

**PURPOSE OF COURSE** is to teach participants how to apply principles of operations research to solve problems in the operating room and perioperative environment:

- Monitoring operational and financial performance of surgical suites and anesthesia groups (“descriptive analytics”),
- Forecasting case durations, time remaining in cases, use of staffed OR time (“predictive analytics”),
- Applying principles of operations research to make common decisions, such as staffing levels, block time planning, case scheduling and assignment, financial management, and strategic planning (“prescriptive analytics”),
- Identifying in-house expertise to aid in problem-solving and determining whether outside consultants are needed,
- Evaluating current decision-support systems.

**See:** Wachtel RE, Dexter F. [Curriculum providing cognitive knowledge and problem-solving skills for anesthesia systems-based practice](#). ACGME Journal of Graduate Medical Education 2: 624-632, 2010

**See:** Wachtel RE, Dexter F. [Difficulties and challenges associated with literature searches in operating room management, complete with recommendations](#). Anesthesia & Analgesia 117: 1460-1479, 2013

**See:** Dexter F, Van Swol LM. [Influence of data and formulas on trust in information from journal articles in an operating room management course](#). Anesthesia & Analgesia Case Reports 6: 329-334, 2016

**See:** Ahn PH, Dexter F, Fahy BG, Van Swol LM. [Demonstrability of analytics solutions and shared knowledge of statistics and operating room management improves expected performance of small teams in correctly solving problems and making good decisions](#). Perioperative Care and Operating Room Management 19: 100090, 2020

**INTENDED AUDIENCE** includes anesthesiologists, CRNAs, nurse managers, surgeons, hospital engineers and other analysts responsible for the organization and delivery of surgical care. Participants should have knowledge of middle/high school level algebra, Excel functions, and basic statistics (e.g., Student’s t-test). The course is designed to be especially relevant to engineers and analysts from other fields preparing to work in anesthesia/ ORs.

**CASE STUDIES** completed in class are an integral part of the course. Participants include both clinicians and analysts. Many of the case questions include electronic literature searching using publicly available materials. The cases help participants learn which techniques should be applied to different types of problems, how best to present results to hospital stakeholders, and leadership principles for team-based OR management decision making.

**COURSE SCHEDULE** ([www.FranklinDexter.net/education.htm](http://www.FranklinDexter.net/education.htm))

**DAY 1**

8:00 AM Use of economically rational ordered priorities to make patient flow decisions

Lecture is based on the following reference article:  
Dexter F, Epstein RH, Traub RD, Xiao Y.

[Making management decisions on the day of surgery based on OR efficiency and patient waiting times](#).

Anesthesiology 101: 1444-1453, 2004

11:30 AM Group problem solving

1:00 PM Incorporating uncertainty into decision-making

3:45 PM Groups complete cases

6:00 PM Discussion of cases

**DAY 2**

8:00 AM Allocating OR time operationally (few months before day of patient care)

Lecture is based on the following reference article:  
McIntosh C, Dexter F, Epstein RH. [The impact of service-specific staffing case scheduling, turnovers, and first-case starts on anesthesia group and operating room productivity: tutorial using data from an Australian hospital](#). Anesthesia & Analgesia 103: 1499-1516, 2006

10:15 AM Allocating OR time tactically based on utilization (1 yr before day of patient care)

Lecture is based on the following reference article:  
Wachtel RE, Dexter F. [Tactical increases in OR block time for capacity planning should not be based on utilization](#). Anesthesia & Analgesia 106: 215-226, 2008

11:30 AM Group problem solving

1:00 PM Allocating OR time tactically based on financial and strategic criteria

Lecture is based on the following reference article:  
Dexter F, Ledolter J, Wachtel RE. [Tactical decision making for selective expansion of operating room resources incorporating financial criteria & uncertainty in sub-specialties’ future workloads](#). Anesthesia & Analgesia 100: 1425-1432, 2005

2:45 PM Groups complete cases

5:30 PM Discussion of cases

**DAY 3**

8:00 AM Economics of small reductions in OR times and turnover times

10:15 AM Financial impact of differences among hospitals

Lecture is based on the following reference article:  
Wachtel RE, Dexter F, Lubarsky DA.

[Financial implications of a hospital’s specialization in rare physiologically complex surgical procedures](#). Anesthesiology 103: 161-167, 2005

11:00 AM Group problem solving

1:00 PM Empirical methods for staffing and assignments

Lecture is based on the following reference article:  
Dexter F, Epstein RH. [Optimizing second shift OR staffing](#). AORN Journal 77:825-830, 2003

2:30 PM Physician agreements: Anesthesia institutional support and surgeon block time

Lecture is based on the following reference article:  
Dexter F, Epstein RH. [Associated roles of perioperative medical directors and anesthesia: hospital agreements for operating room management](#). Anesthesia & Analgesia 121: 1469-1478, 2015

4:15 PM Groups complete cases

**DAY 4**

8:00 AM Discussion of cases from preceding day

9:30 AM Differentiating among hospitals and surgical practices

Lecture is based on the following reference article:  
Dexter F, Ledolter J, Hindman BJ. [Quantifying the diversity and similarity of surgical procedures among hospitals and anesthesia providers](#). Anesthesia & Analgesia 122: 251-263, 2016

10:45 AM Groups complete cases

11:55 AM End of course

Open discussion during lunch

The University of Iowa Carver College of Medicine designates this live activity for a maximum of 35 *AMA PRA Category 1 Credits*<sup>™</sup>. Physicians should claim only the credit commensurate with the extent of their participation in the activity. Course completion is required for CME credit.