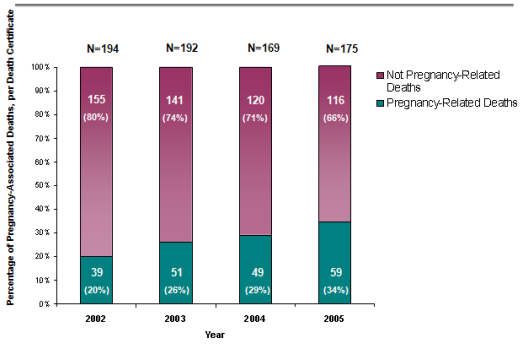


SOURCE: State of California, Department of Public Health, California Birth and Death Statistical Master Files, 1999-2008. Beginning in 1999, maternal mortality for California (deaths ≤ 42 days postpartum) was calculated using ICD-10 cause of death codes A34, O00-O95, O98-O99. Maternal single race code was used 1990-1999; multirace code was used beginning 2000. Produced by California Department of Public Health; Maternal, Child and Adolescent Health Division, December, 2010.

Why is maternal mortality rising?

- Better data collection may account for about 30%
- More pregnant women have chronic health conditions such as obesity, hypertension or heart disease that contribute to worse outcomes
- Social factors, such as poverty, reduced education, exposure to chronic stress, are present for many pregnant women
- Factors related to quality improvement opportunities for maternity care professionals and hospitals that provide obstetric care

Pregnancy-Associated Deaths, California, per Death Certificate; 2002-2005



Key Steps of CA-PAMR Methodology

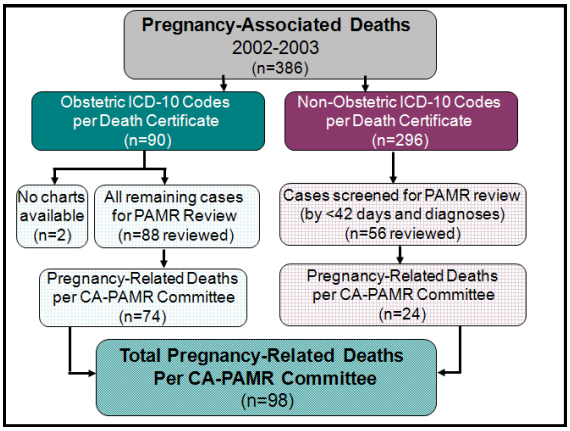
STEP 1: Hospital discharge data linked to birth, death certificates
Identifies women who died within one year postpartum from any cause (*Pregnancy-Associated Cohort*)

STEP 2: Additional data gathered for each death
Coroner Reports, Autopsy Results, and additional information from the Death Certificate (e.g., multiple causes of death, recent surgeries, etc) are obtained

STEP 3: Cases selected for PAMR Committee review
Documented (ICD-10 obstetric ("O") code) and suspected pregnancy-related deaths are prioritized for review

STEP 4: Medical records abstracted and summarized
All available labor and delivery, prenatal, hospitalization, transport, and outpatient and emergency department records are obtained

STEP 5: Case reviewed by PAMR Committee
Committee summarizes whether the death was pregnancy-related, the cause of death, contributing factors and quality improvement opportunities



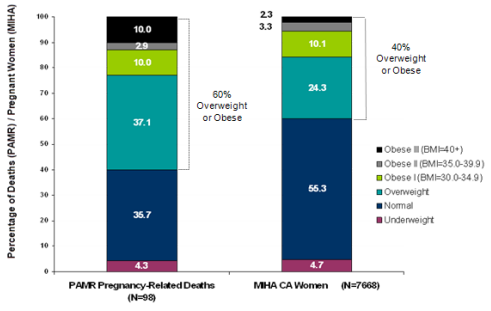
CA-PAMR Pregnancy-Related Causes of Death (All); 2002-2003 (N=98)

Table 1. Clinical Causes of Death for the 2002-2003 Pregnancy-Related Deaths, per CA-PAMR Committee

	Initial Assignment Based on Death Certificate Information		Assignment After Case review
	Pregnancy-Related Deaths *(ICD-10 obstetric ("O") codes)*	Not-Pregnancy-Related Deaths *(ICD-10 non-"O" codes)*	Total Pregnancy-Related Causes of Death
	N (%)	N (%)	N (%)
Cardiovascular disease	11 (15%)	9 (38%)	20 (20%)
Cardiomyopathy	7 (9%)	6 (25%)	13 (13%)
Other cardiovascular	4 (5%)	3 (13%)	7 (7%)
Pre-eclampsia/eclampsia	11 (15%)	5 (21%)	16 (16%)
Amniotic fluid embolism	14 (19%)	0	14 (14%)
Obstetric hemorrhage	10 (14%)	0	10 (10%)
Sepsis	7 (10%)	1 (4%)	8 (8%)
Deep vein thrombosis/ Pulmonary embolism	6 (7%)	2 (8%)	8 (8%)
Other	4 (5%)	1 (4%)	5 (5%)
Intracranial hemorrhage	4 (5%)	2 (8%)	6 (6%)
Anesthesia complications	3 (4%)	0	3 (3%)
Acute fatty liver	2 (3%)	0	2 (2%)
Suicide* *(pregnancy-related)*	0	2 (8%)	2 (2%)*
Cancer *(diagnosis or treatment delayed by pregnancy)*	2 (3%)	0	2 (2%)
Drug abuse complications	0	2 (8%)	2 (2%)
TOTAL	74	24	98

* See the Technical Notes, page 55, for further information about the two pregnancy-related suicides.

CA-PAMR Pregnancy-Related Deaths and All CA Live Births Pre-pregnancy BMI Status; 2002-2003



CA-PAMR Opportunities for Quality Improvement

- Timely diagnosis and standardized, evidence-based management of specific clinical conditions
- Recognition and response to clinical triggers (i.e., warning signs) in clinical status
- Coordination of care issues
- Optimal resuscitation of pregnant women, and earlier consideration of cesarean birth during resuscitation
- Access to care, including timely referrals to, and the availability of, medical consultants or subspecialist care
- Maximizing the health of women before and during pregnancy and postpartum

CA-PAMR Major Findings, Summary

- CA-PAMR methodology has led to identification of an increased incidence of pregnancy-related deaths in California for 2002-2003.
- Enhanced surveillance and expert case review revealed that cardiac disease, especially cardiomyopathy, is the leading cause of pregnancy-related deaths in California.
- African American women are more likely to die of pregnancy-related causes than women of other racial/ethnic groups.
- Findings from CA-PAMR have already informed MCAH maternal health policies, programs and prevention strategies.

CA-PAMR Implications for Public Health

- **Maternal Health Policy and Programs**
  - The 2002-2003 case reviews showed that women who died are more likely to have identifiable risk factors and to be recipients of public health insurance.
- **Investigation of Maternal Deaths**
  - The findings from 2002-2003 have already helped identify opportunities for intervention and will serve as baseline years for comparison with subsequent years when the number of maternal deaths increased.
- **Public Health Surveillance**
  - Twenty four unreported maternal deaths were identified by the CA-PAMR Committee. These deaths are not included in the calculation of maternal mortality rates for the years 2002-2003 and without case review, these deaths would have otherwise been missed as pregnancy-related deaths.

CA-PAMR Implications for Maternity Care

- Most of the deaths occurred soon after delivery and in the hospital or emergency room setting
- Most women had identifiable risk factors
- Almost 40% of the deaths had a good-to-strong chance to have altered the fatal outcome
- Translate findings into targeted quality improvement efforts that:
  - Help health care providers recognize and respond to critical clinical obstetric events
  - Identify and manage maternal risk factors, including obesity, hypertension and underlying heart disease
  - Improve the ability of health care facilities to respond to obstetric emergencies.

Report-Out of May Activities

- Accomplishments
- Challenges
- Current Activities
- Next planned