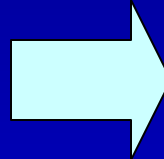


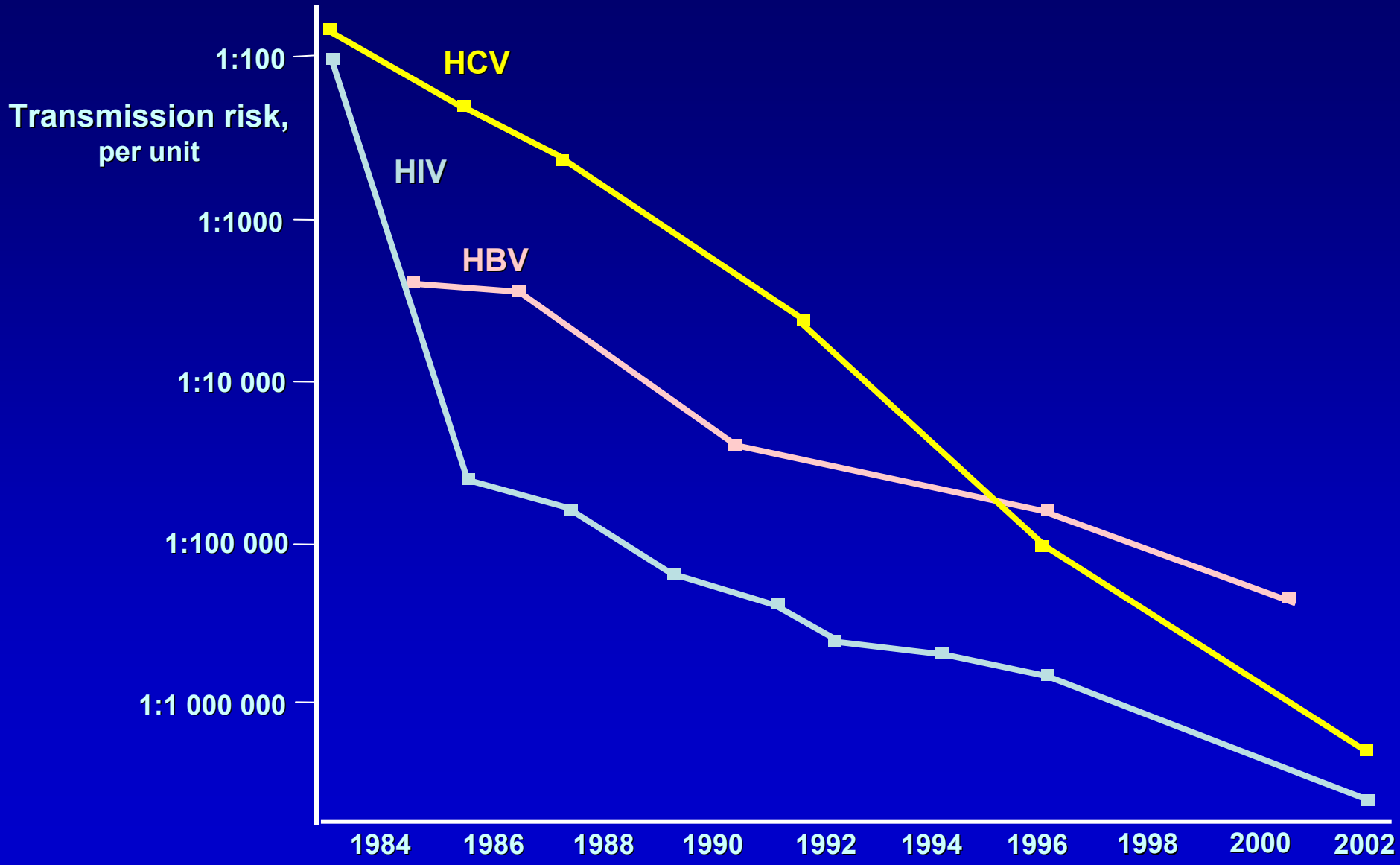
Tackling the Problem of Bacterial Contamination



James P. AuBuchon, MD
E. Elizabeth French Professor and Chair of Pathology
Professor of Medicine
Dartmouth-Hitchcock Medical Center
Lebanon, New Hampshire

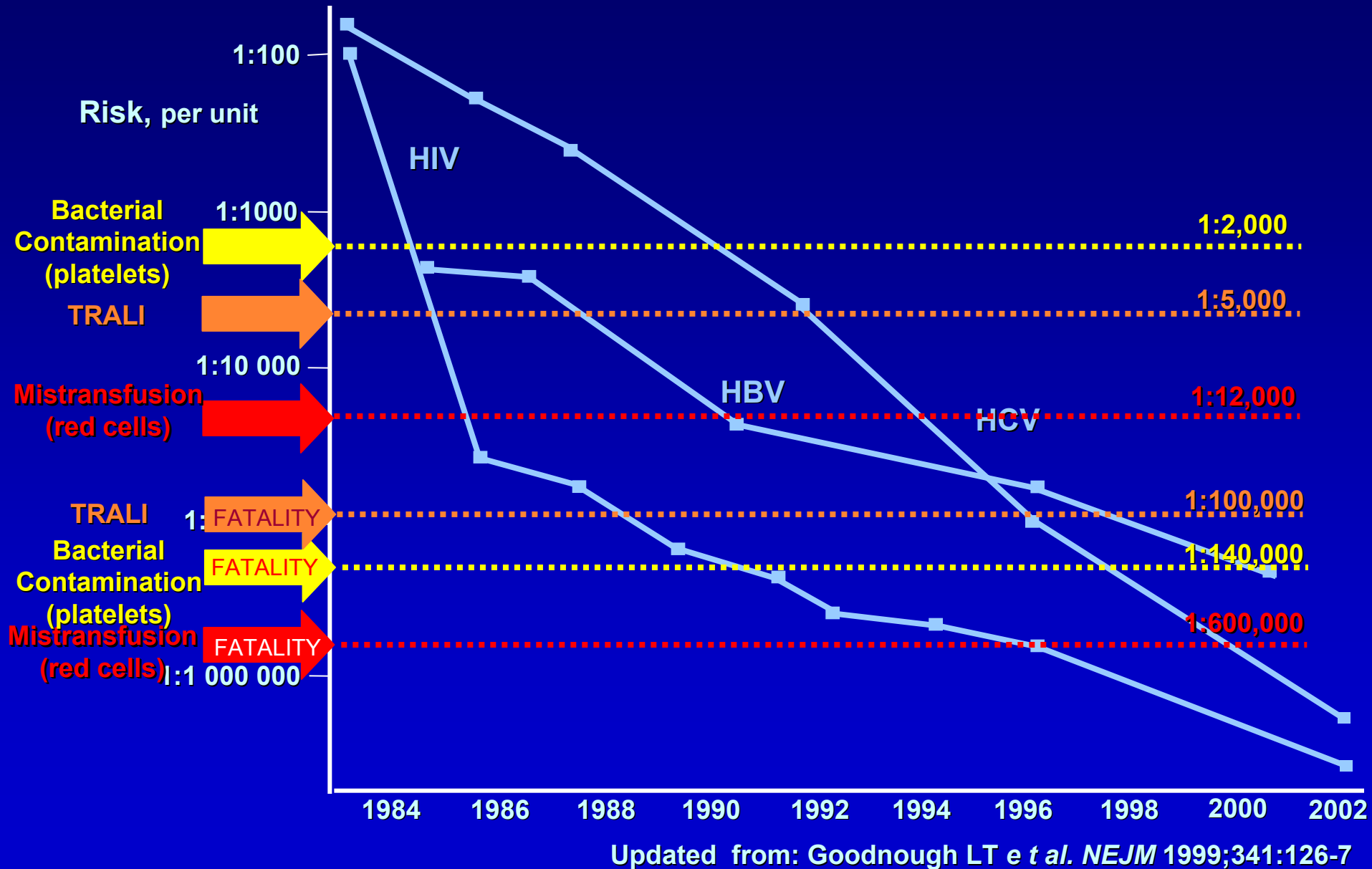


The Evolution of Transfusion Risks



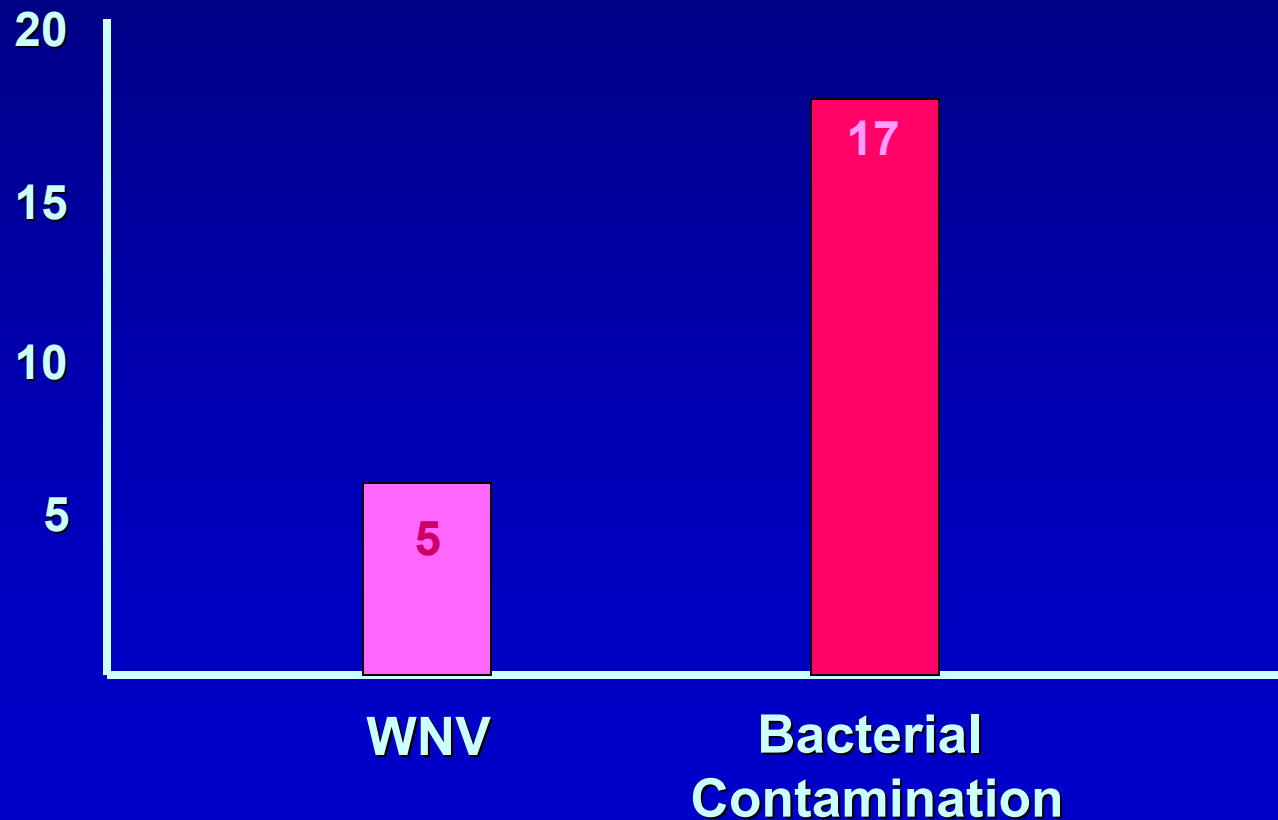
Updated from: Goodnough LT *et al.* *NEJM* 1999;341:126-7

The Evolution of Transfusion Risks



Comparison of Recent Efforts

Post-transfusion deaths
reported to the FDA
(FY02)



Comparison of Recent Efforts

HCV lookback

Cost: \$330+ million

Benefit: \approx 2,200 patients from 10 yrs

Bacterial testing

Benefit: Avoidance of 100-300 deaths/yr

U.S. Bacterial Contamination Estimates

Based on Johns Hopkins' Data

	<u>Plt Conc</u>	<u>SDP</u>
Post-transfusion sepsis	402/million	75/million
Fatalities	62/million	14/million

For US (50% apheresis): >100 deaths/year

Impediments to Action

Recognition of magnitude of problem

But we've never seen a case here...



Impediments to Action

Recognition of magnitude of problem

But we've never seen a case here...

3584 platelet transfusions

1°C temperature rise + chills/rigors	→	27% risk of contamination
2°C temperature rise	→	42% risk of contamination

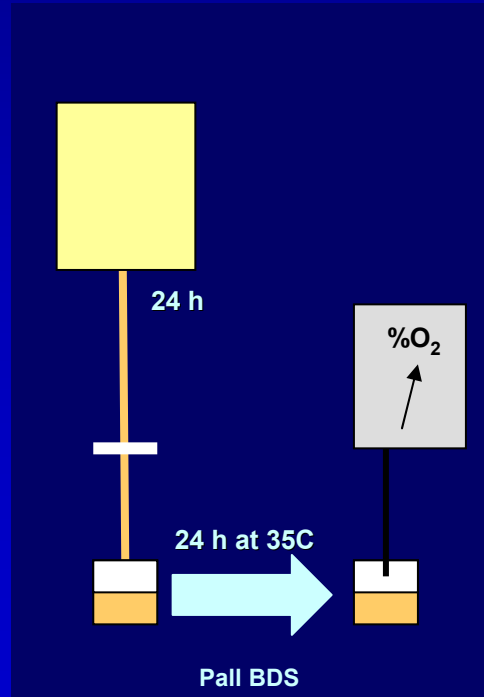
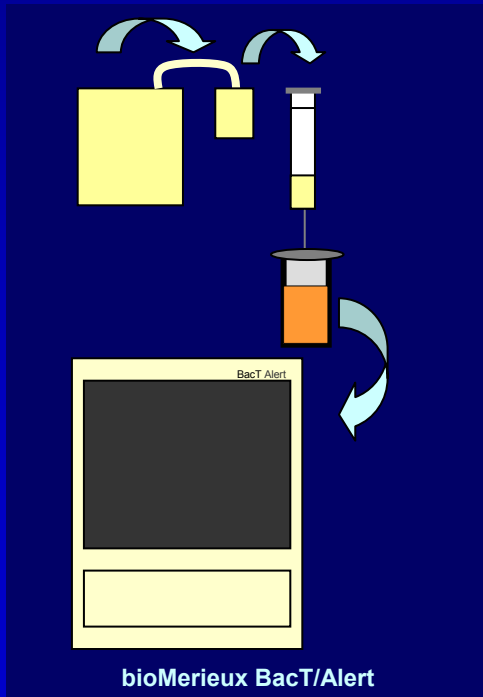
37 reactions meeting criteria

10 cases of bacteremia

4 cases of sepsis

Impediments to Action

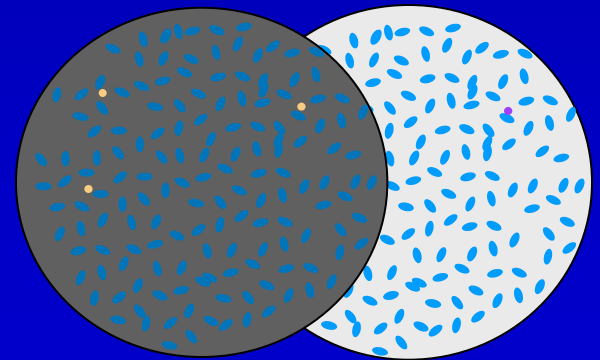
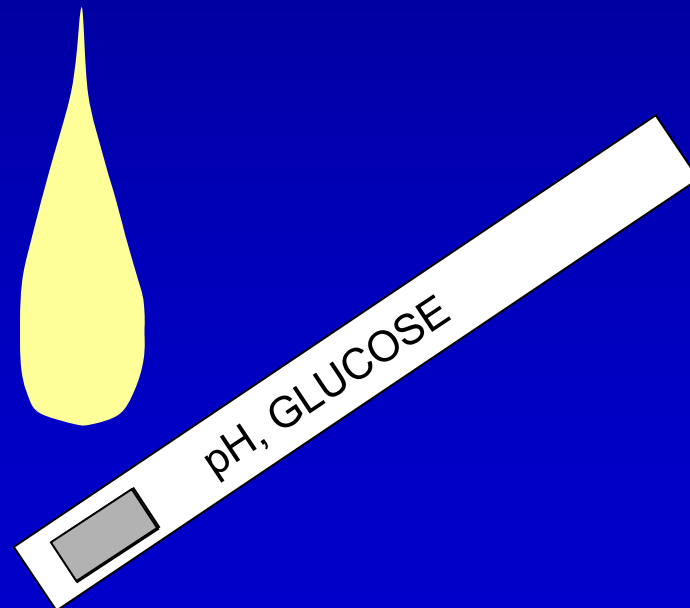
Recognition of magnitude of problem
Acceptance of responsibility and technology



Impediments to Action

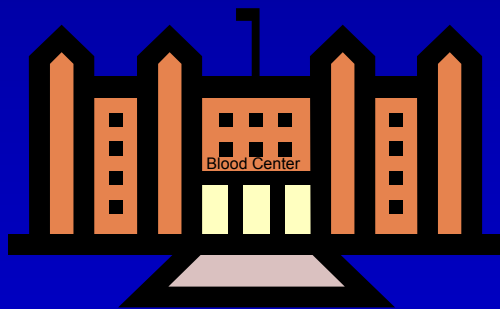
Recognition of magnitude of problem

Acceptance of responsibility and technology

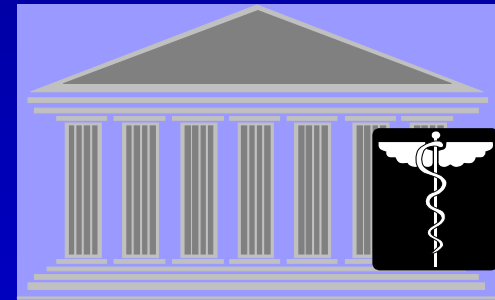


Impediments to Action

Recognition of magnitude of problem
Acceptance of responsibility and technology

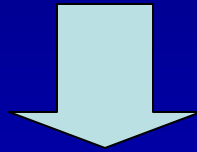


YOU DO IT!



Impediments to Action

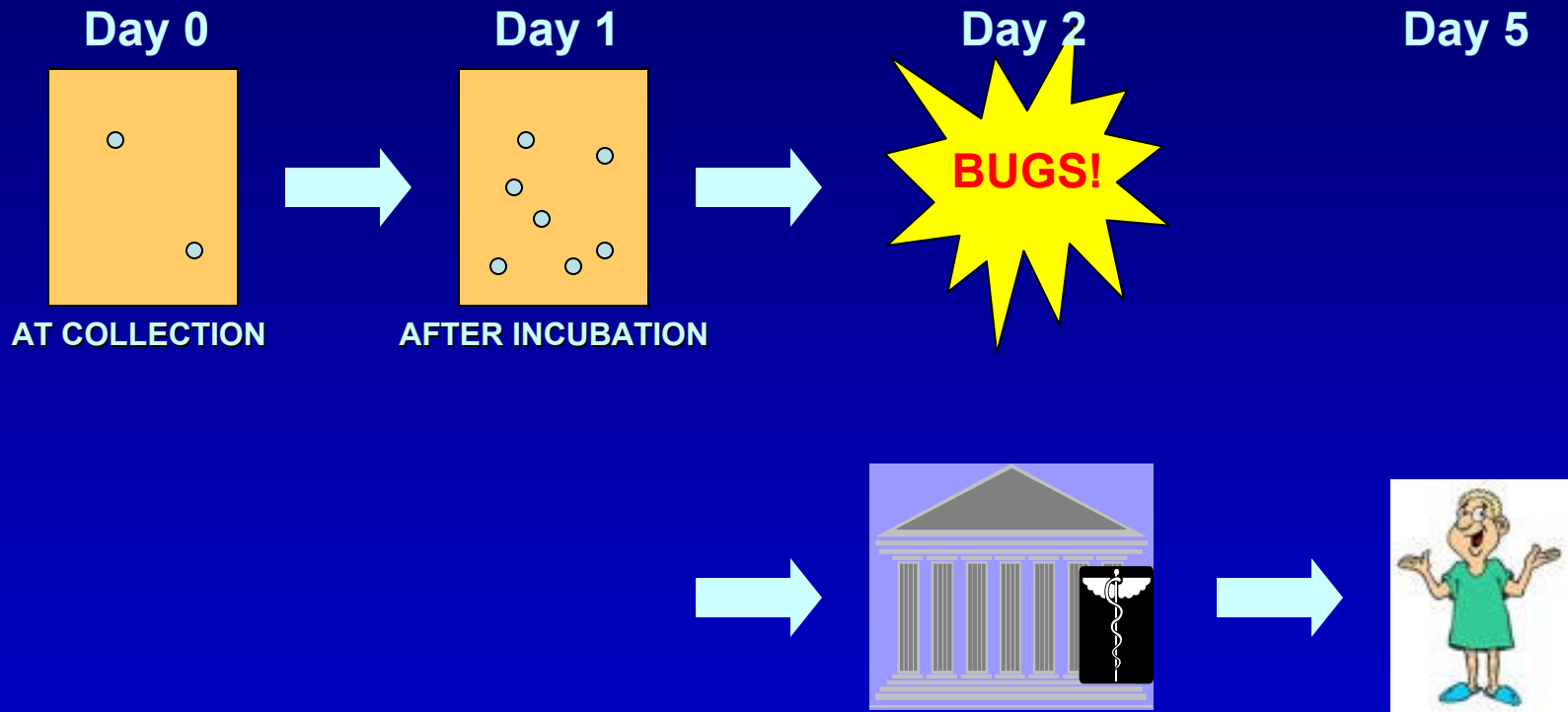
Recognition of magnitude of problem
Acceptance of responsibility and technology



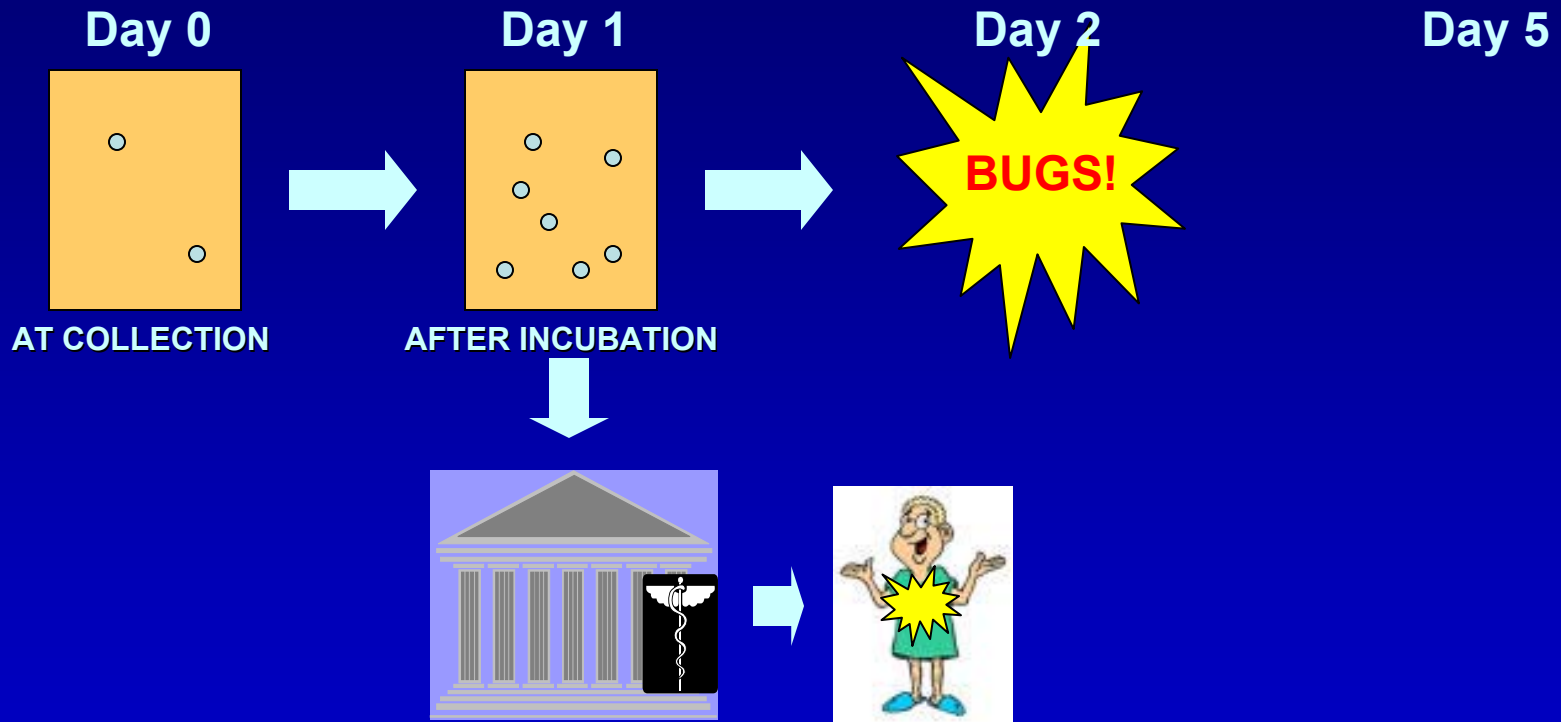
Implementation through accreditation requirements

CAP: December, 2002
AABB: March, 2004

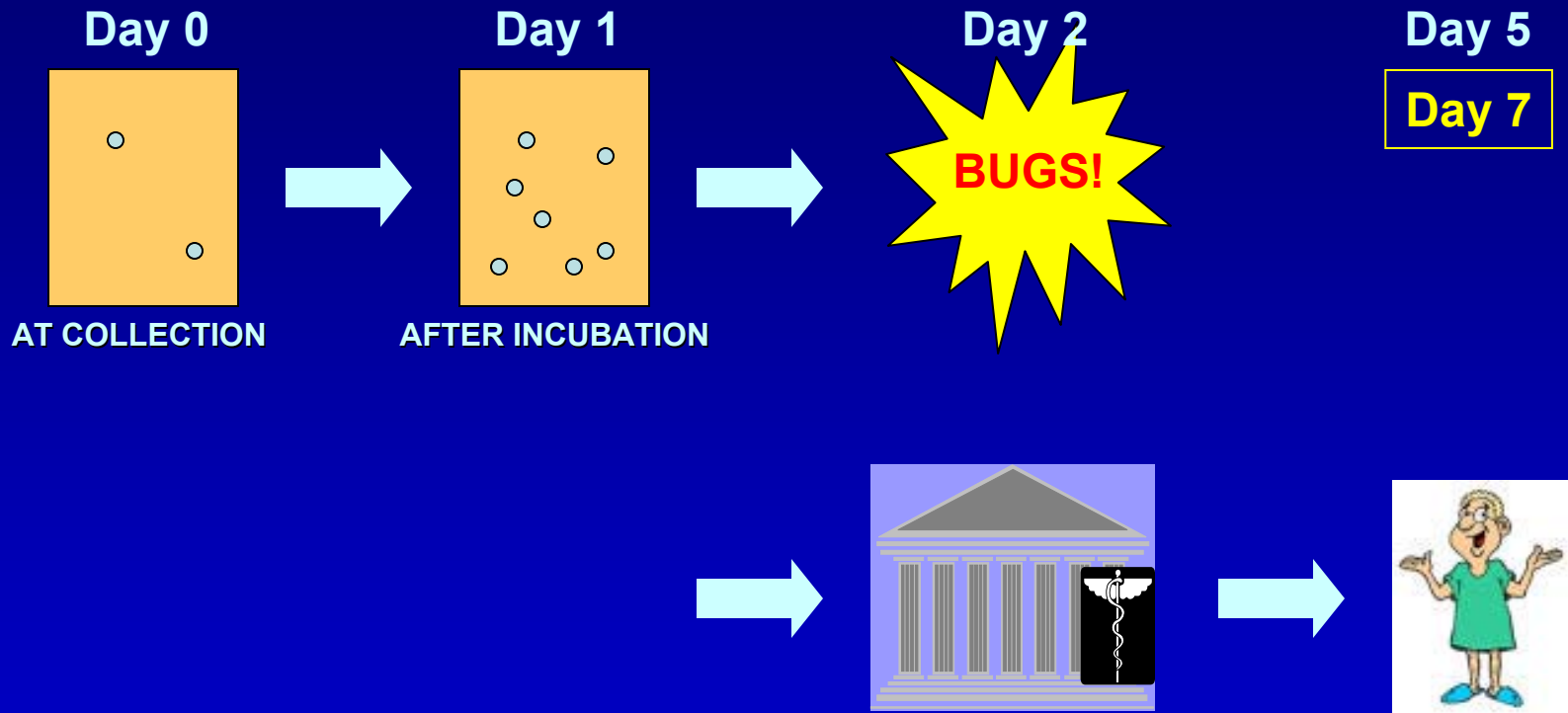
Impediments to Success



Impediments to Success



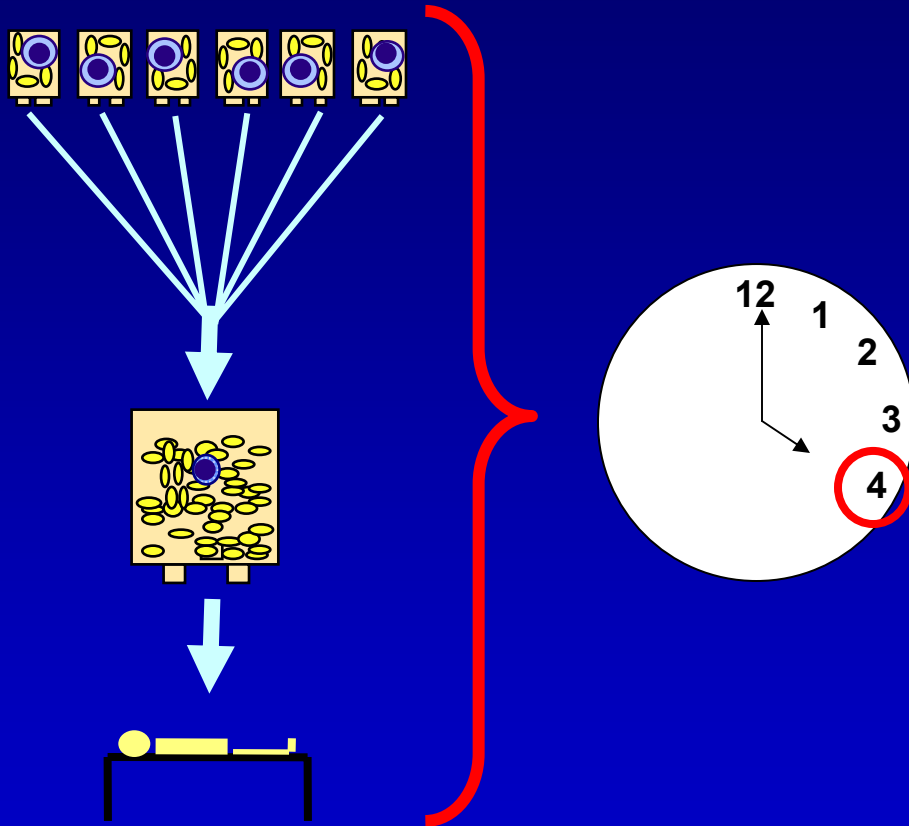
Alternatives for Success



Seven Day Platelets
Efficacy: Accepted
Safety: *Enormous* study

Transfusion 2002;42:847-53.
Transfusion 2003;43:37a.

Impediments to Success



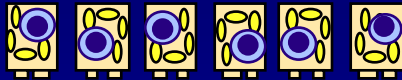
= No prestorage pooling!



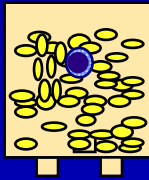
Each unit must be cultured

- Expense
- Workload
- Efficacy

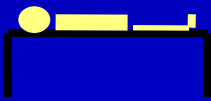
Alternatives for Success



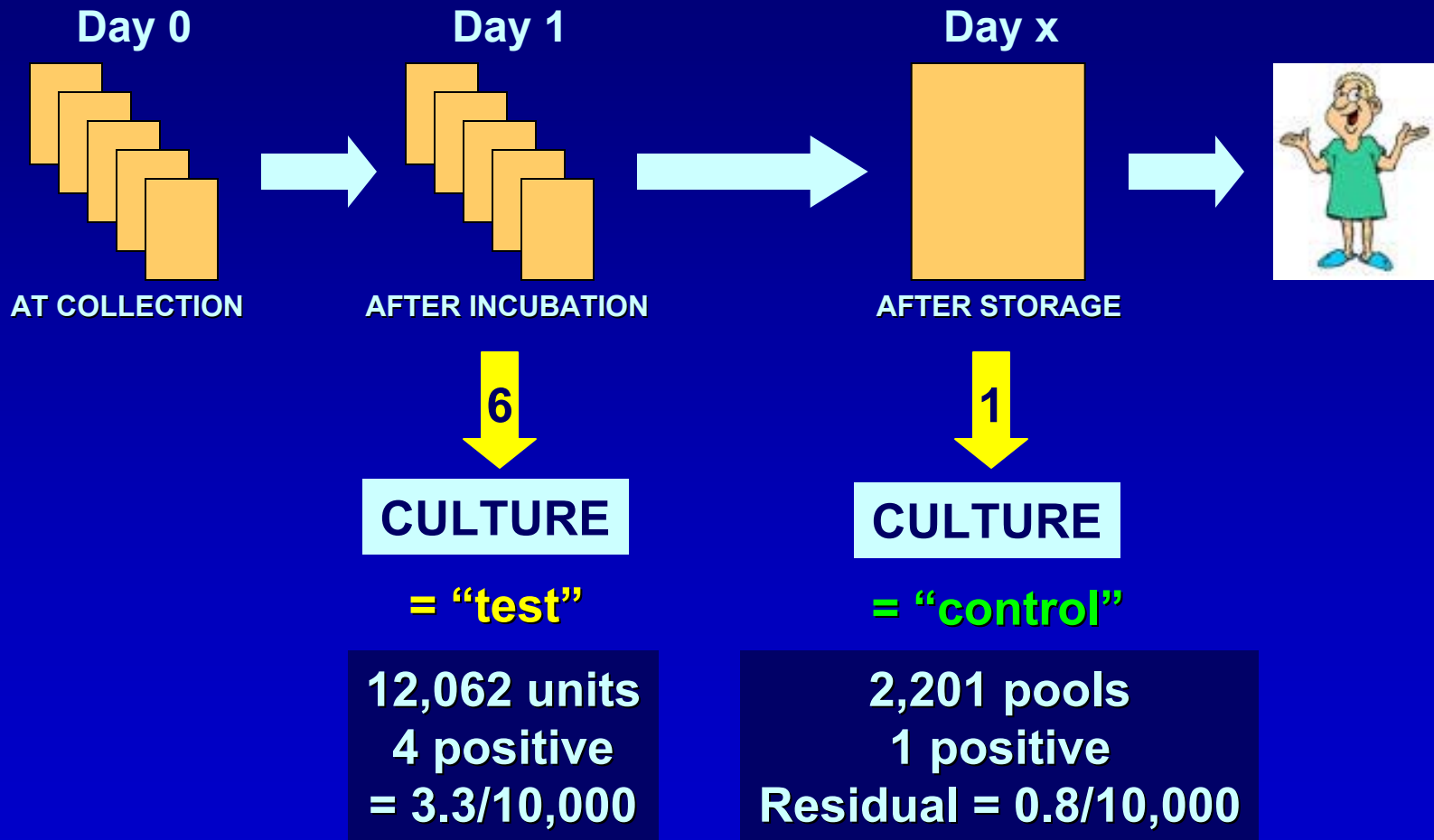
← One culture, not 6
← One filter, not 6



← Storage for 7 days




Documenting Sensitivity



Documenting Sensitivity

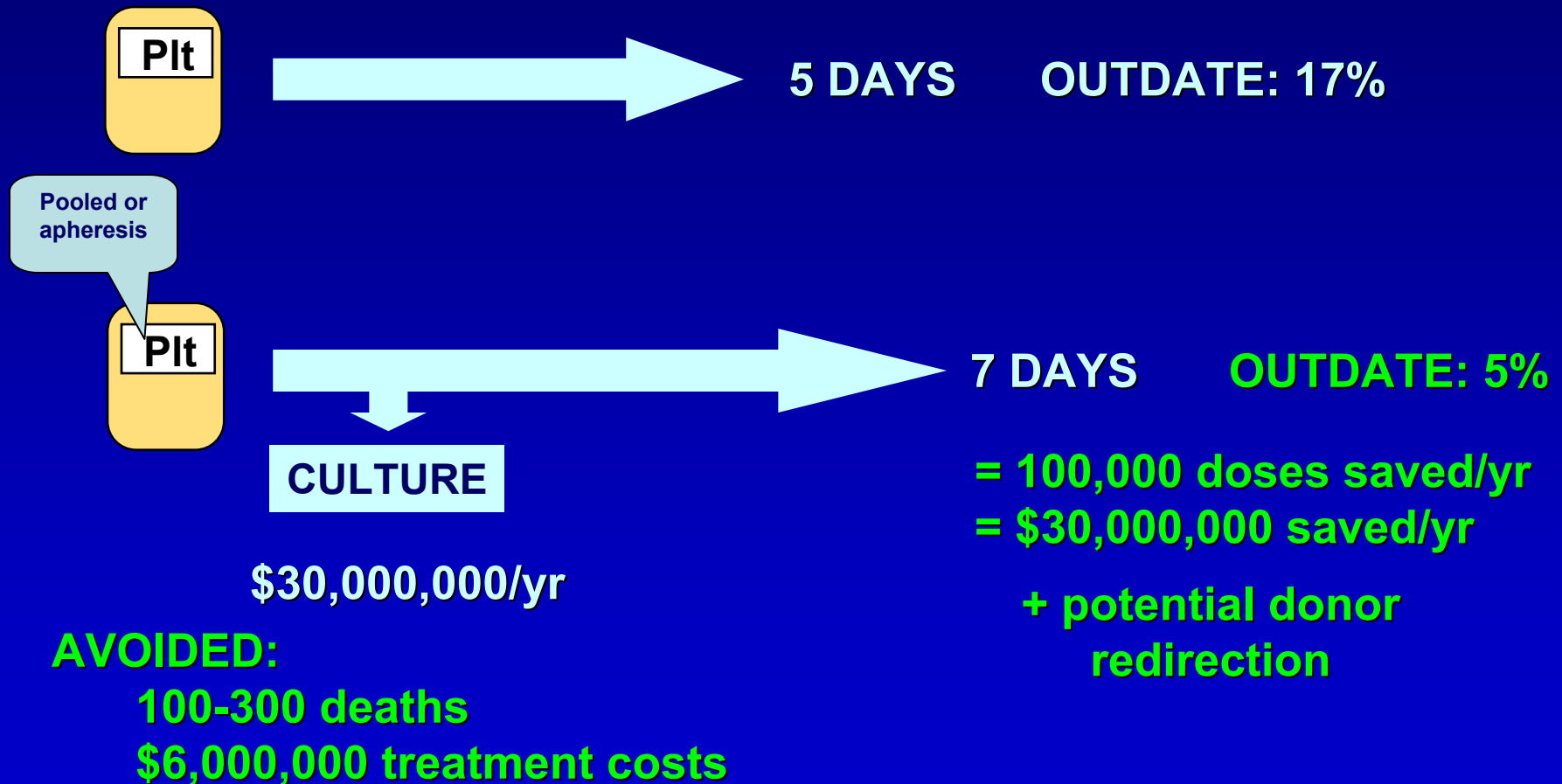
Units found on Day 1 culture:	3.3/10,000
Units found on later culture:	<u>0.8/10,000</u>
Total contamination rate:	4.1/10,000



80% detected by routine culture

Without culturing, how many would have been detected??

Cost-Savings Through Systems Change



Cooper L et al. *Transfusion* 1999;39:119-20S.
AuBuchon JP et al. *Transfusion* 2002;42:855-61.
Sullivan MT et al. *Transfusion* 2002;42:1253-60.

Progress Through Partnership



- Focus on big picture: recipient safety**
- Accept reasonable inferences**
- Learn from others' experiences**

GOALS: **Every unit tested by a sensitive technique**
Smallest disruption to logistics
Pre-storage pooling
Storage to 7 days