Medical Commission Case Summary

2019-6981

Respondent: Geetha Narayani Fink			
County:	Queens	License #:	MD.MD.60760977
Licensed since:	06/16/2017	Expiration:	11/09/2019
License Status:	ACTIVE	ABMS Specialty:	
Residency Specialty:		ABMS Subspecialty:	

Complainant: 2 - Name - Whistle...

Complaint Summary: A patient writes that Respondent cut her bladder during a C-section causing severe hemorrhage and repair. Several weeks later still experiencing severe pain the patient saw another provider who discovered a pad had been left in patient's cervix during surgery, causing infection and a 3-day hospitalization for IV antibiotics.

Single Complaint Process: No

Companion Cases:

Malpractice Settlement:

Alleged Issues: Negligence, Patient Care

Case Nature: Standard of Care/Services

Prior Cases:

None.

AMA Physician Profile

PREPARED FOR

Washington State Department of Health, Tumwater, WA

Name and Mailing Address

GEETHA NARAYANI FINK
STE C100
126 SW 148TH ST
BURIEN, WA 98166-1984

Birth date 11/09/1983

Primary Office Address

SAME AS MAILING ADDRESS

Phone UNKNOWN

Physician's major professional activity OFFICE BASED PRACTICE

Self-designated practice specialty OBSTETRICS & GYNECOLOGY (primary)
UNSPECIFIED (secondary)

Self-designated practice specialties (SDPS) listed on the AMA Physician Profile do not imply recognition or endorsement of any field of medical practice by the Association nor does it imply verification by a member board of the American Board of Medical Specialties (ABMS) or that the physician has been trained or has special competence to practice the SDPS.

AMA membership status NON MEMBER

All information from this point forward is provided by the primary source

Current and/or historical NPI information

National Provider Identifier (NPI)	Enumeration Date	Deactivation Date	Reactivation Date	Replacement Number	Last Reported Date
1982919437	08/09/2010	NOT RPTD	NOT RPTD	NOT RPTD	05/15/2019

Current and/or historical medical school

CHICAGO MEDICAL SCHOOL AT ROSALIND FRANKLIN UNIVERSITY-MEDICINE & SCIENCES

Degree Awarded: YES
Degree Year: 2010

Current and/or historical post graduate medical training programs accredited by the Accreditation Council for Graduate Medical Education (ACGME)

Beginning with the 2010 cycle of the National GME Census, post-graduate training segments will include the name of the program attended in addition to the sponsoring institution. Program-level information prior to 2010 will not be available for reporting. Future training dates, as reported by the program, should be interpreted as "in progress" or "current" with the projected date of completion.

Beginning with the 2016/2017 cycle of the National GME Census post-graduate training segments will include a training type of specialty (residency) or subspecialty (fellowship). Training types for programs reported prior to 2016 will not include this designation.

Post-graduate training performed at accredited osteopathic institutions or in Canada are updated on the AMA Physician Masterfile only upon verification by the program. US licensing authorities accept graduate medical education from both entities as equivalent to training performed in a US program accredited by ACGME.

If a segment below is indicated as "being re-verified", it typically means that the physician is a current resident and the AMA is confirming with the residency program that the physician is still enrolled - this standard process occurs on an annual basis.

Sponsoring Institution: MARICOPA MEDICAL CENTER
Sponsoring State: ARIZONA
Program name: CREIGHTON UNIVERSITY SCHOOL OF MEDICINE/MARICOPA MEDICAL CENTER (PHOENIX) PROGRAM
Specialty: OBSTETRICS & GYNECOLOGY
Training Type:
Dates: 6/2011 - 6/2015 (Verified)

NATIONAL BOARD OF MEDICAL EXAMINERS (NBME) CERTIFICATION YEAR: MD: 0

Specialty Board Certification

Specialty Board Certification(s) by one or more of the 24 boards recognized by the American Board of Medical Specialties (ABMS) and the American Medical Association (AMA) through the Liaison Committee on Specialty Boards, as reported by the ABMS:

The AMA Physician Profile has been designated by the ABMS as an Official ABMS Display Agent of Member Board Certification data. Therefore, the ABMS Board Certification information on the AMA Physician Profile is considered a designated equivalent source in regard to credentialing standards set forth by Joint Commission. The AMA is also an NCQA-approved source for verification of medical school, postgraduate medical training, ABMS Board certification, and Federal DEA registration.

Certifying board: TO DATE, THERE HAVE BEEN NO BOARD CERTIFICATIONS REPORTED.

Certificate:
Certificate type:

Duration	Status	Effective Date	Expiration Date	Reverify Date	Occurrence	Last Reported	Participating in MOC

For certification dates, a default value of "01" appears in the day or month field if data were not provided to AMA. Please contact the appropriate specialty board directly for this information.

Current and/or historical medical licensure

License No.	MD / DO	Jurisdiction	Date Granted	Expiration Date	Renewal Date	Status	License Type	Last Reported
34617	MD	OK	04/23/2019	04/01/2020		ACTIVE	UNLTD	05/06/2019
MD60760977	MD	WA	06/16/2017	11/09/2019	10/17/2017	ACTIVE	UNLTD	05/01/2019
60279805	MD	NY	05/15/2015	10/31/2018		INACTIVE	UNLTD	10/04/2018

Action Notifications

To date, there have been no actions reported to the AMA by any US state licensing agency.

To date, there have been no Medicare/Medicaid sanctions reported to the AMA by the Department of Health and Human Services.

To date, there have been no federal sanctions reported to the AMA by any branch of the US military, the Veteran's Administration or the US Department of Justice.

U.S. Drug Enforcement Administration (DEA)

DEA number	Schedule	Expiration Date	Last Reported Date	Address
XXXXXX267	22N 33N 4 5	09/30/2020	05/22/2019	Ste 1240 1325 4th Ave Seattle, WA 98101-2516

Only the last three characters of active DEA numbers are displayed

Many states require their own controlled substances registration/license. Please check with your state licensing authority for requirement information as the AMA does not maintain this information.

ECFMG Certfication

Applicant Number:

The Educational Commission for Foreign Medical Graduates (ECFMG) applicant identification number does not imply current ECFMG certification status. To verify ECFMG status, contact the ECFMG Certification Verification Service online at https://cvsonline2.ecfmg.org/

Profile Information

The content of the AMA Physician Profile is intended to assist with credentialing. An organization's appropriate use of the data contained in the AMA Physician Masterfile meets selected primary source verification requirements of the Joint Commission, the Accreditation Association for Ambulatory Health Care (AAAHC) and the American Accreditation Health Care Commission(AAHCC)/Utilization Review Accreditation Commission (URAC). The AMA Physician Masterfile is also an NCQA-approved source for verification of medical school, post-graduate medical training, ABMS Board Certification and federal DEA registration.

If any of the data in this Profile is believed to be incorrect, please log in to your account on our profiles website, go to the profile manager tab, find the provider for whom you think we have inaccurate information and click on the "Report" button in the "Report a Discrepancy" column. Enter any of the information that you feel needs to be researched. The AMA will contact the primary source of the data to determine which data is correct. We will notify you of the outcome of our research. If any changes are made to the profile we will update the link in profile manager for this provider so that you can access the new, updated information.

If you have any questions or need additional information about the AMA Physician Profile Service, please call (800) 665-2882.

3 - National Practitioner Data Bank (NPDB) report received directly or indirectly from the NPDB –42 USC §1396r-2; 42 USC §1320a-7e; 45 CFR §60.20(a), RCW 42.56.070(1)

WASHINGTON Medical Commission
Licensing. Accountability. Leadership.

May 30, 2019

2 - Name - Whistleblower Regarding Health ...

2 - Name - Whistleblower Regarding Health Ca...

Dear 2 - Name - Whistl...:

We're writing you regarding your report against Geetha Narayani Fink, MD. A panel of Commissioners has authorized an investigation of your report and we have assigned it case number 2019-6981.

We will do our best to gather all the information needed for the Washington Medical Commission to determine whether Geetha Narayani Fink, MD met the standard of care. The investigator will talk with people who have knowledge of the issues in your report, gather documents such as medical records to review what care was provided, and by whom, and talk to Geetha Narayani Fink, MD. Once the investigator has completed the investigation, they will write an objective report. The report will be forwarded to a Reviewing Commission Member (RCM) for review. The RCM will be a physician, physician assistant or public member. The RCM will present the investigation to a panel of Commissioners made up of physicians, physician assistants, and public members. The panel then decides whether Geetha Narayani Fink, MD met the standard of care.

Washington law loosely defines the standard of care as exercising the degree of care, skill, and learning expected of a reasonably prudent health care practitioner in a similar situation. However, there are cases where the patient was harmed, but the practitioner actually met the standard of care. Sometimes negative outcomes occur when no law is broken – there may be actual harm to the patient, but the actions taken by the doctor do not meet the "legal" definition of harm. Our law basically states that incompetence, negligence, or malpractice which results in injury to a patient or creates an unreasonable risk of harm to a patient could be considered unprofessional conduct.

Your investigation is complex and can take up to 170 days, so please be patient. Thank you for your concerns and bringing this to our attention.

Respectfully,
Washington Medical Commission
Medical Investigations Unit
(360) 236-2706

Your Email:	2 - Name - Whistleblower Regarding Health Care ...
Your Home Phone:	2 - Name - Whistleblower ...
Your Cell Phone:	
Your Work Phone:	
Authorization to Release Your Name / Identity	
Your Waiver Authorization:	I hereby waive confidentiality and consent to the release of my identity, for the sole purpose of investigating my complaint and pursuing disciplinary/adverse action proceedings.
Patient Information	
Patient Full Name:	2 - Name - Whistlebl...
Patient Date of Birth:	2 - Name - Whistleblo...
Date of Incident:	Apr 15, 2019
FROM:	Apr 14, 2019
TO:	Apr 18, 2019
Information about the Physician (MD) or Physician Assistant (PA)	
First Name:	Geetha
Middle Name:	
Last Name:	Fink
License Number (if known):	

WASHINGTON
Medical
Commission
Licensing. Accountability. Leadership.

May 30, 2019

Geetha Narayani Fink
2703 42nd Rd Apt 10B
Long Island City, NY 11101-4135

Case No: 2019-6981

Dear Geetha Narayani Fink, MD:

The purpose of this letter is to inform you that the Washington Medical Commission (Commission) received a report concerning an allegation of unprofessional conduct as defined in RCW 18.130.180, the Uniform Disciplinary Act. RCW 18.130.050, of the Uniform Disciplinary Act, authorizes the Commission to investigate complaints of unprofessional conduct.

A preliminary investigation to gather the facts will be conducted by a Health Care Investigator from the Commission's Medical Investigations Unit. The Investigator assigned to your file is Gina M Fino, (360) 236-2777, gina.fino@doh.wa.gov. The investigator will contact you as soon as possible during the investigation if a statement or other information from you is required.

You may submit a written statement about the complaint at any time, however, you may choose to wait until after you have been contacted by an investigator and advised of the nature of the complaint. You may consult with legal counsel at your expense prior to making a statement. Any statement that you make may be used in an adjudicative proceeding concerning this case. If the Commission receives any inquiries about the status of your license while this case is still open, only the existence of a complaint will be disclosed. Once the Investigation and case review process has been completed, the case will either be closed or acted upon. The contents of the closed case file, including any statements submitted by you, will be subject to release according to Washington's public disclosure laws. Most public disclosure requests come from insurance companies and employers.

Please be aware that this process can take three to six months and in some cases longer.

Respectfully,
Washington Medical Commission
Medical Investigations Unit
(360) 236-2706

CONFIDENTIAL INVESTIGATIVE REPORT

PREPARED FOR THE

WASHINGTON MEDICAL COMMISSION

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CASE # 2019-6981

Respondent: **Geetha N. Fink, MD** **Attorney: Bertha Fitzer**

ILRS Address: **2703 42nd Rd Apt 10B**
Long Island City, NY 11101-4135

DOB: **11/09/1983**
Licensed since: **06/16/2017**
Expiration date: **11/09/2019**

Medical School: 2010 – Chicago Medical School at Rosalind Franklin University
Residency: 06/2011-06/2015 – Maricopa Medical Center, AZ; Obstetrics & Gynecology

Board Certified: **No**

Complainant: 2 - Name - Whistlebl...

Investigative Case File completed by: Gina Fino, MD Date: 08/26/2019

APPROVED :_____DATE: 8/26/2019

PRIOR CASE HISTORY:

None.

GENERAL CASE SUMMARY

COMPLAINT / ALLEGATIONS:
A patient writes that Respondent cut her bladder during a C-section causing severe hemorrhage and repair. Several weeks later still experiencing severe pain the patient saw another provider who discovered a pad had been left in patient's cervix during surgery, causing infection and a 3-day hospitalization for IV antibiotics.

CASE REVIEW:

The allegation in this case is unprofessional conduct as defined in RCW 18.130.180.

The complainant is a 26 year old patient who had a repeat C-section on 04/15/2019. The delivery was complicated by uterine bleeding and serosal injury to the urinary bladder. The respondent repaired the bladder during the procedure and placed a Bakri balloon after the procedure to help control the bleeding. The complainant had a lot of pain and was discharged on 04/18/2019. She continued to have pain and her blood pressure was elevated at home. (p. 4)

She presented to another provider for follow up on 04/25/2019. That provider found a pad inside during the pelvic examination. The pad was removed and the complainant received treatment for endometritis. She returned to the hospital for three days of IV antibiotics. She continued to have issues with voiding and abdominal pain. She also alleged the respondent discharged her too soon, avoided her and did not really explain what happened during her baby's delivery. (pp. 5-6)

A review of the medical records showed the complainant was a gravida 2 para 1 at 39 weeks gestation with spontaneous rupture of membranes presenting for a trial of labor after a previous C-section for non-reassuring fetal heart rate on 04/29/2017. Her history also included anemia and genital herpes. Her labor failed to progress and she had a repeat C-section on 04/15/2019. The respondent's operative note indicated the presence of dense peritoneal adhesions. During closure, a 3cm bladder defect of the serosa and muscularis layer was noted and repaired. (pp. 1492-1493)

Several hours later, the complainant continued to have bleeding with uterine atony. She had suction curettage and a Bakri balloon placement under general anesthesia on 4/15/2019. She received a blood transfusion and did well postoperatively. (pp. 1506-1507) The Bakri balloon was removed by a different provider. (p. 1503) She was

discharged on 04/18/2019. (p. 1492) She reported not feeling well to her midwife and was seen by another provider on 04/25/2019 for a postpartum check. (p. 2067)

The complainant reported low grade fever, abdominal pain, difficulty voiding, and foul smelling lochia. A roll of gauze was identified and removed during a speculum examination. She received antibiotics for endometritis. The provider apologized about the gauze. (pp. 2067-2068) At a 05/02/2019 appointment, the provider decided to admit the complainant for IV antibiotics due to continued low grade fevers and pain. (p. 2069) The complainant was better at a 05/09/2019 appointment (p. 2070) and reported feeling back to normal at a 05/22/2019 visit (p. 2073).

The respondent's statement and supporting documents were provided by her attorney. The summary of care was consistent with the medical record. The statement noted all C-sections carry a risk of urinary bladder injury and repeat C-sections after a trial of labor show further increased risk of bladder injury. (pp. 7-8) The statement also noted the respondent turned the complainant's care over to another provider who assisted with the Bakri balloon placement. The respondent acknowledged her procedure note did not include documentation of the presence of the packed gauze. (p. 9)

She also reported the balloon manufacturer suggests the use of vaginal packing with the device, but some providers may not use packing. The respondent now clearly notes the presence of packing material in her operative reports and takes steps to better communicate with providers during transfer of care. (pp. 9-10)

Although the respondent did not discharge the patient, she reviewed the records. Her impression was that the complainant met appropriate milestones before discharge and her care was within normal limits. She regretted that the complainant experienced a prolonged clinical course and intends to use this as a learning opportunity. She hopes the complainant does not have any long term complications. (pp. 9-10) Her response includes the complainant's records, and articles about postpartum hemorrhage (p. 11) and urinary bladder damage during C-sections (p. 30)

The file is forwarded for review.

CONTACTS:

COMPLAINANT

RESPONDENT

Bertha Fitzer – Attorney for the respondent
Fitzer Fitzer Veal McAmis, P.S.
1102 Broadway, Suite 401
Tacoma WA 98402
253.683.4501 phone
bertha@f2vm.com email

St. Francis Hospital
HIM Department
253.426.6672 phone
253.426.6924 fax

Franciscan Women's Health Associates-Federal Way
HIM Department
253.792.2400 phone
253.792.4993 fax

Gina M. Fino, MD
Clinical Health Care Investigator
111 Israel Road
PO Box 47866
Olympia, WA 98504-7866
360.236.2777 phone
360.236.2744 fax
gina.fino@wmc.wa.gov email

EVIDENCE / ATTACHMENTS:

Page	Description
1	RCW 43.70.075 notice
2-5	Complaint
6	Complainant interview
7-1439	Respondent's statement and supporting documents
1440-2060	Medical records from hospital
2061-2081	Medical records from clinic
2082-2083	Letter of Cooperation
2084	Letter of Representation
2085	Additional correspondence from respondent's attorney
2086-2091	Records request letters

Investigation Activity Report

Lists the Effective Date, User Assigned, Description and Comments for all Investigative action items for the selected case.
Updated 04/04/12

Filtered By:

Case # = 2019-6981

Run Date = 8/26/2019

Number of records = 20

Effective Date	Assigned To	Description	Comments
05/30/2019	Waterman, Chris	Investigative - Initiate Investigation	Sent letter 05/30/2019.
05/30/2019	Fino Gina M	Investigative - Case Activity	E-file reviewed, case folder started.
06/17/2019	Fino Gina M	Investigative - Case Activity	Phone conversation with respondent who recently updated her address. Emailed RCM.
06/21/2019	Fino Gina M	Investigative - Case Activity	Replied to RCM email. Emailed complainant to arrange interview.
06/25/2019	Fino Gina M	Investigative - Case Activity	Left voice message for complainant.
06/25/2019	Fino Gina M	Investigative - Case Activity	Complainant interviewed, see Mem to File. Records requested via fax.
07/01/2019	Fino Gina M	Investigative - Case Activity	Drafted LOC, sent to respondent via USPS. Also notified respondent via email to expect LOC.
07/08/2019	Fino Gina M	Investigative - Case Activity	Received medical records via secure email on 7/5/2019. Downloaded and put in file today.
07/15/2019	Fino Gina M	Investigative - Case Activity	Called facilities for status update on records requests.
07/22/2019	Fino Gina M	Investigative - Case Activity	Emailed respondent to check status of response. Respondent requested extension. Extension to 7/29/2019 granted.
07/24/2019	Fino Gina M	Investigative - Case Activity	Received LOR and extension request from respondent's attorney. Staffed with Director of Investigations. Extension to 8/5/2019 granted.
08/01/2019	Fino Gina M	Investigative - Case Activity	Received overdue notice for clinic records request, confirmed invoice sent for payment processing.
08/05/2019	Fino Gina M	Investigative - Case Activity	Received statement and supporting documents from respondent's attorney via email. Medical records to follow.
08/06/2019	Fino Gina M	Investigative - Case Activity	Received and reviewed some records, worked on final report.
08/09/2019	Fino Gina M	Investigative - Case Activity	Received records from Ciox server. Reviewed records and worked on final report.
08/15/2019	Fino Gina M	Investigative - Case Activity	Worked on final report.
08/19/2019	Fino Gina M	Investigative - Case Activity	Worked on final report.
08/22/2019	Fino Gina M	Investigative - Case Activity	Received additional hospital records and correspondence from respondent's attorney.
08/26/2019	Fino Gina M	Investigative - Case Activity	Added additional information to file and worked on report.
08/26/2019	Fino Gina M	Investigative Forward for Closure of Investigation	

NOTICE

The identity of a Whistleblower who complains in good faith to the Department of Health about improper quality of care by a health care provider **shall remain confidential** in most cases, under RCW 43.70.075.

WAC 246-15-030 controls procedures for filing, investigation, and resolution of Whistleblower complaints in healthcare settings.

(1)(b) Instructs that staff will affix a permanent cover to the complaint letter or other notice of complaint in the complaint file, noting that statutes protect the identity of the complainant.

(3)(c) Ensures upon case closure, that the permanent cover affixed in subsection (1)(c) of this section will remain.

It is the staff's duty to see that the complainant's name or any information which may identify the complainant is not disclosed except in the limited situations below.

By signing the Whistleblower waiver authorization, you agree and understand that your identity may be released only:

- To the practioner who is the subject of your complaint;
- To other persons "reasonably necessary to the investigation"; and
- For use in a disciplinary hearing

NOTICE

From: noreply@formstack.com
To: WMC Medical Complaints; Bush, Jimi R (WMC)
Subject: Online MQAC Complaint from wmc.wa.gov
Date: Tuesday, May 7, 2019 1:40:36 PM

Formstack Submission For: MQAC Complaint

Submitted at 05/07/19 1:40 PM

Washington State Medical Commission Complaint Form	
Is your complaint about a physician (MD) or a physician assistant (PA)?:	Yes, my complaint is about a physician or a physician assistant
:	
Getting Started	
Your Information	
Today's Date:	May 07, 2019
I am:	The Patient
What is your relationship to the patient?:	
Your Full Name:	2 - Name - Whistlebl...
Your Address:	2 - Name - Whistleblower Regarding Health...

Your Email:	2 - Name - Whistleblower Regarding Health Care ...
Your Home Phone:	2 - Name - Whistleblower ...
Your Cell Phone:	
Your Work Phone:	
Authorization to Release Your Name / Identity	
Your Waiver Authorization:	I hereby waive confidentiality and consent to the release of my identity, for the sole purpose of investigating my complaint and pursuing disciplinary/adverse action proceedings.
Patient Information	
Patient Full Name:	2 - Name - Whistlebl...
Patient Date of Birth:	2 - Name - Whistleblo...
Date of Incident:	Apr 15, 2019
FROM:	Apr 14, 2019
TO:	Apr 18, 2019
Information about the Physician (MD) or Physician Assistant (PA)	
First Name:	Geetha
Middle Name:	
Last Name:	Fink
License Number (if known):	

Name of service location:	St Francis Hospital
Address of service location:	34515 9th Ave S Federal Way , WA 98003
Phone Number of service location:	(253) 835-8100
Incident Report	
Check the box that best describes the nature of your complaint.:	Quality of Care Other: Medical error
Summary of Complaint:	I went in for a C-Section. During the surgery, Dr. Geetha Fink accidentally cut my bladder and I had a resulting severe hemorrhage. After my surgery, the bleeding continued and so they decided to place a Bakri Balloon to help the bleeding. After the procedure, I continued to have a lot of pain but they were not concerned. I was discharged on April 18th, 3 days after my C-Section. Two weeks later on April 24th, I still had severe pain and was unable to move without Perocet and Ibuprofen. I called my midwife Kristen Smith to refill the prescription and she asked me to come in to the clinic. My blood pressure was very high and so she decided to refer me to a doctor, Dr. Singh. On April 25th, I had an appointment with Dr. Singh. Upon doing a vaginal exam, she found a large pad had been left inside of my cervix during surgery. The pad smelled very bad, and so Dr Singh ordered antibiotics. She apologized for the surgical error and said they will investigate and find out who left the pad. The antibiotics prescribed were not effective, and I continued to have pain, fever and chills. One week later, I went it to see her again and she sent orders to have me admitted to the hospital for IV antiobiotics where I was a patient for 3 days.

	Because of the doctor's error in cutting my bladder, I lost an excessive amount of blood. Then their error of leaving a pad inside of me, caused a severe infection which caused me a lot of pain. Lastly, I think I was discharged from the hospital too quickly given the amount of blood that I lost and the pain that I was in. These have made it very difficult to care for my 2-year-old and newborn, it has also delayed my ability to go back to school and work at the time that I had planned on returning.
Have you addressed your concerns with the MD/PA?:	No
If yes, what was the result?:	
What resolution are you seeking from the Medical Commission?:	I want the providers involved to be educated about the effects of their errors and how much pain it has caused my family and me. I want changes put in to place so that this does not happen to anyone else.

Memorandum

WASHINGTON Medical Commission
Licensing. Accountability. Leadership.

DATE: 06/25/2019

TIME: 2:15 p.m.

CASE #: 2019-6981

RE: Complainant interview

FROM: Gina Fino, MD – Clinical Health Care Investigator

The complainant returned my call and had time to speak with me about her care. She said she is still struggling with abdominal pain and has difficulty voiding her urinary bladder. She said the respondent avoids her and has not really explained what happened. The clinic doctors have been more helpful. The complainant stated she did not feel this way after her first C-section. The complainant confirmed her DOB, dates of service, and places of service. I gave her a brief overview of the investigative process and thanked her for her time.

Nothing further.

F² V M Fitzer Fitzer Veal McAmis, P.S.
Trial Lawyers

1102 Broadway, Suite 401
Tacoma WA 98402
Fax: (253) 627-8928
www.f2vm.com

DIRECT LINE: (253) 683-4501
EMAIL: bertha@f2vm.com

August 5, 2019

SENT VIA EMAIL

Gina M. Fino, MD
Department of Health
P. O. Box 47866
Olympia, WA 98504-7866

Re: Geetha Fink, MD - MQAC re 2 - Name - Whistlebl...
DOH File No. 2019-6981
Our File No. CHI-7260

Dear Dr. Fino:

Thank you for your professional courtesies in this matter. I will be handling this matter for Dr. Fink, so please substitute my contact information for that provided by Ms. Veal.

We are pleased to represent such a caring and competent professional. Dr. Fink was employed on a per diem basis to provide in hospital care to obstetrical patients at St. Francis Hospital. She is a board eligible, well trained, obstetrician. She has reviewed her medical records and we have the following responses to your inquiries.

1. **Written explanation of care.**

Dr. Fink was on a 24 hour shift when she was assumed care of 2 - Name - Whistl... who had been admitted earlier in the day for a trial of labor after cesarean section following spontaneous rupture of her membranes. Dr. Fink came on duty at 7:00 am and cared for the patient through 7:00 am on 4/15/2019. Although your letter requests information regarding care dating between April 10, 2019 and April 30,2019, Dr. Fink does not believe that she provided any care for this patient earlier than 4/14/2019 or after 4/15/19.

Dr. Fink and a CNM cared for the patient during her labor course. Her labor was augmented with Pitocin and monitored closely with an intrauterine pressure catheter. After several hours of Pitocin augmentation, Dr. Fink determined that the patient had failed to dilate sufficiently to be allowed to continue. She therefore recommended a repeat cesarean section. All cesarean

sections carry a risk of bladder injury.[1] Those risks are increased four to five fold with repeat cesareans and further increased when a patient undergoes a trial of labor.[2]

Dr. Fink provided the patient with full informed consent, including a discussion that the risks of this procedure included the risk of bleeding, damage to surrounding organs, the need for reoperation and, the need for transfusion. Dr. Fink answered all 2 - Name - Whistlebl... questions and the patient was taken to the operating room for repeat cesarean section.

Dr. Fink did a repeat low transverse cesarean section secondary to failure to dilate on 4/14/19. Unfortunately, the procedure was complicated by an injury to the bladder serosa and muscularis. The injury was at the dome of the bladder measuring approximately 3 cm. This was not a full thickness cystotomy as Dr. Fink observed that the bladder mucosa was intact.

Dr. Fink promptly recognized the issue and repaired the area of the defect by over sewing it. It appears that the estimated blood loss for the surgery was 1581 cc. That evening, and the next morning the patient had multiple events of bleeding despite receiving uterotonics to promote uterine contractility.[3]

Dr. Fink attempted to perform a bimanual exam at the bedside to evacuate blood clots in the uterus. However, by the time the bleeding was appreciated, the residual anesthetic had worn off and the patient reported significant post-surgical pain. Because she did not seem able to tolerate this exam, Dr. Fink decided that exam should be performed in the operating room with anesthesia along with curettage of the uterus. She also determined that it would be best to place a Bakri balloon for uterine tamponade and the prevention of further bleeding.

This patient was taken to the Main OR for the procedure instead of the Labor & Delivery OR, because of patient demands on the hospital's facilities. Dr. Snyder had been called in from home to assist with possible emergent coverage of the other patients while Dr. Fink was in the OR. Given that he was present and available Dr. Fink asked Dr. Snyder to assist her in the operating room. He performed ultrasound guidance of the uterus while Dr. Fink performed curettage, Bakri placement, and placement of vaginal packing.

Dr. Fink routinely uses vaginal packing along with Bakri balloon to ensure that the Bakri stays in place. After exiting the OR, Dr. Fink followed up with nursing staff to determine overall blood loss. Given that quantitative blood loss from the time of cesarean section was now 3722 cc, Dr. Fink ordered a blood transfusion. She also ordered continuation of Ancef for infection prophylaxis given the presence of a foreign body, i.e., the Bakri balloon and packing.

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[1] See *Intraoperative damage to the urinary bladder during cesarean section—literature review* (Attached)
[2] *Id, at pp. 162-63.*
[3] Dr. Fink does not believe that these bleeding events were related to the bladder injury, but rather were related to the patient's recent delivery of her baby, specifically the lower uterine segment atony that can occur after prolonged labor course, use of Pitocin, and repeat cesarean section. *See,* October 2017 ACOG Practice Bulletin*, Postpartum Hemorrhage.* (Attached).

Following completion of the procedure Dr. Fink signed out the service to Dr. Snyder. After signing out, Dr. Fink was no longer involved in this patient's care. Our review of the record indicates that Dr. Snyder documented "The Bakri balloon was removed without incident" on 4/16/19 at 02:58 am. Unfortunately, there is no mention of the vaginal packing. As Dr. Fink was not present, Dr. Fink does not know who actually removed the Bakri, nor does she know whether they realized that Bakri balloon had been held in place with vaginal packing. The records document that the Foley catheter was discontinued on 4/18/19 and patient passed a voiding trial.

It is not Dr. Fink's intent to pass the proverbial buck. She has reviewed this case with an eye towards determining how the error could have been avoided. Dr. Fink realizes that she did not document the presence of vaginal packing in her operative note. She has taken steps to make sure that this information is clearly noted in her operative reports. She is also aware that there have been system wide communication improvements on this topic, designed to avoid recurrence.

2. **Allegation that patient was discharged too soon**.

Dr. Fink was not involved in the discharge planning and thus cannot comment on the patient's complaint that she was discharged too soon. Her review of the records does suggest, however, that the patient was meeting the appropriate milestones and that the care was appropriate. She had passed a voiding trial, her vital signs were stable and her bleeding was felt to be within normal limits.

3. **Allegation that she left a surgical pad inside patient's cervix.**

Dr. Fink placed surgical packing in the patient's vagina at the time of Bakri balloon placement, although she admits that she failed to document the presence of vaginal packing in her operative note. The Bakri balloon manufacturer suggests the use of vaginal packing to prevent displacement of the Bakri balloon into the vagina. It is Dr. Fink's standard procedure to utilize vaginal packing along with Bakri balloon. Thus, any suggestion that the packing material was accidentally left inside the patient after the original surgery is incorrect. It was intentionally placed in the cervix to aid in stopping the patient's bleeding.

Anything else that you would like to add to address this complaint.

Dr. Fink acknowledges that the retained packing in this patient was preventable. Although it is her standard procedure to always use packing along with Bakri balloon, she understands that other providers may not do so. She regrets that she did not document the presence of vaginal packing or discuss its presence with the physician assisting or the other members of the care team. It is also possible that the composition of the care team (General OR staff vs. L & D OR staff) played some role in this event. On the day in question, the labor and delivery operating room was busy. Bakri balloon placement is typically performed either at the bedside or in an OR on Labor & Delivery. When that occurs, the care team is more familiar with both Bakri balloons and the use of vaginal packing. Nursing staff familiarity with the procedure makes it much less likely that the presence of vaginal packing would be missed when the patient is handed off to the next provider. Additionally, when this procedure is done in the OR on L&D the operative care team ideally provides ongoing recovery and postpartum care to the patient. As opposed

to when it occurs in the Main OR with one care team, taken to the recovery room with a second care team, and then transferred to postpartum to a third team. The increase in hand-offs increases the risk of communication lapses.

Finally, Dr. Fink often places Bakri balloons in patients that are awake for the procedure and aware of the presence of vaginal packing. In those cases, she typically tells the patient the care plan, including when the Bakri and packing will be removed. Here, however, this patient received general anesthesia and was not awake or aware of what Dr. Fink had used to stem the hemorrhage. Dr. Fink is not suggesting that patients have a duty to tell their providers to remove everything, but an aware patient may well have mentioned the packing during the removal process.

Dr. Fink does not remember the exact details of her sign out with Dr. Snyder. In retrospect she may well have taken for granted that he knew that there was packing in the vagina that would need to be removed along with the Bakri balloon.

Dr. Fink regrets that this patient experienced post-operative complications and a prolonged clinical course related to her retained packing. While she takes personal responsibility for her part in this, she also believes that there are opportunities to examine whether better systems can be put in place to avoid such incidents. She intends to use this event as a learning experience to more explicitly document and communicate care plans with other members of the care team.

She hopes that 2 - Name - Whi... does not have long term complications from her clinical course.

Dr. Fink and I are available for questions and further discussion as needed. Please do not hesitate to contact me to arrange such a meeting. We will send the pertinent medical records under separate cover.

Sincerely,

FITZER FITZER VEAL McAMIS, P.S.

Bertha B. Fitzer

The American College of Obstetricians and Gynecologists
WOMEN'S HEALTH CARE PHYSICIANS

ACOG PRACTICE BULLETIN

Clinical Management Guidelines for Obstetrician–Gynecologists

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Committee on Practice Bulletins—Obstetrics. This Practice Bulletin was developed by the American College of Obstetricians and Gynecologists' Committee on Practice Bulletins–Obstetrics in collaboration with Laurence E. Shields, MD; Dena Goffman, MD; and Aaron B. Caughey, MD, PhD.

Postpartum Hemorrhage

Maternal hemorrhage, *defined as a cumulative blood loss of greater than or equal to 1,000 mL or blood loss accompanied by signs or symptoms of hypovolemia within 24 hours after the birth process, remains the leading cause of maternal mortality worldwide (1). Additional important secondary sequelae from hemorrhage exist and include adult respiratory distress syndrome, shock, disseminated intravascular coagulation, acute renal failure, loss of fertility, and pituitary necrosis (Sheehan syndrome).*

Hemorrhage that leads to blood transfusion is the leading cause of severe maternal morbidity in the United States closely followed by disseminated intravascular coagulation (2). In the United States, the rate of postpartum hemorrhage increased 26% between 1994 and 2006 primarily because of increased rates of atony (3). In contrast, maternal mortality from postpartum obstetric hemorrhage has decreased since the late 1980s and accounted for slightly more than 10% of maternal mortalities (approximately 1.7 deaths per 100,000 live births) in 2009 (2, 4). This observed decrease in mortality is associated with increasing rates of transfusion and peripartum hysterectomy (2–4).

The purpose of this Practice Bulletin is to discuss the risk factors for postpartum hemorrhage as well as its evaluation, prevention, and management. In addition, this document will encourage obstetrician–gynecologists and other obstetric care providers to play key roles in implementing standardized bundles of care (eg, policies, guidelines, and algorithms) for the management of postpartum hemorrhage.

Background

The American College of Obstetricians and Gynecologists' (ACOG) reVITALize program defines *postpartum hemorrhage* as cumulative blood loss greater than or equal to 1,000 mL or blood loss accompanied by signs or symptoms of hypovolemia within 24 hours after the birth process (includes intrapartum loss) regardless of route of delivery (5). This is in contrast to the more traditional definitions of postpartum hemorrhage as an estimated blood loss in excess of 500 mL after a vaginal birth or a loss of greater than 1,000 mL after a cesarean birth (6). This new classification is likely to reduce the number of individuals labeled with postpartum hemorrhage. However, despite this new characterization, a blood loss greater than 500 mL in a vaginal delivery should be considered abnormal and should serve as an indication for the health care provider to investigate the increased blood deficit. Although visually estimated blood loss is considered inaccurate, use of an educational process, with limited instruction on estimating blood loss, has been shown to improve the accuracy of such estimates (7). Historically, a decrease in hematocrit of 10% had been proposed as an alternative marker to define postpartum hemorrhage; however, determinations of hemoglobin or hematocrit concentrations are often delayed, may not reflect current hematologic status, and are not clinically useful in the setting of acute postpartum hemorrhage (8).

In postpartum women, it is important to recognize that the signs or symptoms of considerable blood loss (eg, tachycardia and hypotension) often do not present or do not present until blood loss is substantial (9). Therefore, in a patient with tachycardia and hypotension, the obstetrician–gynecologist or other obstetric care provider should be concerned that considerable blood loss, usually

representing 25% of the woman's total blood volume (or approximately 1,500 mL or more), has occurred (10). Thus, earlier recognition of postpartum hemorrhage (eg, before deterioration in vital signs) should be the goal in order to improve outcomes.

Differential Diagnosis

The initial management of any patient with obstetric hemorrhage requires that the obstetrician–gynecologist or other obstetric care provider first identify the source of bleeding (uterine, cervical, vaginal, periurethral, periclitoral, perineal, perianal, or rectal). This can be quickly done with a careful physical examination. After the anatomic site is identified, it is important to identify the cause because treatment may vary. The most common etiologies (see Box 1) are broken into primary or secondary causes. Primary postpartum hemorrhage occurs within the first 24 hours of birth, whereas *secondary postpartum hemorrhage* is defined as excessive bleeding that occurs more than 24 hours after delivery and up to 12 weeks postpartum (11, 12).

When evaluating a patient who is bleeding, it may be helpful to consider "the 4 Ts" mnemonic device—tone, trauma, tissue, and thrombin (13). Abnormal uterine tone (uterine atony) is estimated to cause 70–80% of postpartum hemorrhage and usually should be suspected first as the etiology of postpartum hemorrhage (14). Recommended interventions for uterine atony include uterine massage, bimanual compression, and uterotonic drugs (15). Maternal trauma is indicated by lacerations, expanding hematomas, or uterine rupture. Retention of placental tissue can be readily diagnosed with manual examination or bedside ultrasonography of the uterine cavity and is addressed with manual removal or uterine curettage. Thrombin is a reminder to evaluate the patient's coagulation status and if abnormal to correct with replacement of clotting factors, fibrinogen, or other factor replacement sources (see sections on Transfusion Therapy and Massive Transfusion). It is important to identify the most likely diagnosis or diagnoses to initiate appropriate interventions. These diagnoses are outlined individually in the Clinical Considerations and Recommendations section.

Box 1. Etiology of Postpartum Hemorrhage ⇦

Primary:

- Uterine atony
- Lacerations
- Retained placenta
- Abnormally adherent placenta (accreta)
- Defects of coagulation (eg, disseminated intravascular coagulation)*
- Uterine inversion

Secondary:

- Subinvolution of the placental site
- Retained products of conception
- Infection
- Inherited coagulation defects (eg, factor deficiency such as von Willebrand)

*These include inherited coagulation defects as well as acute coagulopathies that may develop from events such as amniotic fluid embolism, placental abruption, or severe preeclampsia.

Risk Factors

Because obstetric hemorrhage is unpredictable, relatively common, and leads to severe morbidity and mortality, all obstetric unit members, including the physicians, midwives, and nurses who provide obstetric care, should be prepared to manage women who experience it. A number of well-established risk factors such as prolonged labor or chorioamnionitis are associated with postpartum hemorrhage (Table 1). However, many women without these risk factors can experience a postpartum hemorrhage (16). State and national organizations have suggested that a maternal risk assessment should be conducted antenatally and at the time of admission and continuously modified as other risk factors develop during labor or the postpartum period (17).

Risk assessment tools are readily available (18, 19) and have been shown to identify 60–85% of patients who will experience a significant obstetric hemorrhage (17, 20, 21). An example of this type of assessment tool is outlined in Table 2. However, a validation study of this tool among a retrospective cohort of more than 10,000 women showed that although the tool correctly identified more than 80% of patients with severe postpartum hemorrhage, more than 40% of women who did not experience hemorrhage were placed into the high-risk group giving the tool a specificity of just below 60% (20). Additionally, approximately 1% of women in the low-risk group experienced a severe postpartum hemorrhage, which indicates that the clinical value for identifying patients through risk assessment is low. These findings reinforce the need for diligent surveillance in all patients, including those initially thought to be at low risk.

Prevention

Many organizations have recommended active management of the third stage of labor as a method to reduce

the incidence of postpartum hemorrhage (22–24). The three components of active management are as follows: 1) oxytocin administration, 2) uterine massage, and 3) umbilical cord traction (25). Prophylactic oxytocin, by dilute intravenous infusion (bolus dose of 10 units), or intramuscular injection (10 units), remains the most effective medication with the fewest adverse effects (26). Oxytocin plus methylergonovine or oxytocin in combination with misoprostol appears to be no more effective than oxytocin used alone for prophylaxis (26, 27). The timing of oxytocin administration—after delayed umbilical cord clamping, with delivery of the anterior shoulder,

Table 1. Antenatal and Intrapartum Risk Factors for Postpartum Hemorrhage

Etiology	Primary Problem	Risk Factors, Signs
Abnormalities of uterine contraction—atony	Atonic uterus	Prolonged use of oxytocin High parity Chorioamnionitis General anesthesia
	Over-distended uterus	Twins or multiple gestation Polyhydramnios Macrosomia
	Fibroid uterus	Multiple uterine fibroids
	Uterine inversion	Excessive umbilical cord traction Short umbilical cord Fundal implantation of the placenta
Genital tract trauma	Episiotomy Cervical, vaginal, and perineal lacerations Uterine rupture	Operative vaginal delivery Precipitous delivery
Retained placental tissue	Retained placenta Placenta accreta	Succenturiate placenta Previous uterine surgery Incomplete placenta at delivery
Abnormalities of coagulation	Preeclampsia Inherited clotting factor deficiency (von Willebrand, hemophilia) Severe infection Amniotic fluid embolism Excessive crystalloid replacement Therapeutic anticoagulation	Abnormal bruising Petechia Fetal death Placental abruption Fever, sepsis Hemorrhage Current thromboembolism treatment

Modified from New South Wales Ministry of Health. Maternity—prevention, early recognition and management of postpartum haemorrhage (PPH). Policy Directive. North Sydney: NSW Ministry of Health; 2010. Available at: http://www1.health.nsw.gov.au/pds/ActivePDSDocuments/PD2010_064.pdf. Retrieved July 24, 2017. Copyright 2017.

Table 2. Example of Risk Assessment Tool

Low Risk	Medium Risk	High Risk
Singleton pregnancy	Prior cesarean or uterine surgery	Previa, accreta, increta, percreta
Less than four previous deliveries	More than four previous deliveries	HCT <30
Unscarred uterus	Multiple gestation	Bleeding at admission
Absence of postpartum hemorrhage history	Large uterine fibroids	Known coagulation defect
	Chorioamnionitis	History of postpartum hemorrhage
	Magnesium sulfate use	Abnormal vital signs (tachycardia and hypotension)
	Prolonged use of oxytocin	

Abbreviation: HCT, hematocrit.

Modified from Lyndon A, Lagrew D, Shields L, Main E, Cape V, editors. Improving health care response to obstetric hemorrhage version 2.0. A California quality improvement toolkit. Stamford (CA): California Maternal Quality Care Collaborative; Sacramento (CA): California Department of Public Health; 2015.

or with placental delivery—has not been adequately studied or found to be associated with a difference in the risk of hemorrhage (28). Specifically, delaying oxytocin until after delayed umbilical cord clamping has not been found to increase the risk of hemorrhage (29). The World Health Organization, ACOG, American Academy of Family Physicians, and Association of Women's Health, Obstetric and Neonatal Nurses recommend administering uterotonics (usually oxytocin) after all births for the prevention of postpartum hemorrhage (13, 22, 24). Therefore, all obstetric care facilities should have guidelines for the routine administration of uterotonics in the immediate postpartum period.

Although the number of well-conducted studies is limited, one small study found that the use of uterine massage was associated with reduced postpartum blood loss and reduced need for additional uterotonic agents (30); however, a Cochrane review found no statistical differences and found the evidence inconclusive (31). Furthermore, neither early umbilical cord clamping nor umbilical cord traction have been shown to have a significant effect on the incidence or volume of postpartum hemorrhage (32). Additionally, in a Cochrane review, two trials examining nipple stimulation or breastfeeding did not demonstrate a difference in postpartum hemorrhage (33, 34).

Techniques for Management

Management may vary greatly among patients and depends on the etiology and available treatment options. In general, management of postpartum hemorrhage should use a multidisciplinary and multifaceted approach that involves maintaining hemodynamic stability while simultaneously identifying and treating the cause of blood loss. Treatment options for postpartum hemorrhage because of uterine atony include administration of uterotonics or pharmacologic agents, tamponade of the uterus (eg, intrauterine balloons), surgical techniques to control the bleeding (eg, the B-Lynch procedure), embolization of pelvic arteries or, ultimately, hysterectomy. Generally, less invasive methods should be tried initially if possible; however, if unsuccessful, more invasive measures may be required. More specific guidance for these management approaches is delineated later in the document.

Systematic approaches to postpartum hemorrhage based on algorithms have been created, and these approaches have been used more widely at individual hospitals and in health systems (19, 35, 36). These approaches employ a multidisciplinary (eg, obstetrics, nursing, anesthesia, transfusion medicine), multifaceted, stepwise approach to the detection and management of postpartum hemorrhage. The approaches are aimed at treating cases early and consistently to reduce severe maternal morbidity and mortality as well as to identify the need for more aggressive interventions (such as hysterectomy or other surgeries) and intensive care unit admissions. Although it does appear that hemorrhage is treated earlier with such approaches, evidence regarding maternal outcomes, such as severe maternal morbidity or intensive care unit admission, is inconsistent (12).

Facilities With Limited Resources

Many hospitals that provide maternal services are located in rural or small communities. In the United States, obstetric services are provided in 50% of critical access hospitals and 92% of rural hospitals (37). Because these centers typically do not have the same resources as most urban centers, developing a comprehensive plan for dealing with obstetric emergencies such as postpartum hemorrhage is important. In particular, these small centers should consider establishing guidelines regarding appropriate case selection to triage or transfer patients to higher-level centers. Additionally, assessing available resources and developing a comprehensive plan for evaluating and managing obstetric hemorrhage are important for reducing morbidity. For more information see Obstetric Care Consensus No. 2, *Levels of Maternal Care* (38).

Clinical Considerations and Recommendations

▶ ***What should be considered in the initial evaluation and management of a patient with excessive bleeding in the immediate postpartum period?***

When postpartum bleeding exceeds expected volumes (500 mL in a vaginal delivery or 1,000 mL in a cesarean delivery), a careful and thorough evaluation should be undertaken. A rapid physical examination of the uterus, cervix, vagina, vulva, and perineum can often identify the etiology (sometimes multiple sources) of the postpartum hemorrhage. Obstetrician–gynecologists and other obstetric care providers should be familiar with algorithms for the diagnosis and management of postpartum hemorrhage (18, 39) and, ideally, these should be posted on labor and delivery units (see For More Information). The most common etiologies include uterine atony, genital tract lacerations, retained placental tissue and, less commonly, placental abruption, coagulopathy (acquired or inherited), amniotic fluid embolism, placenta accreta, or uterine inversion.

Uterine Atony

Because uterine atony causes 70–80% of cases of postpartum hemorrhage, it remains the single most common cause, and its incidence appears to be increasing (14, 21, 40). At the time of delivery, risk factors include, but are not limited to, prolonged labor, induction of labor, prolonged use of oxytocin, chorioamnionitis, multiple gestation, polyhydramnios, and uterine leiomyomas (see Table 1 and Table 2).

In the setting of postpartum hemorrhage, identification of a soft, poorly contracted (boggy) uterus suggests atony as a causative factor. When atony is suspected, the bladder should be emptied and a bimanual pelvic examination conducted, any intrauterine clots should be removed, and uterine massage should be performed. In addition to oxytocin, a second uterotonic agent is required in 3–25% of cases of postpartum hemorrhage (15). Supplemental uterotonics that are most commonly administered include methylergonovine, 15-methyl prostaglandin $F_{2\alpha}$, or misoprostol. As discussed in a 2015 systematic review, there is a lack of evidence that suggests which specific additional uterotonics are the most effective (12). Treatment of refractory atony may require the use of secondary methods such as uterine tamponade with an intrauterine tamponade balloon or compression sutures (41, 42).

Occasionally, the fundus is firm and contracted down, but the lower uterine segment is dilated and atonic. In this setting, the usual approach is to manually remove any clots and to use bimanual compression to reduce the blood loss while waiting for the uterotonic agents to work. Treatment with the intrauterine tamponade balloon can be considered if there is persistent lower uterine segment atony.

Obstetric Trauma

Genital tract lacerations are the most common complications of obstetric trauma. Although such lacerations are predominantly venous bleeding, they can be the primary source of a postpartum hemorrhage. Rapid identification and repair of cervical lacerations, lacerations complicated by arterial bleeding, and high vaginal lacerations should be performed. Similarly, distal vaginal, vulvar, periclitoral, and perineal lacerations should be repaired if contributing significantly to blood loss. If a uterine artery laceration is suspected, interventional radiology or surgical exploration and ligation should be considered. Repair may require assistance from anesthesia and transfer to a well-equipped operating room.

Genital tract hematomas (labial, vaginal, broad ligament, or retroperitoneal) also can lead to significant blood loss and should be suspected in the setting of a precipitous uncontrolled delivery or an operative vaginal delivery. Labial, rectal, pelvic pressure or pain, or vital sign deterioration may be the only symptoms of genital tract hematomas and may not be recognized until hours after delivery. Once identified, most genital tract hematomas can be managed conservatively. However, rapid progressive enlargement of the hematoma, particularly in the setting of abnormal vital signs, indicates a need for incision and drainage. One reason that opening a hematoma is reserved for only the most severe cases is that often a single bleeding source is not identified when a hematoma is incised. Exploration with suturing or packing may be needed to achieve hemostasis. Arterial embolization is another option for management of a hematoma and should be considered as a possibility before opening the hematoma.

Deterioration of maternal vital signs without obvious bleeding should alert the obstetric team that there may be intraperitoneal or retroperitoneal bleeding. In this setting, resuscitative measures, diagnostic imaging, and surgical intervention or an interventional radiology procedure should not be delayed.

Retained Placenta

Detailed visual inspection of the placenta for completeness should be conducted after all deliveries. Even when the placenta appears intact, there may be additional remaining products of conception (eg, succenturiate lobe) within the uterine cavity. Manual removal of the placenta, prior uterine surgery, or other risk factors for morbidly adherent placenta should raise suspicion for retained placental tissue or placenta accreta. Ultrasonography or intrauterine manual examination is usually used to diagnose retained placental tissue. Retained placental tissue is unlikely when ultrasonography reveals a normal endometrial stripe. However, although ultrasonographic images of retained placental tissue can be inconsistent, detection of an echogenic mass within the uterus is highly suspicious. When a retained placenta is identified, the first step is to attempt manual removal of the tissue. If a woman has adequate regional analgesia, assessment of the uterine cavity may be performed. If manual extraction fails, either a "banjo" curette or large oval forceps (Sopher or Bierer) can be used for removal. Because of the concern for uterine perforation in the postpartum uterus and to ensure removal of all tissue, ultrasound guidance may be used. If the placental tissue is adherent to the uterine wall, there should be increased suspicion for placenta accreta, particularly in the presence of risk factors for placenta accreta. Management of placenta accreta is discussed later in the document.

Acute Coagulopathy

An acute coagulopathy can complicate postpartum hemorrhage and, in such a setting, two specific etiologies beyond massive blood loss alone should be considered: 1) placental abruption and 2) amniotic fluid embolism. Placental abruption often is associated with uterine atony secondary to extravasation of blood into the myometrium (Couvelaire uterus), and disseminated intravascular coagulation and hypofibrinogenemia are known complications. Placental abruption usually presents as a combination of vaginal bleeding, frequent uterine contractions (tachysystole), and pain (43). The classic contraction pattern includes high-frequency, low-amplitude contractions. Placental abruption is responsible for 17% of cases that require massive transfusion (44).

Amniotic fluid embolism is a rare, unpredictable, unpreventable, and devastating obstetric emergency signaled by a triad of hemodynamic and respiratory compromise in addition to strictly defined disseminated intravascular coagulation (45). Given the profound coagulopathy, postpartum hemorrhage is almost always seen with amniotic fluid embolism. Coagulopathy and the resultant hemorrhage should be managed with aggressive volume replacement and initiation of a massive transfusion protocol (discussed later in this document).

▶ *What are the medical and surgical approaches for the management of postpartum hemorrhage?*

When treating postpartum hemorrhage, it is necessary to balance the use of less invasive management techniques with the need to control the bleeding and achieve hemostasis. Treatment is based upon the etiology for the postpartum hemorrhage. Although hemorrhage etiologies such as lacerations and accreta have specific treatment approaches, the evidence evaluating these approaches is almost nonexistent. However, there is a wide range of approaches to treat postpartum hemorrhage in the setting of atony, which is the most common cause. Thus, this section will focus on the evidence underlying the different approaches to treat postpartum hemorrhage. Generally, in the treatment of postpartum hemorrhage, less invasive methods should be used initially if possible, but if unsuccessful, preservation of life may require more aggressive interventions, including hysterectomy. Few randomized controlled trials that examine the management of postpartum hemorrhage have been conducted, so management decisions usually are based on observational studies and clinical judgment.

Medical Management

Uterotonic agents should be the first-line treatment for postpartum hemorrhage caused by uterine atony. The specific agent selected, outside of recognized contraindications, is at the health care provider's discretion because none has been shown to have greater efficacy than others for the treatment of uterine atony (12). Common medical agents (eg, oxytocin, methylergonovine, 15-methyl prostaglandin $F_{2\alpha}$, and misoprostol) and their doses are outlined in Table 3. It is common for multiple uterotonic agents to be used, assuming there are no contraindications, and without adequate uterine response and ongoing hemorrhage, they should be used in rapid succession (15). When uterotonics fail to adequately control postpartum hemorrhage, prompt escalation to other interventions (such as tamponade or surgical techniques) and escalation of intensity of care and support personnel are indicated.

Tranexamic Acid

Tranexamic acid is an antifibrinolytic agent that can be given intravenously or orally. A large, randomized, international trial, the WOMAN trial, compared 1 g of intravenous tranexamic acid to placebo in the setting of postpartum hemorrhage (46). Although the composite primary endpoint of hysterectomy or death from all causes was not reduced with tranexamic acid treatment, a significant reduction of mortality in the subgroup of death from obstetric hemorrhage was noted (1.5% versus 1.9%, P=.045 for tranexamic acid compared to placebo, respectively). When the treatment was given within 3 hours of birth, the mortality rates from obstetric hemorrhage were 1.2% versus 1.7% comparing tranexamic acid to placebo (P=.008). Tranexamic acid has been shown in a number of small studies to modestly reduce obstetric blood loss when given prophylactically and as part of treatment for postpartum hemorrhage (47, 48). Additionally, the risk of thrombosis appears to not be different from controls when used in surgeries (49, 50), and the risk of thrombosis was not higher in women who received tranexamic acid as part of the WOMAN trial. At this time, data are insufficient to recommend the use of tranexamic acid as prophylaxis against postpartum hemorrhage outside of the context of research. Although the generalizability of the WOMAN trial and the degree of effect in the United States is uncertain, given the mortality reduction findings, tranexamic acid should be considered in the setting of obstetric hemorrhage when initial medical therapy fails. Earlier use is likely to be superior to delayed treatment, given that in the stratified analysis it appeared that the benefit was primarily in women treated sooner than 3 hours from the time of delivery. For those clinicians unfamiliar with tranexamic acid, it should be used in consultation with a local or regional expert in massive hemorrhage and specifically incorporated into management guidelines.

Table 3. Acute Medical Management of Postpartum Hemorrhage

Drug*	Dose and Route	Frequency	Contraindications	Adverse Effects
Oxytocin	IV: 10–40 units per 500–1,000 mL as continuous infusion or IM: 10 units	Continuous	Rare, hypersensitivity to medication	Usually none. Nausea, vomiting, hyponatremia with prolonged dosing. Hypotension can result from IV push, which is not recommended.
Methylergonovine	IM: 0.2 mg	Every 2–4 h	Hypertension, preeclampsia, cardiovascular disease, hypersensitivity to drug	Nausea, vomiting, severe hypertension particularly when given IV, which is not recommended
15-methyl $PGF_{2\alpha}$	IM: 0.25 mg Intramyometrial: 0.25 mg	Every 15–90 min, eight doses maximum	Asthma. Relative contraindication for hypertension, active hepatic, pulmonary, or cardiac disease	Nausea, vomiting, diarrhea, fever (transient), headache, chills, shivering hypertension, bronchospasm
Misoprostol	600–1,000 micrograms oral, sublingual, or rectal	One time	Rare, hypersensitivity to medication or to prostaglandins	Nausea, vomiting, diarrhea shivering, fever (transient), headache

Abbreviations: IV, intravenously; IM, intramuscularly; PG, prostaglandin.

*All agents can cause nausea and vomiting.

Modified from Lyndon A, Lagrew D, Shields L, Main E, Cape V, editors. Improving health care response to obstetric hemorrhage version 2.0. A California quality improvement toolkit. Stamford (CA): California Maternal Quality Care Collaborative; Sacramento (CA): California Department of Public Health; 2015.

Tamponade Techniques

When uterotonics and bimanual uterine massage fail to sustain uterine contractions and satisfactorily control hemorrhage, the use of compression (including manual compression), intrauterine tamponade or packing can be effective in decreasing hemorrhage secondary to uterine atony (Table 4). Although the evidence that compares these approaches is poor or absent, it is important for institutions to adopt an approach and train personnel in this approach. For example, the California Maternal Quality Care Collaborative recommends the use of an intrauterine balloon for tamponade after uterotonics have failed.

Evidence for the benefits of use of intrauterine balloon tamponade is limited; however, in one study, 86% of women who had balloon tamponade did not require further procedures or surgeries (12, 51). Similarly, a summary of studies showed that 75% of patients did not need further treatment after intrauterine balloon tamponade (12). In some refractory cases, intrauterine tamponade and uterine compression sutures (described later) may be used together (52).

If a balloon tamponade system is not available, the uterus may be packed with gauze. This requires careful layering of the material back and forth from one uterine cornu to the other repeatedly using a sponge stick, and ending with extension of the gauze through the cervical os. To avoid leaving gauze in the uterus at time of removal, it can be carefully counted and tied together. Similarly, multiple large Foley catheters (which were common before the development of commercial intrauterine tamponade devices) can still be used, but the challenge is placing multiple devices and keeping

Table 4. Tamponade Techniques for Postpartum Hemorrhage

Technique	Comment
Commercially available intrauterine balloon tamponade devices	Inserted transcervically or through cesarean incision; has an exit port for blood drainage
- Bakri Balloon	Inflated with 300–500 mL of saline
- ebb uterine tamponade system	Double Balloon: maximum recommended fill volumes are 750 mL for the uterine balloon and 300 mL for the vaginal balloon.
Foley catheter	Insert one or more 60 mL bulbs and fill with 60 mL of saline.
Uterine packing	4-inch gauze, can be soaked with 5,000 units of thrombin in 5 mL of saline then insert from one cornua to the other with ring forceps.

careful count of them. In cases where compression, or intrauterine tamponade, or both, fail to adequately control hemorrhage, they may be used to temporize while planning to move to uterine artery embolization (UAE) or hysterectomy.

Uterine Artery Embolization

Candidates for UAE typically are hemodynamically stable, appear to have persistent slow bleeding and have failed less invasive therapy (uterotonic agents, uterine massage, uterine compression, and manual removal of any clots) (12). When successful, UAE also has the benefit of a woman retaining her uterus and, potentially, future fertility. Fluoroscopic identification of bleeding vessels allows embolization with absorbable gelatin sponges, coils, or microparticles. Studies (n=15) have shown that UAE for postpartum hemorrhage has a median success rate of 89%, ranging from 58% to 98% (12). Moreover, one of the largest series (114 UAE procedures) reported a success rate greater than 80%, with 15% requiring subsequent hysterectomy (53). The risk of significant harm (uterine necrosis, deep vein thrombosis, or peripheral neuropathy) appears to be low (less than 5%) based on reports from small case series (12). After UAE, infertility has been reported in up to 43% of women (12). Other studies have reported that in women who have had a UAE, subsequent pregnancy complications such as preterm birth (5–15%) and fetal growth restriction (7%) appear to be similar to the general obstetric population (12, 54).

Surgical Management

Vascular Ligation

When less invasive approaches such as uterotonic agents (with or without tamponade measures) or UAE fail to control bleeding in the setting of postpartum hemorrhage, exploratory laparotomy is indicated. In the setting of a vaginal delivery, it is common to use a midline vertical abdominal incision to optimize exposure and reduce risk of surgical bleeding. In the setting of cesarean birth, the existing surgical incision may be used. Several techniques are available to control bleeding with limited evidence for each (12). The general aim of vascular ligation in the setting of atony is to diminish the pulse pressure of blood flowing to the uterus. A common first approach is bilateral uterine artery ligation (O'Leary sutures), which commonly accomplishes this goal of reducing blood flow to the uterus, and is quickly and easily performed (55, 56). Similarly, to further diminish blood flow to the uterus, sutures also can be placed across the vessels within the utero–ovarian ligaments. Reports from case series indicate that, when used as a second-line approach to postpartum hemorrhage, the median success of vascular ligation is 92% (12).

However, because these less invasive vascular techniques appear to be effective, it appears that internal iliac (hypogastric) artery ligation is performed less frequently than in the past. The procedure has been found to be considerably less successful than originally thought (57) and because practitioners have become less familiar with this technique (which requires a retroperitoneal approach) it is rarely used today.

Uterine Compression Sutures

Although there are no good-quality studies that provide evidence for the success of uterine compression sutures, the B-Lynch technique probably is the most common uterine compression technique for atony (42); however, other techniques, such as Cho and Hayman, have been described (42, 58–61). The effectiveness of uterine compression sutures as a secondary treatment for uterine atony unresponsive to medical management appears to be approximately 60–75%, with none of the techniques shown to be superior to another (12, 62, 63). B-lynch sutures are placed from the cervix to fundus and provide physical compression of the uterus. A large suture (eg, a number 1 chromic suture) should be used to prevent breaking and the suture should be rapidly absorbed to prevent risk of bowel herniation through a persistent loop of suture after uterine involution. Physicians should be familiar with the technique and it could be helpful to have diagrams available on labor and delivery for quick reference such as those available in the Alliance for Innovation on Maternal Health Obstetric Hemorrhage Bundle (64) (see For More Information). Direct comparisons between compression sutures and uterine balloons have been described in small case series and suggest they have similar effectiveness (65). Uterine necrosis after placement of compression sutures has been reported; however, the exact incidence is not clear because of the small number of patients in case reports and series.

Hysterectomy

When more conservative therapies have failed, hysterectomy is considered the definitive treatment and is not only associated with permanent sterility but also potential surgical complications. For example, six small studies have shown that bladder injuries range from 6% to 12% and ureteral injuries range from 0.4% to 41% (12). There are inadequate studies that compared hysterectomy to other management approaches. Additionally, there is inadequate evidence examining different surgical approaches to hysterectomy (eg, total hysterectomy versus supracervical hysterectomy). Therefore, in the

setting of an emergent postpartum hysterectomy, the surgical approach felt to be the fastest and safest should be used.

▶ *What are the clinical considerations for placenta accreta not diagnosed before delivery?*

Placenta accreta is a life-threatening condition in which either a portion of or the entire placenta invades into the myometrium and fails to separate from the uterine wall during the third stage of labor (66). The risk factors that have the most significant effect appear to be a history of prior uterine surgery, particularly prior cesarean delivery, and placenta previa (67, 68). One multicenter study of more than 30,000 patients who had cesarean deliveries without labor found that the risk of placenta accreta increased with the number of cesarean deliveries (ie, 0.2%, 0.3%, 0.6%, 2.1%, 2.3%, and 6.7% for women experiencing their first through sixth cesarean deliveries, respectively) (68). Therefore, in the presence of placenta previa and a history of cesarean delivery, the obstetrician–gynecologist should have a high clinical suspicion for placenta accreta. The risk was far higher in women with placenta previa with 3%, 11%, 40%, 61%, and 67% of such women with their first through fifth or more cesarean deliveries having a placenta accreta. When diagnosed antenatally, an organized, multidisciplinary management and delivery plan should be developed. Preparations will include establishing a delivery date and assembling an experienced team (including surgical, anesthesiology, blood bank, nursing, and neonatal intensive care unit personnel) and relevant resources (including an operating room and equipment) (66).

In the setting of postpartum hemorrhage and a vaginal delivery, accreta should be strongly suspected if the placenta does not detach easily, and there should be no further attempt to manually remove the placenta in the delivery room. The patient should be moved to an operating room, if not already there, for further assessment. The patient should be counseled about the likely need for hysterectomy and blood transfusion. In the operating room, the extent (eg, area and depth) of the abnormal attachment can be assessed to determine the plan (eg, curettage, wedge resection, medical management, or hysterectomy). If there is ongoing hemorrhage and likely accreta is diagnosed, plans for a prompt hysterectomy should be underway. Adequate intravenous access with at least two large bore intravenous lines should be obtained. Blood products (including red blood cells, fresh frozen plasma, platelets, and cryoprecipitate) should be made readily available while the local blood bank is alerted that additional blood products may be needed. Once the diagnosis of suspected accreta is made, other specialties such as urology, surgery, or interventional radiology should be notified in case additional support is needed.

Uterine conserving options may work in the setting of a small focal accreta; however, in most cases with ongoing bleeding, abdominal hysterectomy will be needed. Attempts at uterine conservation have been recently reviewed (69) and were associated with a 40% risk of emergency hysterectomy, and 42% of women in this setting suffered major morbidity. The risk of an abnormally adherent placenta in a subsequent pregnancy appears to be approximately 20% in a review of 407 patients (70). Thus, an attempt to conserve the uterus in the presence of a focal accreta may be considered for women with a strong desire to retain fertility and a clear understanding of the significant risks of this approach; however, without control of ongoing bleeding, hysterectomy should be the surgical plan.

▶ *What is the management approach for hemorrhage caused by a ruptured uterus?*

Uterine rupture can occur at the site of a previous cesarean delivery or other surgical procedure that involves the uterine wall, from intrauterine manipulation or trauma, from congenital malformation (small uterine horn), or it can occur spontaneously, particularly in the setting of abnormal labor (71–73). Surgical repair is required, with the specific approach tailored to reconstruct the uterus, if possible. Care depends on the extent and site of rupture, the patient's current clinical condition, and her desire for future childbearing. For example, rupture of a previous cesarean delivery scar often can be managed by revision of the edges of the prior incision followed by primary closure. In addition to the myometrial disruption, consideration should be given to neighboring structures, such as the broad ligament, parametrial vessels, ureters, and bladder. Although the patient may wish to avoid hysterectomy, this procedure may be necessary in a life-threatening situation. Supportive care with intravenous fluids, uterotonic medications, and blood transfusion will depend on the degree of blood loss and the patient's hemodynamic status.

▶ *What is the management approach for an inverted uterus?*

Uterine inversion (when the uterine corpus descends to, and sometimes completely through, the uterine cervix) can be associated with marked hemorrhage and cardiovascular collapse. It is relatively rare with an incidence of 1 in 3,700 to 20,000 at vaginal delivery and 1 in 1,860

at cesarean delivery (74, 75). Uterine inversion in a prior pregnancy leads to an increased risk in a subsequent pregnancy (1 per 26 subsequent deliveries) although it is still relatively uncommon (74). Upon bimanual examination, the finding of a firm mass at or below the cervix, coupled with the absence of identification of the uterine corpus on abdominal examination, suggests inversion. If the inversion occurs before placental separation, detachment or removal of the placenta is generally not undertaken before replacement of the uterus because, presumably, this could lead to additional hemorrhage (76).

Manual replacement of the uterine corpus involves placing the palm of the hand or a closed fist against the fundus (now inverted and lowermost at or through the cervix), as if holding a tennis ball, with the fingertips exerting upward pressure circumferentially (77). To restore normal anatomy, relaxation of the uterus may be necessary. Terbutaline, magnesium sulfate, halogenated general anesthetics, and nitroglycerin have all been used for uterine relaxation without clear evidence supporting any one approach as superior to the others (78). Manual replacement with or without uterine relaxants usually is successful with the large majority being successfully replaced in one small series (76). In the unusual circumstance in which it is not, laparotomy is required. Two procedures have been reported to return the uterine corpus to the abdominal cavity. The Huntington procedure involves progressive upward traction on the inverted corpus using Babcock or Allis forceps (79). The Haultain procedure involves incising the cervix posteriorly, which allows for digital repositioning of the inverted corpus, with subsequent repair of the incision (80).

Supportive measures and treatment of the associated hemorrhage should be employed while the inversion is corrected. In the setting of recurrent uterine inversion, the use of intrauterine tamponade balloons has been reported to prevent recurrent uterine inversion as well as the accompanying hemorrhage in a number of case reports (81–84). The use of uterine compression sutures for prevention of acute recurrence also has been successful in a limited number of case reports (59, 85).

▶ *What is the management approach for secondary or delayed postpartum hemorrhage?*

Secondary postpartum hemorrhage, defined as excessive bleeding that occurs more than 24 hours after delivery and up to 12 weeks postpartum, occurs in approximately 1% of pregnancies (11). In the event of secondary hemorrhage, a number of specific etiologies should be considered. Uterine atony (perhaps secondary to retained products of conception) with or without infection contributes to secondary hemorrhage. Ultrasound evaluation can help identify intrauterine tissue. Endometritis should be strongly suspected in the presence of uterine tenderness and a low grade fever. Secondary postpartum hemorrhage also may be the first indication of bleeding disorders such as von Willebrand disease.

Treatment should be focused on the etiology of the hemorrhage and may include uterotonic agents and antibiotics, but if these fail to resolve the problem or if retained products of conception are suspected, uterine curettage may be necessary. If treating endometritis, broad antibiotic coverage with clindamycin and gentamicin is a common choice, although other combinations also are used (86). Often the volume of tissue removed by curettage is relatively small, yet bleeding usually subsides promptly. Concurrent ultrasound assessment at the time of curettage can help prevent uterine perforation. Patients should be counseled about the possibility of hysterectomy before initiating any operative procedure.

▶ *What is best practice for blood product replacement during and after a postpartum hemorrhage?*

The Timing of Transfusion Therapy⇦

Initiation of transfusion therapy generally is based on estimated blood deficit and ongoing blood loss. However, in the setting of postpartum hemorrhage, acute changes in hemoglobin or hematocrit will not accurately reflect blood loss. As noted previously, maternal vital signs typically do not change drastically until significant blood loss has occurred (10). Inadequate early resuscitation and hypoperfusion may lead to lactic acidosis, systemic inflammatory response syndrome with accompanying multiorgan dysfunction, and coagulopathy (87). In women with ongoing bleeding that equates to the blood loss of 1,500 mL or more or in women with abnormal vital signs (tachycardia and hypotension), immediate preparation for transfusion should be made (18, 19, 39). Because such a large blood loss includes depletion of coagulation factors, it is common for such patients to develop a consumptive coagulopathy, commonly labeled as disseminated intravascular coagulation, and the patients will require platelets and coagulation factors in addition to packed red blood cells.

Transfusion and Massive Obstetric Hemorrhage⇦

Massive transfusion usually is defined as a transfusion of 10 or more units of packed red blood cells within

24 hours, transfusion of 4 units of packed red blood cells within 1 hour when ongoing need for more blood is anticipated, or replacement of a complete blood volume (87). Despite the low quality of evidence regarding the benefit of massive transfusion for early postpartum hemorrhage (12), massive transfusion protocols should be part of a comprehensive management plan for treatment of postpartum hemorrhage in settings with adequate blood banking.

Recommendations for optimal blood product replacement therapy and timing of transfusion in obstetric patients have been primarily limited to consensus opinion (18), protocols adapted from trauma literature (88, 89), and a few clinical reports (19, 39, 90–92). All recommend the use of multicomponent therapy with fixed ratios of packed red blood cells, fresh or thawed plasma, platelets, and cryoprecipitate. When a massive transfusion protocol is needed, fixed ratios of packed red blood cells, fresh frozen plasma, and platelets should be used. The recommended initial transfusion ratio for packed red blood cells:fresh frozen plasma:platelets has been in the range of 1:1:1 and is designed to mimic replacement of whole blood. In a recent survey, more than 80% of institutions reported using the 1:1 red blood cell:plasma ratio (93). These recommendations are different from protocols that have previously suggested ratios such as 4:4:1 or 6:4:1 and are related to how a unit of platelets is defined (18). What is more important than the actual ratio is that there is a specific protocol for multicomponent therapy in place at each institution. In women with suspected disseminated intravascular coagulation (ie, consumptive coagulopathy, or low fibrinogen, or both) administration of cryoprecipitate also should be considered. Findings of critically low fibrinogen should be particularly anticipated in the setting of placental abruption or amniotic fluid embolism, and early use of cryoprecipitate is commonly included as part of the resuscitation.

Although smaller hospitals may not have all blood products, every obstetric unit should have a comprehensive maternal hemorrhage emergency management plan that includes protocols for accessing packed red blood cells. In emergency situations, type specific or type O Rh-negative blood also should be readily available. Physicians should be familiar with their hospitals' protocol and recommendations for use of combination blood component therapy. No specific hemorrhage protocol has been proved to be more effective than another; therefore, each hospital will need to address its specific resources and make modifications specific to its unique setting. For examples of algorithms, see For More Information.

It is also important to establish approaches to address situations in which patients decline various treatment approaches. For example, refusal of blood products is common in patients who are Jehovah's Witnesses. This subset of patients has between a 44-fold to 130-fold higher risk of maternal mortality from obstetric hemorrhage because of refusal of blood products (94, 95). Because this population may accept some blood products, a predelivery directive that can be used in the event of a severe postpartum hemorrhage can be discussed with the patient during the prenatal period (18, 96). Greater detail on this issue is outlined in Committee Opinion No. 664, Refusal of Medically Recommended Treatment During Pregnancy.

Although transfusion is often lifesaving in obstetrics, usage of blood products, particularly in the setting of massive transfusion, is not without risk. Massive transfusion is associated with hyperkalemia from packed red blood cells and citrate (used as a preservative in stored blood products) toxicity that will typically worsen hypocalcemia. The combination of acidosis, hypocalcemia, and hypothermia all contribute to worsening coagulopathy and increased morbidity (87, 97). Overzealous resuscitation with crystalloid also can be associated with dilution-related coagulopathy and can contribute to pulmonary edema (98). Other complications include transfusion febrile nonhemolytic reactions (0.8 per 1,000 units transfused), acute hemolytic transfusion reaction (0.19 per 1,000 units transfused), and acute transfusion reactions related lung injury (TRALI, 0.1 per 1,000 units transfused) (99). Transfusion-associated infections (eg, hepatitis, human immunodeficiency virus, West Nile virus, Chagas disease, malaria, and Lyme disease) are relatively rare (less than 1/100,000–1,000,000) (100).

Other Related Therapies

Cell Salvage

Intraoperative cell salvage—also known as autologous blood transfusion—has been shown to be effective and safe in obstetric patients. Limitations are primarily related to availability of appropriate staff and equipment. In certain settings where significant blood loss is anticipated, such as placenta previa and placenta accreta, having this tool available may reduce the need for or volume of allogeneic blood transfusion. Early concerns related to amniotic fluid contamination have been dispelled with higher quality filtering techniques (101). There is some concern for anti-D isoimmunization, and appropriate testing and treatment with anti-D immunoglobulin is necessary (102, 103). However, because the large majority of postpartum hemorrhage events are unpredictable, cell salvage is rarely available or used.

Prothrombin Complex and Fibrinogen Concentrates

Prothrombin complex concentrates (PCCs) are human plasma-derived concentrates of vitamin K-dependent clotting factors. They are the first-line treatment modality for the urgent reversal of acquired coagulation factor deficiency induced by vitamin-K antagonists (eg, warfarin) (104). Different preparations of PCCs are available that contain three factors (factors II, IX, and X) or four factors (factors II, VII, IX, and X). Fibrinogen concentrates are approved for the treatment of acute bleeding episodes in patients with congenital fibrinogen deficiency. Data regarding the use of PCC and fibrinogen concentrates in the setting of postpartum hemorrhage and disseminated intravascular coagulation are limited. Thus, these should be used only after multiple rounds of the standard massive transfusion agents and in consultation with a local or regional expert in massive hemorrhage.

Recombinant Factor VII

Factor VII is a vitamin K-dependent serine protease with a pivotal role in coagulation. The only U.S. Food and Drug Administration-approved indication for recombinant factor VII is for treatment of patients with hemophilia A and B. The role of recombinant factor VII in primary postpartum hemorrhage is controversial (105, 106). It has been reported to significantly improve hemostasis in hemorrhaging obstetric patients, but also may result in life-threatening thrombosis (107) estimated to be in the range of 2–9% (12). Use of recombinant factor VII is not considered first-line therapy and should be reserved for extenuating circumstances after multiple rounds of the standard massive transfusion agents and in consultation with a local or regional expert in massive hemorrhage.

▶ *What is the best approach to managing anemia in the nonacute postpartum period once the postpartum hemorrhage has been treated?*

After a patient has been stabilized posthemorrhage, the degree of anemia is sometimes not apparent until the patient receives her routine postpartum laboratory results the following day or has symptoms of dizziness or lightheadedness when she begins to ambulate. At this point a decision to treat using a transfusion of packed red blood cells (PRBCs), supplement oral iron, or intravenous iron will need to be made. The degree of ongoing blood loss (lochia), risk of subsequent blood loss, and patient symptoms should all be considered when deciding on the best approach to treatment. It is common practice to offer a transfusion of PRBCs to symptomatic women with a hemoglobin value less than 7 g/dL (hematocrit less than 20%) (108). Alternatively, the management of women with hemoglobin values less than 7 g/dL who are asymptomatic and hemodynamically stable should be individualized between transfusion, oral iron supplementation, or intravenous iron therapy. Each is designed to replace red cell mass, but at differing rates. Although transfusions historically were initiated with 2 units of PRBCs, the most recent recommendation from the American Association of Blood Banks for a stable patient is to begin with 1 unit and reassess (108).

When a blood transfusion is not necessary, but supplemental iron is indicated, the use of intravenous iron (ferrous sucrose) has been compared to oral iron for postpartum anemia in a few small randomized controlled trials. (109–112). Two of these studies have shown significant improvement in hemoglobin levels on posttreatment day 14 from intravenous iron, but these differences were modest. In absolute terms, there was a smaller increase in hemoglobin of 1.4–1.5 g/dL in those receiving oral iron as compared with 2.0–3.8 g/dL in those receiving intravenous iron (109, 111). At posttreatment day 40–42 none of the studies demonstrated a difference in hemoglobin level or any other clinical outcomes between oral or intravenous iron.

▶ *Which systems-level interventions are effective in improving the management of postpartum hemorrhage?*

Using a standardized, multistage evaluation and response protocol has been associated with earlier intervention and resolution of maternal hemorrhage at an earlier stage of hemorrhage (19, 35). However, studies have not consistently demonstrated improvement in maternal outcomes, including severe morbidity or mortality (19, 35, 36). In the 2015 Agency for Health Research and Quality systematic review, there was no consistent evidence for benefit in severe postpartum hemorrhage, transfusion, hysterectomy, intensive care unit admission, or mortality from standardized protocols (12). Despite this lack of consistent evidence, numerous organizations recommend that an organized, multidisciplinary approach be taken in order to reduce the morbidity and mortality from postpartum hemorrhage, and a quality improvement approach to this leading cause of maternal morbidity and mortality appears appropriate. Thus, all obstetric facilities should have a standardized hospital-wide process in place for management of obstetric hemorrhage. Obstetrician–gynecologists and other obstetric care providers should work with their institutions to ensure the existence of a designated multidisciplinary response team, a staged postpartum hemorrhage protocol that includes guidelines

for escalation of care, and a functioning massive transfusion protocol.

Every obstetric unit should have an organized, systematic obstetric hemorrhage response that coordinates care among all critical personnel. Hospitals should consider adopting a system to implement key elements in four categories: 1) *readiness* to respond to a maternal hemorrhage, 2) *recognition and prevention* measures in place for all patients, 3) *a multidisciplinary response* to excessive maternal bleeding, and 4) a systems-based quality improvement process to improve responsiveness through *reporting and system learning*. The Council on Patient Safety in Women's Healthcare has endorsed a system and further details can be found on the For More Information web page. Education, drills, and review of team protocol compliance are needed to ensure everyone remains proficient with the treatment algorithm and tools at each facility.

Multidisciplinary simulation-based team training, including postpartum hemorrhage scenarios, have been associated with improved safety culture and outcomes in obstetrics (113–115). Hemorrhage drills have been used for multiple purposes, including the following: identify management pitfalls (116), improve confidence and competence in skills (117), pilot and modify checklists (118), identify and correct systems issues (119, 120), familiarize staff with management algorithms, and ensure timely management of hemorrhage (19). Although one standardized approach for drills, simulation, and team training has not been established, there are several recommended tools and techniques that can be incorporated into unit-based improvement strategies (121, 122).

Summary of Recommendations and Conclusions

The following recommendations and conclusions are based on good and consistent scientific evidence (Level A):

- All obstetric care facilities should have guidelines for the routine administration of uterotonics in the immediate postpartum period.
- Uterotonic agents should be the first-line treatment for postpartum hemorrhage caused by uterine atony. The specific agent selected, outside of recognized contraindications, is at the health care provider's discretion because none has been shown to have greater efficacy than others for the treatment of uterine atony.

The following recommendations and conclusions are based on limited or inconsistent scientific evidence (Level B):

- When uterotonics fail to adequately control postpartum hemorrhage, prompt escalation to other interventions (such as tamponade or surgical techniques) and escalation of intensity of care and support personnel are indicated.
- Given the mortality reduction findings, tranexamic acid should be considered in the setting of obstetric hemorrhage when initial medical therapy fails.
- Obstetrician–gynecologists and other obstetric care providers should work with their institutions to ensure the existence of a designated multidisciplinary response team, a staged postpartum hemorrhage protocol that includes guidelines for escalation of care, and a functioning massive transfusion protocol.

The following recommendations and conclusions are based primarily on consensus and expert opinion (Level C):

- Management of postpartum hemorrhage should use a multidisciplinary and multifaceted approach that involves maintaining hemodynamic stability while simultaneously identifying and treating the cause of blood loss.
- Generally, in the treatment of postpartum hemorrhage, less invasive methods should be used initially if possible, but if unsuccessful, preservation of life may require more aggressive interventions including hysterectomy.
- When a massive transfusion protocol is needed, fixed ratios of packed red blood cells, fresh frozen plasma, and platelets should be used.
- Hospitals should consider adopting a system to implement key elements in four categories: 1) *readiness* to respond to a maternal hemorrhage, 2) *recognition and prevention* measures in place for all patients, 3) *a multidisciplinary response* to excessive maternal bleeding, and 4) a systems-based quality improvement process to improve responsiveness through *reporting and system learning*.

For More Information ⇦

The American College of Obstetricians and Gynecologists has identified additional resources on topics related to this document that may be helpful for ob-gyns, other health care providers, and patients. You may view

these resources at www.acog.org/More–Info/Postpartum Hemorrhage.

These resources are for information only and are not meant to be comprehensive. Referral to these resources does not imply the American College of Obstetricians and Gynecologists' endorsement of the organization, the organization's website, or the content of the resource. These resources may change without notice.

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The MEDLINE database, the Cochrane Library, and ACOG's own internal resources and documents were used to conduct a literature search to locate relevant articles published between January 2000 and June 2017. The search was restricted to articles published in the English language. Priority was given to articles reporting results of original research, although review articles and commentaries also were consulted. Abstracts of research presented at symposia and scientific conferences were not considered adequate for inclusion in this document. Guidelines published by organizations or institutions such as the National Institutes of Health and the American College of Obstetricians and Gynecologists were reviewed, and additional studies were located by reviewing bibliographies of identified articles. When reliable research was not available, expert opinions from obstetrician–gynecologists were used.

Studies were reviewed and evaluated for quality according to the method outlined by the U.S. Preventive Services Task Force:

- I Evidence obtained from at least one properly designed randomized controlled trial.
- II-1 Evidence obtained from well-designed controlled trials without randomization.
- II-2 Evidence obtained from well-designed cohort or case–control analytic studies, preferably from more than one center or research group.
- II-3 Evidence obtained from multiple time series with or without the intervention. Dramatic results in uncontrolled experiments also could be regarded as this type of evidence.
- III Opinions of respected authorities, based on clinical experience, descriptive studies, or reports of expert committees.

Based on the highest level of evidence found in the data, recommendations are provided and graded according to the following categories:

Level A—Recommendations are based on good and consistent scientific evidence.

Level B—Recommendations are based on limited or inconsistent scientific evidence.

Level C—Recommendations are based primarily on consensus and expert opinion.

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Intraoperative damage to the urinary bladder during cesarean section — literature review

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INTRODUCTION

The last years have brought a significant increase in the number of births by caesarean section, and as a result there is expected to be an increasing number of patients with adhesions in the pelvis minor on a more frequent basis. Intrauterine adhesions are the most significant risk factors of damage to the bladder. The incidence of damage to the bladder during the caesarean section is relatively small. However, it is extremely important to anticipate the possibility of this complication, its early intraoperative diagnosis and implementation of appropriate treatment when they occur.

Damage to the urinary tract, which is a complication of caesarean section, is rarely described in the literature. However, the caesarean section is now the most frequently performed obstetric surgery in the world, and their number increases every year. Taking this into account, the obstetricians and their patients should be aware of the potential complications associated with carrying out this procedure.

Over the last century, the reduced rates of morbidity and mortality of mothers during caesarean section are noticeable, but a growing number of urological complications are expected to be seen. The most common urological complication of caesarean section is the damage of the urinary bladder [1].

Incidence of bladder damage after cesarean section ranges from 0.08 to 0.94% [2–8]. The data on injuries of the urinary bladder during caesarean section, however, are divergent because the available manuscripts use inconsistent definitions of damage and do not specify the severity of damage.

Although bladder damage during cesarean delivery is rare, obstetricians should be aware of the need to inform pregnant women about all the possible complications associated with this operation before giving informed consent for the caesarean section. The potential consequences of damage to the bladder are connected with the extension of the duration of operation, longer hospitalization time, the need to keep Foley catheter longer in the urinary bladder, the increase of infections and post-operative complications in the urinary tract, such as vesico-vaginal fistula.

The possibility of this type of complications should be also expected and it is necessary to point out that the most important is to establish the diagnosis even during the caesarean section.

In this paper, the following aspects are discussed: the risk factors, diagnosis and treatment options of damage to the bladder during caesarean section.

HOW TO AVOID DAMAGE?

The contemporary methods of cesarean section are mainly modification of the operation performed by Pfannenstiel method, which is the method described at the turn of the 19th and 20th centuries. This procedure is usually not a single surgical technique, and in many centers there are well-established types of this surgical technique. In order to minimize the damage of the urinary bladder, it is necessary to analyze different surgical techniques.

In analyzing how to perform caesarean section and its impact on the traumatism of the urinary bladder, it should be stated that the way to open the abdominal wall (modification of Pfannenstiel method, or longitudinal midline cut) does not change the probability of damage [8]. About 28.0–46.6% of damage to the bladder occurs during the opening of the peritoneum [7–9]. In the studies of some authors, bladder injuries, which occur during the opening of the peritoneum, dominate during the first cesarean section

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Table 1. Time of creating damage to the bladder [7–9]

The moment of damage to the urinary bladder	First-time caesarean section	Repeated caesarean section
Opening of the peritoneum	35.7–46.6%	35.7–46.6%
Opening of vesico-uterine pouch	23.8–50.0%	32.0–60.0%
The opening of the uterus and the fetus extraction	14.3–28.6%	35.7–46.6%
Closure of the hysterotomy	10%	10%

Table 2. The percentage of adhesions in the abdominal cavity depending on the number of caesarean section [18–20]

Number of cesarean sections	The risk of adhesions in the peritoneal cavity
2	21.6–24.0%
3	32.3–42.9%
Next	42.2–47.9%

Table 3. Location of the damage to the urinary bladder [8, 9]

The place of damage to the bladder	First-time caesarean section	Repeated caesarean section
Dome	51.0–76.2%	48.0–53.3%
Body	21.8 –24%	46.7–52.0%
Trigone	0–3.0%	3.0–8%

(46.6%), while the subsequent cesarean section predisposes to injuries in the opening of vesico-uterine pouch (32.0––60.0%) [2, 7–9]. Opening the peritoneum using the"sharp" method (Pfannenstiel method), compared to the opening with the "blunt" method (Joel-Cohen and Misgav-Ladach methods) seems to be the safer method, especially if it is the subsequent cesarean section [7]. In the Pfannenstiel and Joel-Cohen methods the vesicouterine fold of peritoneum may be incised so the bladder can be separated from the uterus to expose the lower uterine segment for incision, as described previously by Kerr [10]. Sliding the bladder down reduces the risk of injury particularly in the repeated cesarean section. Forming the bladder flap at least 1–2 cm above the top edge of the bladder can minimize the risk of bladder injury. Hysterotomy without forming bladder flap, as in the — Misgav-Ladach method and its modifications, seems to be safe mostly at first cesarean section. Special attention should be paid to this stage of the surgery, because about 23.8% of damage in case of women who give birth for first time and up to 60.0% of injuries in case of the next cesarean section is made at that moment [2, 7–9]. Approximately 14.3% of injuries occur at the time of hysterotomy (in the following caesarean section, this value rises up to 40%) [8].

In most cases, the uterus is opened laterally with a scalpel in the lower section on a length of about 2 cm, and then it is extended bluntly or sharply with fingers. There were no differences found in the incidence of uterine rupture in the published studies or the anticipated loss of blood or ease of extraction of the fetus [11, 12]. Unfortunately, in these studies, no reference was made to the urinary bladder damage [12]. The method of transverse opening of the uterus is safer compared to the infrequently used uterine incision in the midline in the lower section (De Lee and Cornell methods).

Sometimes, there is a need to enlarge the incision of the uterus in order to extract the fetus. Although no comparative studies were found of a way to extend the incision, it appears that in order to reduce the risk of injury to the bladder, extension of the hysterotomy slit should be performed in the cephalad direction.

The integral part of the cesarean by the Pfannestiel method is bladder flap repair. The distant consequence of such a technique is the greater chance of adhesions in the lower segment of the uterus, which may lead to difficulties in the subsequent ceasarian section and damage to the bladder [7, 8, 13–15]. Therefore, what seems reasonable is avoiding suturing of the peritoneum as in the Joel-Cohen and Misgav-Ladach methods.

The available studies found no significant differences in the impact of suturing vesicovaginal peritoneum on the prevalence of bladder injury [14].

On the other hand, however, there are studies that have shown beneficial effects on pertinoneum repair in reducing formation of adhesions [16, 17].

The probability of bladder damage increases with the times of performing the caesarean section. According to many authors, subsequent cesarean section causes approximately 4–5 fold increase in the risk of damage to the bladder [2, 7, 8].

The main risk factor of damage to the bladder is presence of peritoneal adhesions. The adhesions in the peritoneal cavity in combination with previous cesarean section increase the risk of damage to the bladder ten-fold [8]. The probability of adhesions grows with subsequent caesarean section.

The most frequently diagnosed are the adhesions of abdominal wall, bladder and uterus with the parietal peritoneum. The pathogenesis of adhesion formation is a complex process in which fibrin, clotting factors and inflammatory cells repair the peritoneum [19, 21]. The risk factors for adhe-

sions are as follows: individual predisposition, the presence of blood in the abdominal cavity, tissue ischemia, infection, excessive use of surgical instruments or direct manipulating abdomial organs [19]. Separation of the scarred tissues should be carried out using the sharp method. In the case of suspected massive adhesions, the peritoneal cavity should be opened higher than usual.

Among the documented risk factors of damage to the bladder are, for instance: abdominal surgeries, fibroids in the lower section of the uterus or endometriosis [7].

Most of the publications indicate that the total number of defects of the bladder is greater in elective caesarean sections than in case of emergency cesarean sections. This is due to the fact that majority of elective cesarean sections are in patients after at least one cesarean section or in older patients [7, 8]. It should be uderlined, however, that a caesarean section, due to emergency indications, can cause haste, especially in case of less experienced surgeons, which may favor the occurrence of complications [22].

The stage of delivery is also important in the occurrence of certain risks of damage to the urinary bladder. The risk of damage to the bladder increases four-fold in the second stage of labor, compared to the 1st stage of labor [8, 23].

The reason for this risk growth is complex. Compression of the fetal presenting part changes the local blood supply to the bladder wall by increasing its vulnerability, and moreover it is often difficult to distinguish the edge of lower segment of the uterus and bladder. The station of the presenting fetal part deeper than or equal to +1 hinders its extraction, promotes damage to the lower part of the uterus, which often coexists with damage to the bladder. According to some authors it is an independent risk factor, which increases the risk of bladder damage two-fold [8]. Thus, there are to be expected clinical situations where there is a greater risk of damage to the uterus such as: PROM, the lower uterine segment in a premature birth, the malpresentation of the fetus, placenta praevia, placenta accrete, percreta and increta will increase the risk of injury of the bladder [24].

Fetal weight (more than 4000 g) proved to be an independent factor increasing the risk of injury to the bladder by 2.85 times. This may be due to the need for larger incisions of the uterus [8].

Failed attempt of natural birth after cesarean section is also associated with a higher probability of bladder damage compared to elective surgery. But this should not be a reason to discourage patients from vaginal birth after cesarean delivery [25]. There are no studies comparing the effect of type of suturing the uterus during cesarean section and the risk of bladder injury in the next operation. However, there are studies, which suggest that the double-layer suturing of the uterus reduces the risk of intra-abdominal adhesions by seven times [26].

HOW TO RECOGNIZE THE DAMAGE?

The body of the bladder is the largest part lying between the apex, fundus and neck of the bladder. The trigone of the bladder is a triangle region on the posterior wall. Most bladder injuries during cesarean section occur at the dome of the bladder (48.0–76.2%), with the remaining occurring at the body of the bladder (21.8–52.0%) and the remaining cases concern the trigone of the bladder and ureters (3–8%) [2, 7–9, 27]. According to the statistics, the first caesarean sections are dominated by damage to the top parts of the bladder (76.2%) in the subsequent cesarean sections, the number of injuries to the body and the trigone of bladder [7, 8] is increased.

Identification and immediate repair of damage during surgery reduces the risk of further procedures as well as possible complications. Most of the injuries are recognized during surgery, during extraction of the fetus, suturing the uterus (about 62%), during the inspection of the peritoneum (about 33%) or when stuturing the fascia (about 12%) [2, 26]. Visual inspection is the most reliable method of assessing the integrity of the bladder. The intraoperative symptoms which indicate bladder injury are the presence of urine outside the bladder, visualization of Foley catheter in the surgical field, gross hematuria in the Foley bag and visible wound or mucous membrane of the bladder [7, 25].

The bladder may be instilled with indigo carmine or methylene blue through a urethral catheter. The extravasation of this material from the bladder enables the surgeon to identify the injury and its location. If there is a concern whether there may have been ureteral involvement in the injury, then 40 mg of Indigo carmine into the patient's IV may be introduced to examine for extravasation of dye proximal to the bladder, which would suggest ureteral injury. Assessment of the extent of damage to the trigone of the bladder and ureters is usually beyond the competence of obstetrician and requires consultation of the urologist [25, 27].

HOW TO REPAIR DAMAGE?

If there has been damage to the bladder, it is necessary to have it repaired during the same operation. Unrecognized damage and failure to implement treatment lead to the development of complications and requires re-operation [2, 7, 8, 27]. Damage around the dome of the bladder less than 2 mm does not require repair or catheterization. In the event of damage up to 2 cm, a single layer of sutures (usually 3–0 absorbable suture) should be put on the wound.

The damage extending more than 2 cm should be repaired with two layers of continuous sutures with delayed absorption. Firstly, the mucosa of the urinary bladder is sutured (3–0 absorbable suture); the second layer comprises submucosa and muscular layer (3–0 absorbable suture). Non-absorbable sutures should not be used because of

the greater likelihood of urolithiasis, granulation scars and recurrent urinary tract infections [22, 27]. As mentioned above, damage in the area of a trigone of the urinary bladder can coexist with damage to the urethra and ureters; repair of this damage requires a lot of experience, thus, the help the urologist is needed [27, 28]. In order to confirm bladder integrity it may be useful to fill the bladder with methylene blue dye.

Some centers routinely perform and recommend a cystoscopy after bladder repair surgery — especially involving posterior wall and the bladder trigone, which is often accompanied by rupture of the uterus towards the cervix [9]. The bladder should be continuously drained with the use of a Foley catheter for at least 7–10 days postoperatively. Sometimes it is appropriate to assume ureteral catheters and drainage of the peritoneal cavity. Most of the centers during the time of maintaining Foley catheter use the antibiotic prophylaxis according to urine culture from a sample taken directly from the Foley catheter [2, 7, 8]. However, there is no clear evidence of the need for such a procedure. However, it seems that the antibiotics use needs to be individually adjusted according to the clinical situation [12]. Damage to the urinary bladder heals well, if it is repaired immediately after damage. The most common postoperative complication is urinary tract infection and urinary incontinence [7, 8, 27].

Damage to the bladder rarely remains undiagnosed during caesarean section. There are also many signs of the postoperative period, which suggest damage to the bladder. These symptoms may include hematuria, oliguria, abdominal pain, intestinal obstruction, ascites, peritonitis and septicemia. Cystography or computed tomography with cystography is used for the purpose of diagnosis of the initially unrecognized damage. In diagnostically obscure situations a method of exploratory laparotomy [27] should also be taken into account.

SUMMARY

As a result of the global increase in the number of deliveries by cesarean section and the increase in the number of patients who have had (at least one) cesarean section, who become pregnant again — the risk of damage to the bladder when performing the most common obstetric operation is real. The key role is a proper risk assessment before and during the operation and the immediate recognition of this complication. Implementation of appropriate procedures at the time of surgery and in the postoperative period can reduce the impact of the distant results of these most common urological complications of cesarean section.

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Redaction Summary (221 redactions)

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3 Privilege / Exemption reasons used:

1 -- "Healthcare Information Readily Identifiable to a Person - RCW 42.56.360(2), RCW 70.02.020(1), RCW 42.56.070(1)" (201 instances)
2 -- "Name - Whistleblower Regarding Health Care Provider or Health Care Facility - RCW 43.70.075(1), RCW 42.56.070(1)" (19 instances)
3 -- "National Practitioner Data Bank (NPDB) report received directly or indirectly from the NPDB –42 USC §1396r-2; 42 USC §1320a-7e; 45 CFR §60.20(a), RCW 42.56.070(1)" (1 instance)

Redacted pages:

Page 1, Name - Whistleblower Regarding Health Care Provider or Health Care Facility - RCW 43.70.075(1), RCW 42.56.070(1), 1 instance
Page 6, National Practitioner Data Bank (NPDB) report received directly or indirectly from the NPDB –42 USC §1396r-2; 42 USC §1320a-7e; 45 CFR §60.20(a), RCW 42.56.070(1), 1 instance
Page 7, Name - Whistleblower Regarding Health Care Provider or Health Care Facility - RCW 43.70.075(1), RCW 42.56.070(1), 3 instances
Page 8, Name - Whistleblower Regarding Health Care Provider or Health Care Facility - RCW 43.70.075(1), RCW 42.56.070(1), 4 instances
Page 10, Name - Whistleblower Regarding Health Care Provider or Health Care Facility - RCW 43.70.075(1), RCW 42.56.070(1), 1 instance
Page 17, Name - Whistleblower Regarding Health Care Provider or Health Care Facility - RCW 43.70.075(1), RCW 42.56.070(1), 2 instances
Page 18, Name - Whistleblower Regarding Health Care Provider or Health Care Facility - RCW 43.70.075(1), RCW 42.56.070(1), 4 instances
Page 22, Name - Whistleblower Regarding Health Care Provider or Health Care Facility - RCW 43.70.075(1), RCW 42.56.070(1), 2 instances
Page 23, Name - Whistleblower Regarding Health Care Provider or Health Care Facility - RCW 43.70.075(1), RCW 42.56.070(1), 1 instance
Page 25, Name - Whistleblower Regarding Health Care Provider or Health Care Facility - RCW 43.70.075(1), RCW 42.56.070(1), 1 instance
Page 50, Healthcare Information Readily Identifiable to a Person - RCW 42.56.360(2), RCW 70.02.020(1), RCW 42.56.070(1), 1 instance
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