

A photograph of the Mayo Clinic building in Arizona, featuring a large, modern, multi-story structure with a central entrance and a sign that reads "MAYO CLINIC". The building is surrounded by desert landscaping, including various cacti and shrubs. The sky is blue with scattered white clouds.

ICD: Psychological Impact and Burden

The Physician's Point of View

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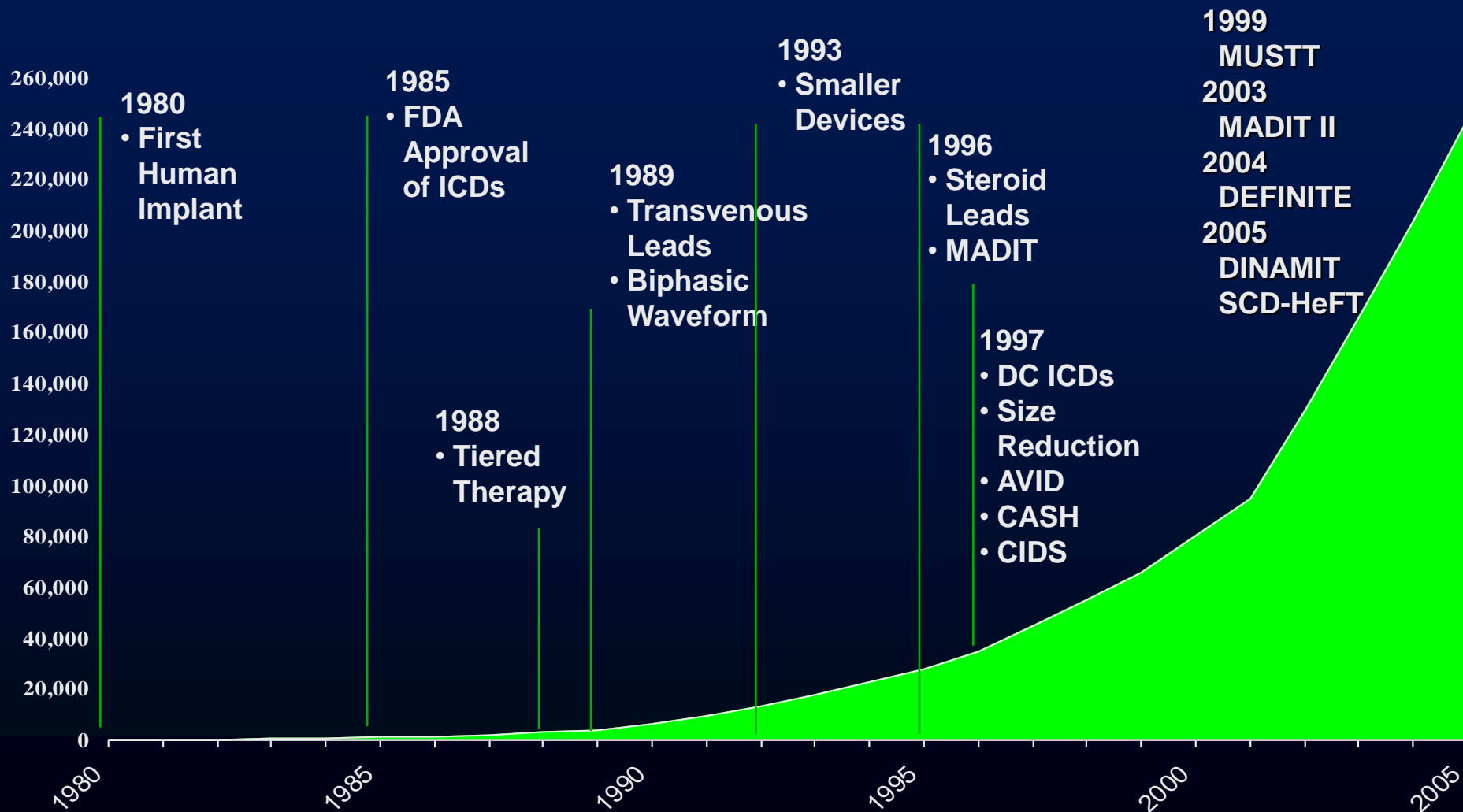
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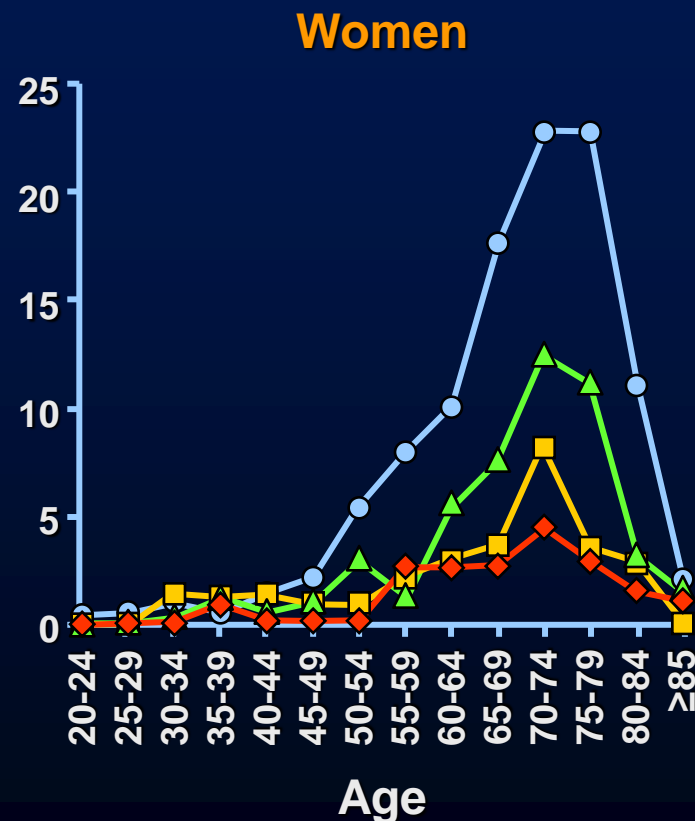
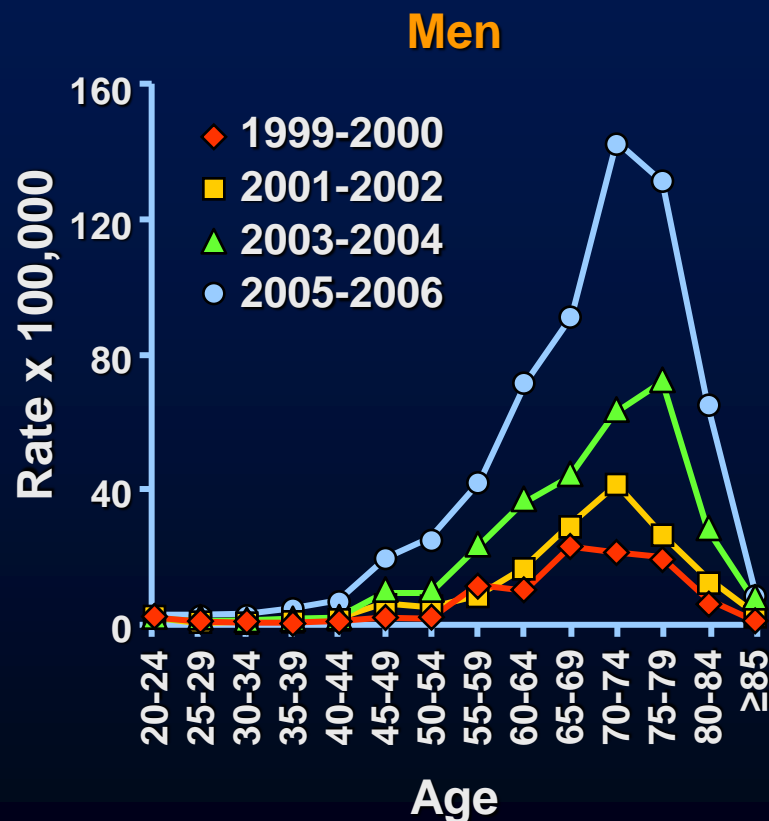
Objectives

- **ICD utilization**
- **Psychological impact and burden**
- **How do we talk to our patients?**
- **Fruitful thoughts**

Evolution of ICD Therapy: 1980 to 2005

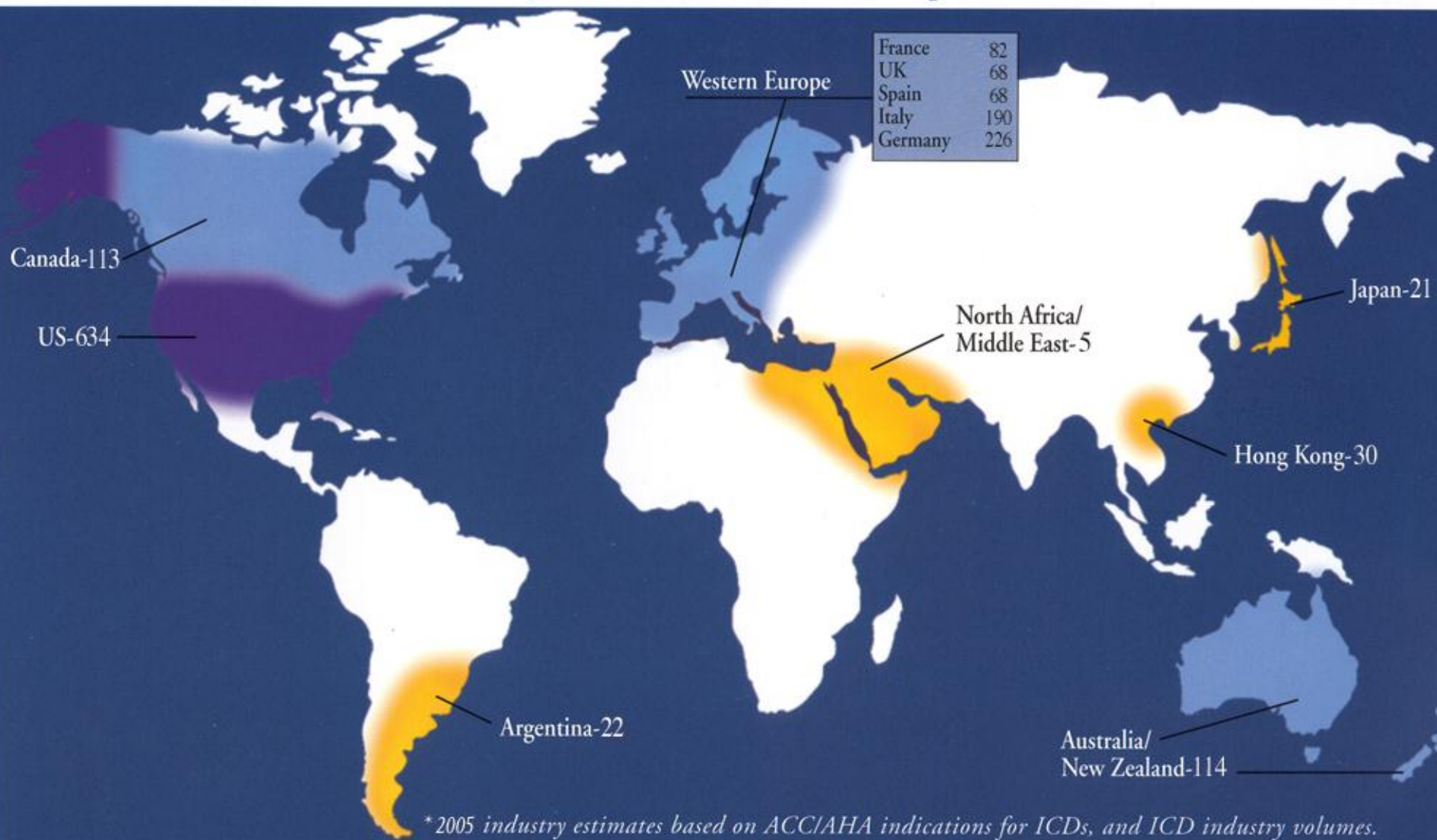


ICD Implantations by Sex, Age, and Period



Global Variations in ICD Use Around the World

2005 Implants Per Million Population*



*2005 industry estimates based on ACC/AHA indications for ICDs, and ICD industry volumes.

Treatment Imperative

Changes in the socio-clinical landscape

- Cardiac treatment shift from high-risk intervention to increasingly routine and standard procedures
- Norms of “*old age*” and “*end-stage disease*” have shifted: from *inevitable decline* and *death* to “*preventable*”!!
- Medical choices for patients and their physicians is shaped by the health care system and the economy

What Do We Know?

- **Implantable cardioverter defibrillator (ICD) has been shown to be effective for both primary and secondary prevention of sudden cardiac death**
- **Indications for ICD therapy continue to expand**
- **How does ICD impact on quality of life and psycho-social behavior of patients?**

Psychopathology in Patients with ICDs Over Time: Results of a Prospective Study

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Psychopathology in Patients with ICDs over Time: Results of a Prospective Study

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Introduction: The effects of implantable cardioverter defibrillators (ICDs) and ICD shocks on psychological state have previously been studied. However, it is still unclear how health-related quality-of-life changes over time using standardized assessments. We sought to characterize the effects of ICDs and ICD shocks on psychological outcomes.

Methods: Three hundred-eight patients receiving ICDs were prospectively identified. Baseline QOL assessments including standardized psychological surveys [Hospital Anxiety and Depression Scale (HADS), Impact of Events Scale-Revised (IES-R), and Short Form 36 Health Survey (SF-36)] were obtained within 2 months of device implantation and at 6 and 12 months, respectively. Outcomes including ICD shocks were followed over the 12-month study period.

Results: The number of patients meeting criteria for anxiety or posttraumatic stress disorder (PTSD) at baseline (78/223, 35%) was higher than at 6 (34/223, 15%) or 12 (34/223, 15%) months ($P < 0.01$). There was a significant improvement over time in HADS ($P < 0.001$) and IES-R (PTSD) scores ($P < 0.001$). Amongst the 20 patients who received ICD shocks, no significant differences were observed in IES-R, SF-36, or HADS scores when compared with those who did not receive shocks at any time point. Patients who experienced electrical storms ($N = 5$) had significantly higher baseline PTSD scores (29.6 ± 11.4 vs 14.6 ± 11.6 , $P < 0.01$).

Conclusions: Patients receiving ICDs have significant rates of baseline psychopathology after implantation. However, psychological assessment scores tend to improve with time. ICD shocks do not appear to significantly impact psychological state. These results suggest the importance of close screening and referral for possible psychopathology in patients receiving ICDs, especially in the peri-implant period. (PACE 2010; 33:198–208)

ICD, anxiety, depression, quality of life, shocks

Introduction

Implantable cardioverter defibrillators (ICDs) are an established form of therapy both for primary and secondary prevention of sudden cardiac death. Previous studies have looked at the role of mood disorders in patients receiving ICDs and the effect of ICD shocks on mood and quality-of-life (QOL).^{1–3} ICD implantation and ICD therapy (shocks) may be associated with an impaired QOL and worse emotional functioning than control groups.^{2–5} While prior studies have suggested that the QOL assessed in patients with ICDs is superior to that in patients on antiarrhythmics, it ap-

pears that these differences are attenuated in those who receive multiple shocks.⁶

Most previous studies on the psychological effects of ICD implantation have been cross-sectional and rarely use validated and standardized instruments to document patients' psychosocial status.^{7–10} Most studies suggest that in general, QOL at 6 months–1 year after implant is similar to patients with equivalent heart disease and no ICD. However, a minority of patients have important degrees of distress. The best means of identifying this important subgroup of patients highly at risk of clinically significant psychological stress after an ICD shock remains unclear. Identifying at-risk patients may aid in selection of those who would benefit from close support and evaluation.

Furthermore, the QOL in patients receiving ICDs is reasonably good on average, though it can be highly variable between patients. Thus, identifying whether or not patients who suffer from an ICD shock are more at risk of a specific psychopathology would aid in their treatment and long-term management. It is also possible that

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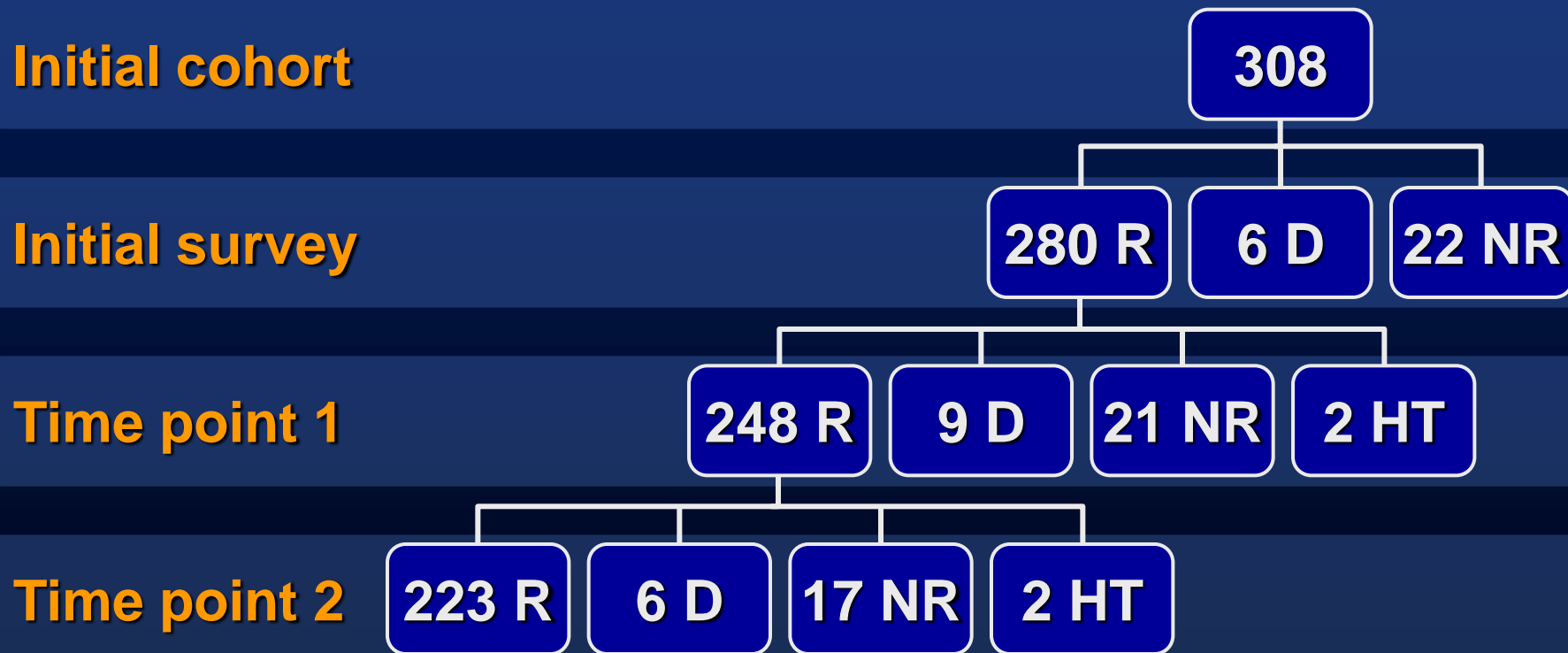
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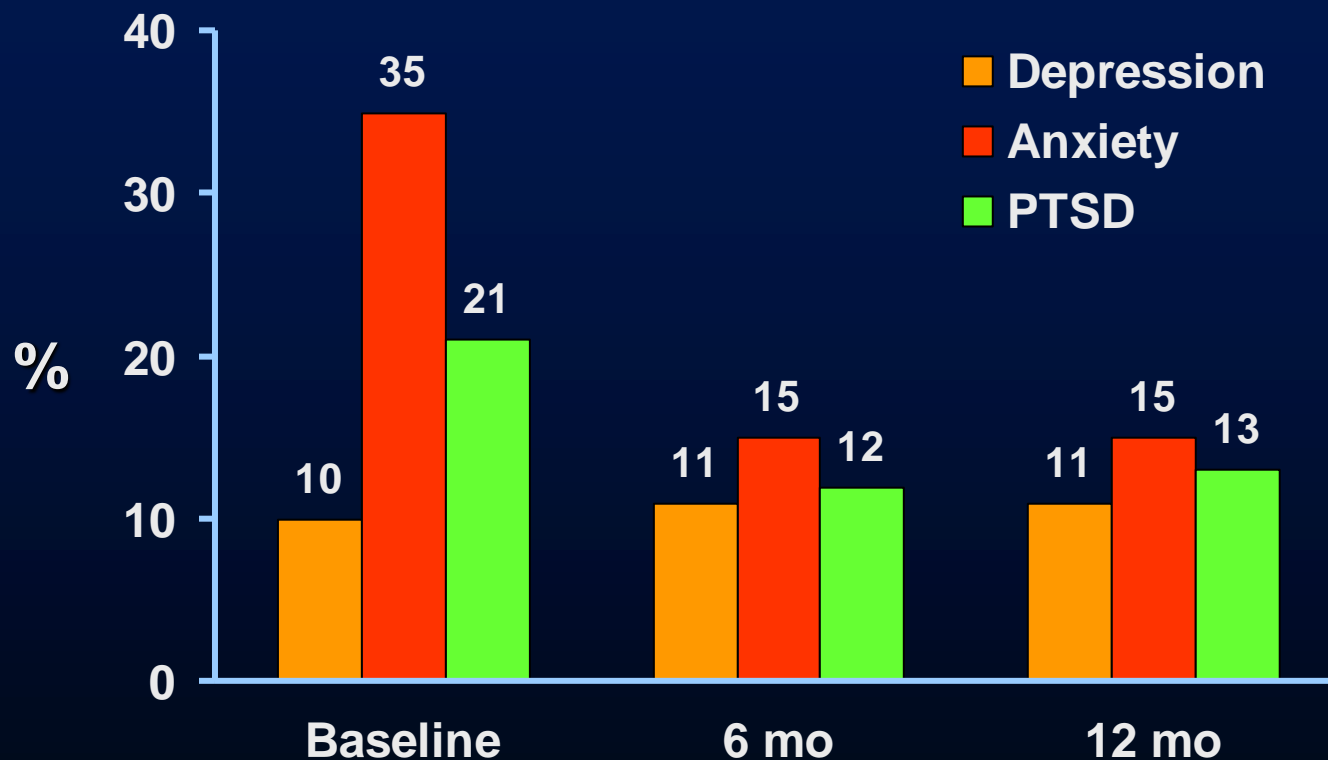
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Study Flow Chart



Clinically Elevated Anxiety, Depression and PTSD Symptoms in Patients with ICDs



Continuum of Implantable Cardioverter-Defibrillator Shock Response

Shock Continuum

No shocks

Cumulative shocks

ICD storms

Anxiety Spectrum

Normalized fear

Shock phobias
(eg, exertion)

Generalized
anxiety

PTSD

Thoughts and Behaviors

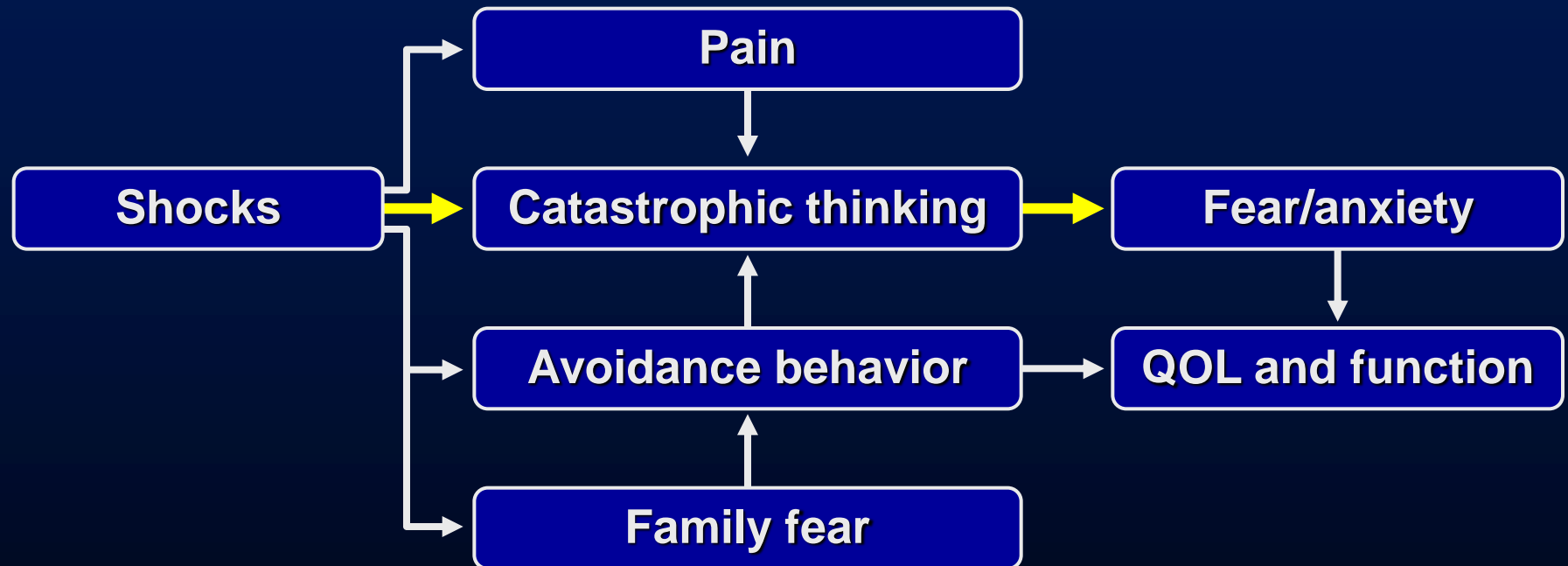
“The ICD keeps
me safe during
exertion”

“The ICD is my
reason for not
exerting”

“There is very
little that I am safe
to do with my ICD”

“The ICD
does not
keep me safe”

Hypothesized Interrelationship Between Shocks, Psychological Distress and Quality of Life





Additional Suspected Risk Factors that can Serve as Markers for Psychosocial Attention

ICD specific

- Young ICD recipient (age <50 years)
- High rate of device discharges
- Poor knowledge of cardiac condition or ICD

General cardiac

- Significant history of psychological problems
- Poor social support
- Increased medical severity or comorbidity

Steps for Your Conversation

Points to be Covered

Prior to implantation

- **Clear discussion of benefits and burdens of the device**
- **Brief discussion of potential future limitations or burdensome aspects of device therapy**
- **Encourage patients to have some form of advance directive**
- **Inform of option to deactivate in future**

Steps for Your Conversation

Points to be Covered

After an ICD discharge or discharges

- **Discussion of possible alternatives, including adjusting medications, adjusting device settings and cardiac procedures to reduce future shocks in context of goals of care**
- **Discuss potential physical discomfort and psychological burden**

Steps for Your Conversation

Points to be Covered

Progression of cardiac disease:

- **Re-evaluation of benefits and burdens of device**
- **Assessment of functional status, quality of life and symptoms**
- **Referral to palliative and supportive care services**

Psychological Impact and Burden

From the Physician's View

- **Be clear on the indication for ICD therapy**
- **Discuss benefits and risks**
- **Be explicit on the full range of outcomes**
- **Encourage patient to share thoughts and concerns**
- **Seek help and consultation when appropriate**

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