Meeting the Challenge of Psoriatic Disease:

Optimal Care and Cost Management Strategies for Managed Care

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AMCP Academy of Managed Care Pharmacy®

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Psoriasis Clinical Update: Assessing the Latest Trial Data and Treatment Algorithms

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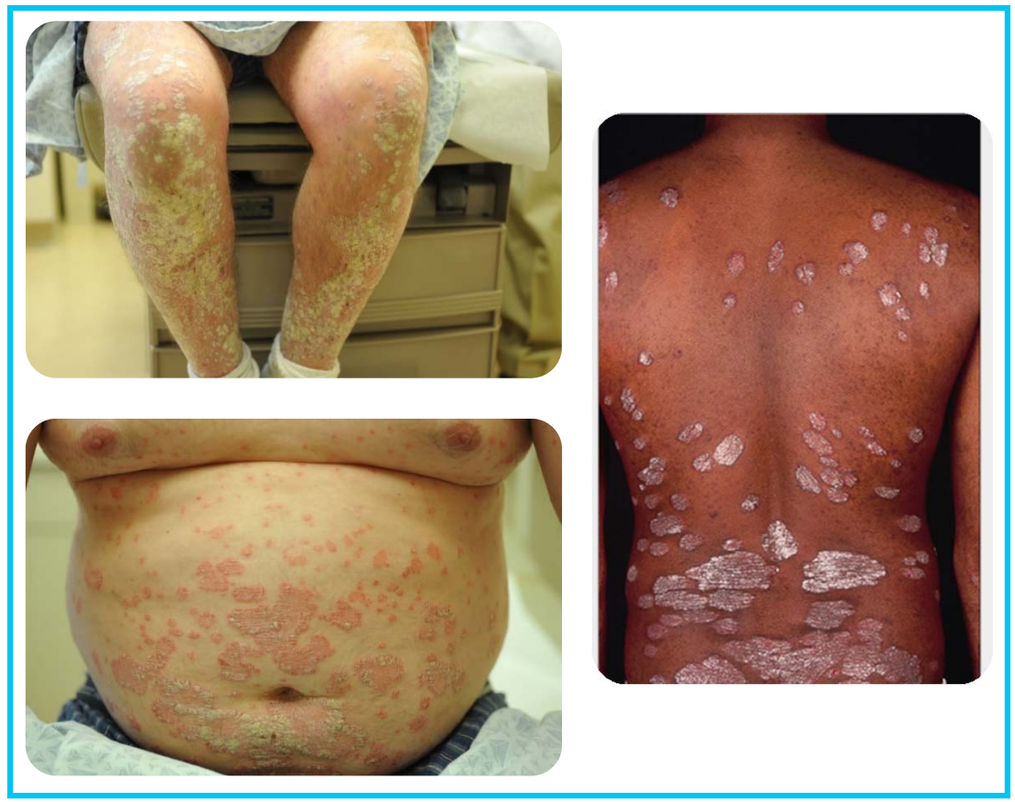
Learning Objectives

- Assess current and emerging therapies for the treatment of psoriasis and cite their clinical trial data
- Examine alignment of managed care psoriasis treatment algorithms with recent clinical trial data

Chronic Plaque Psoriasis: A Multisystem Inflammatory Disease

- Chronic relapsing immune-mediated inflammatory disease
- Affects >3% of the US population
- Affects multiple areas of the body
- Up to 30% of patients with psoriasis develop psoriatic arthritis
- Accompanied by significant clinical, social, and economic burden

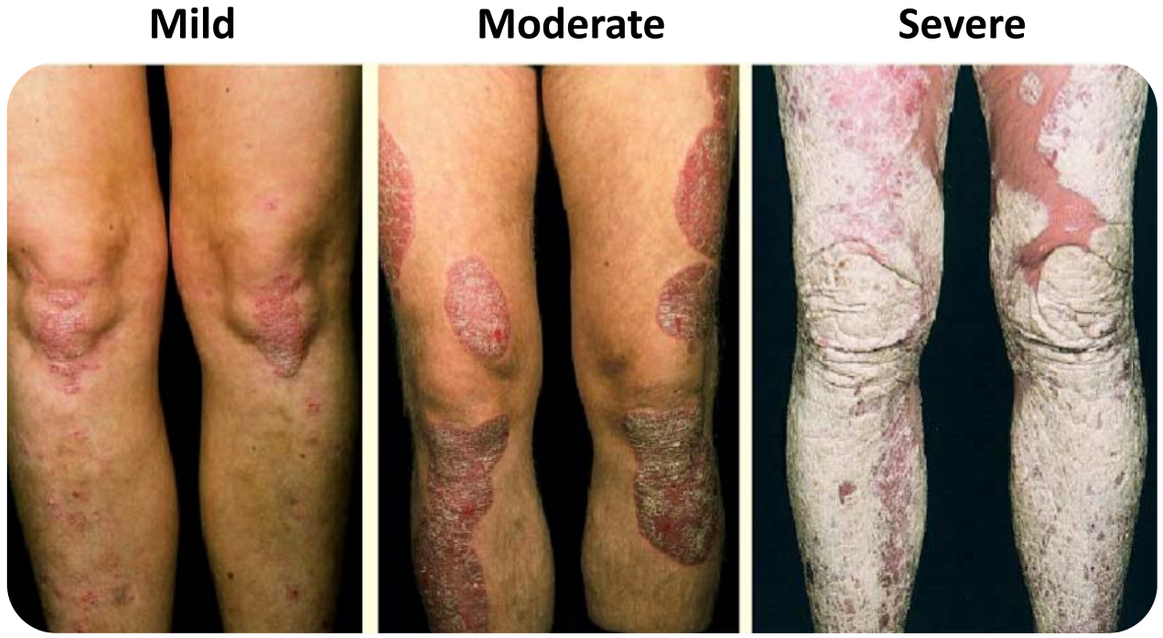


Psoriasis Fact Sheet. National Psoriasis Foundation Web site. https://www.psoriasis.org/sites/default/files/publications/PsoriasisFactSheet.pdf. Published February 2015. Accessed March 2018.
About Psoriatic Arthritis. National Psoriasis Foundation Web site. https://www.psoriasis.org/about-psoriatic-arthritis. Accessed March 2018.

Plaque Psoriasis is the Most Common of the Five Recognized Variants

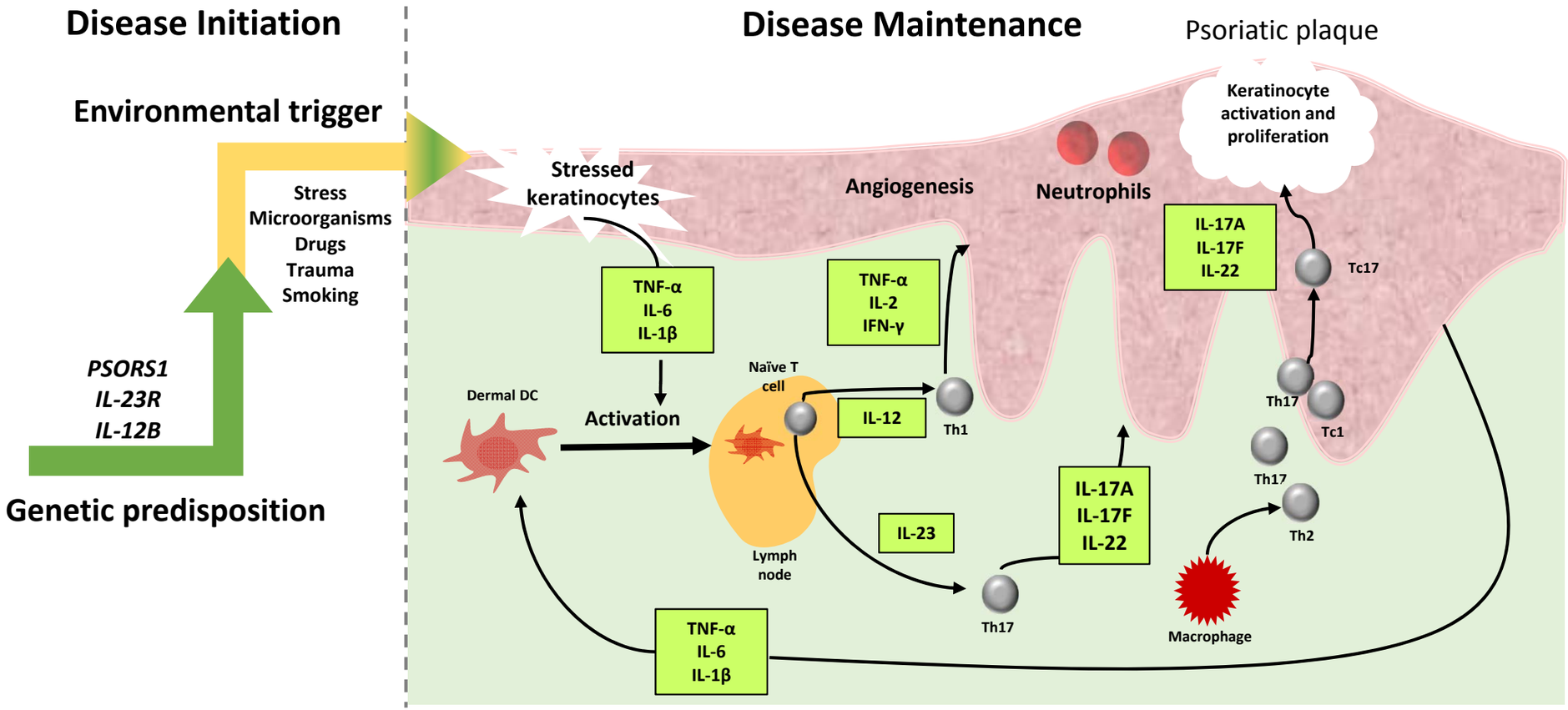
- **Plaque:** scaly, erythematous patches, papules, and plaques that are sometimes pruritic; affects ~80% of patients
- **Inverse/flexural:** lesions are located in the skin folds
- **Guttate:** small papules with fine scale
- **Erythrodermic:** erythema covering nearly the entire body surface area with varying degrees of scaling
- **Pustular:** clinically apparent pustules

Severity of Plaque Psoriasis



Psoriasis Fact Sheet. National Psoriasis Foundation Web site. https://www.psoriasis.org/sites/default/files/publications/PsoriasisFactSheet.pdf. Published February 2015. Accessed March 2018.

Immunopathogenesis of Chronic Plaque Psoriasis

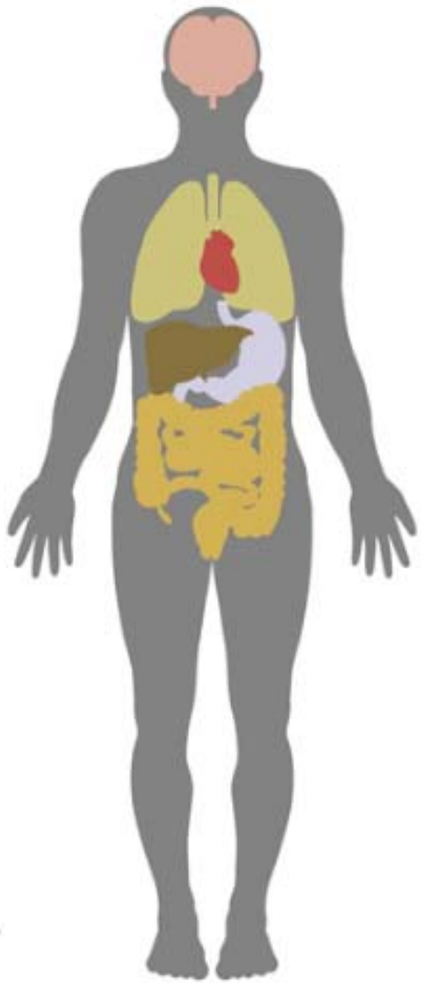


DC=dendritic cell; PSORS1=psoriasis susceptibiity 1; IL=interleukin; TNF=tumor necrosis factor.

Gaspari AA, Tyring S. *Dermatol Ther*. 2015;28(4):179-93.

Nestle FO, Kaplan DH, Barker J. *N Engl J Med*. 2009;361(5):496-509.

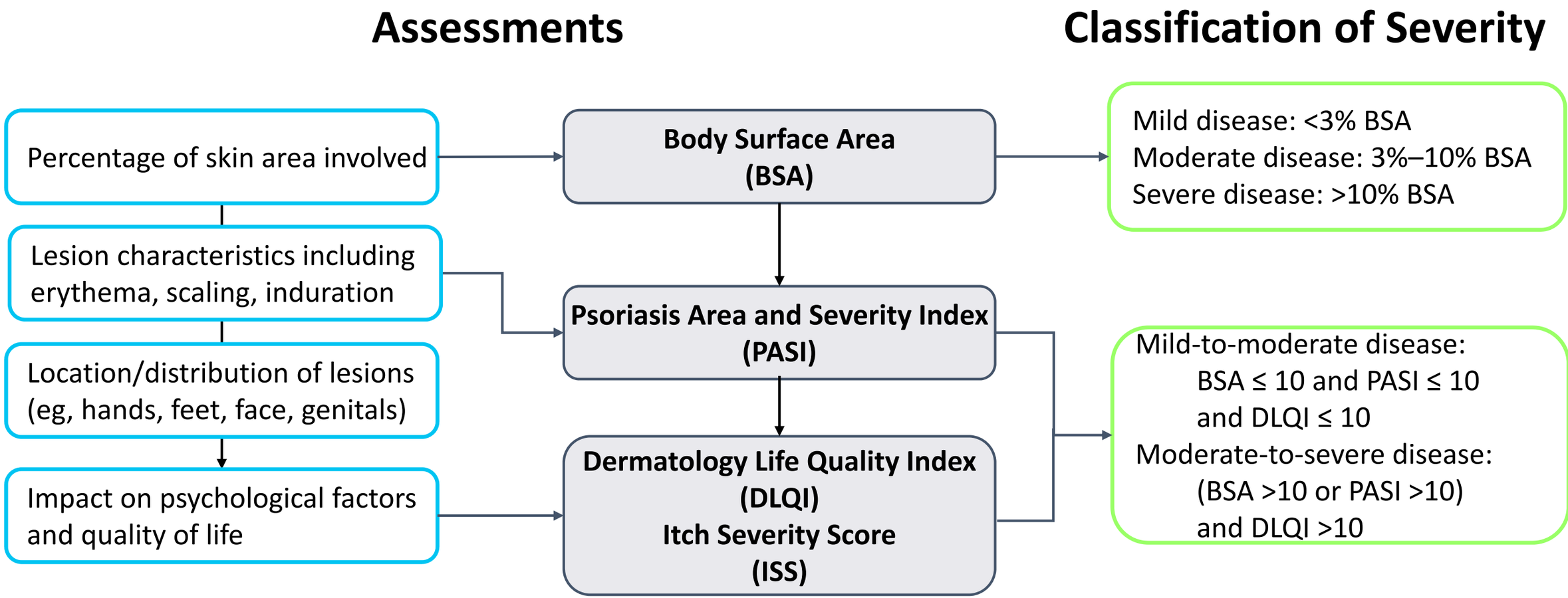
Individuals with Psoriasis are At Risk of Developing Other Chronic Conditions



Depression/Anxiety	↑ risk of poor self-esteem, psychological stress, and anxiety due to their psoriasis
Cardiovascular Disease	39% ↑ risk of CV mortality 70% ↑ risk of MI 56% ↑ risk of MI
Obesity	346% ↑ risk (mild psoriasis) 123% ↑ risk (severe)
Metabolic Syndrome	22% ↑ risk (mild) 98% ↑ risk (severe)
Diabetes	14% ↑ risk (mild) 46% ↑ risk (severe)

Ni C, Chiu MW. *Clin Cosmet Investig Dermatol*. 2014;7:119-32.

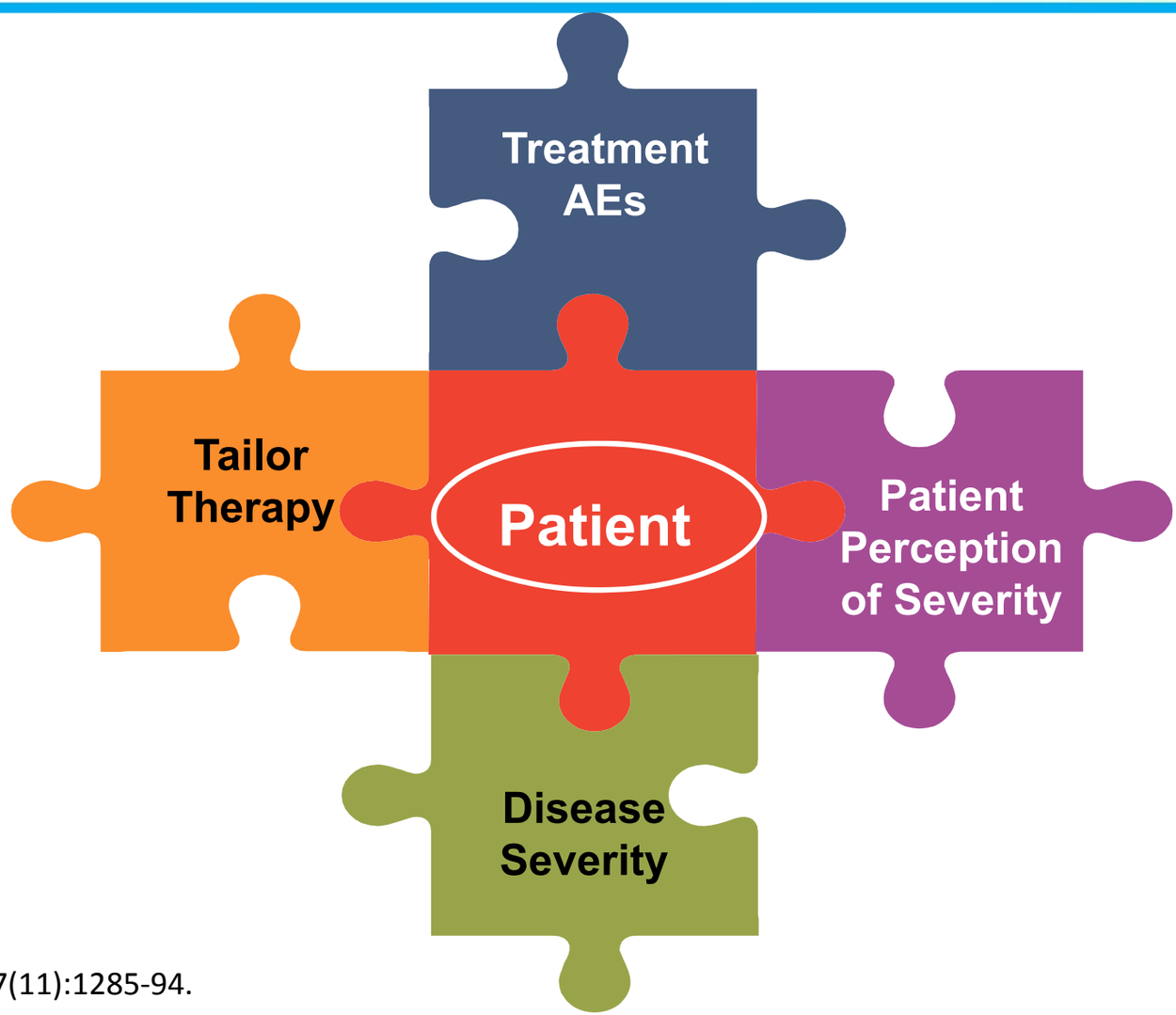
Assessing Psoriasis Severity



Armstrong AW, Robertson AD, Wu J, Schupp C, Lebwohl MG. *JAMA Dermatol*. 2013;149(10):1180-5. Menter A, Gottlieb A, Feldman SR, et al. *J Am Acad Dermatol*. 2008;58(5):826-50. Spuls PI, Lecluse LL, Poulsen ML, Bos JD, Stern RS, Nijsten. *J Invest Dermatol*. 2010;130(4):933-43. Both H, Essink-bot ML, Busschbach J, Nijsten T. *J Invest Dermatol*. 2007;127(12):2726-39. Mrowietz U, Kragballe K, Reich K, et al. *Arch Dermatol Res*. 2011;303(1):1-10. Majeski CJ, Johnson JA, Davison SN, Lauzon CJ. *Br J Dermatol*. 2007;156(4):667-73.

Treatment of Psoriasis: Establish Individualized Treatment Goals

- Goals of treatment[1]
  - Clear the skin
  - Minimize adverse events
  - Enhance patient quality of life
  - Address comorbidities
- Individualize therapy by involving the patient in treatment decision-making[1,2]
  - Consider patient preferences when selecting therapy[1,2]



1. Schaarschmidt ML, Schmieder A, Umar N, et al. *Arch Dermatol*. 2011;147(11):1285-94.
2. Brezinski EA, Armstrong AW. *Semin Cutan Med Surg*. 2014;33(2):91-7.

Treatment Approach: Treat-to-Target

Treatment Goal:
Reduce BSA to ≤1% three months after initiating treatment

Initiate Treatment

3 months post-initiation

Yes — **BSA ≤1%** — **No**

- **Yes:** Continue current therapy
- **No:** Modify therapy
  - Adjust dose
  - Add another agent (combination therapy)
  - Switch to a new therapy

6 months + post-initiation

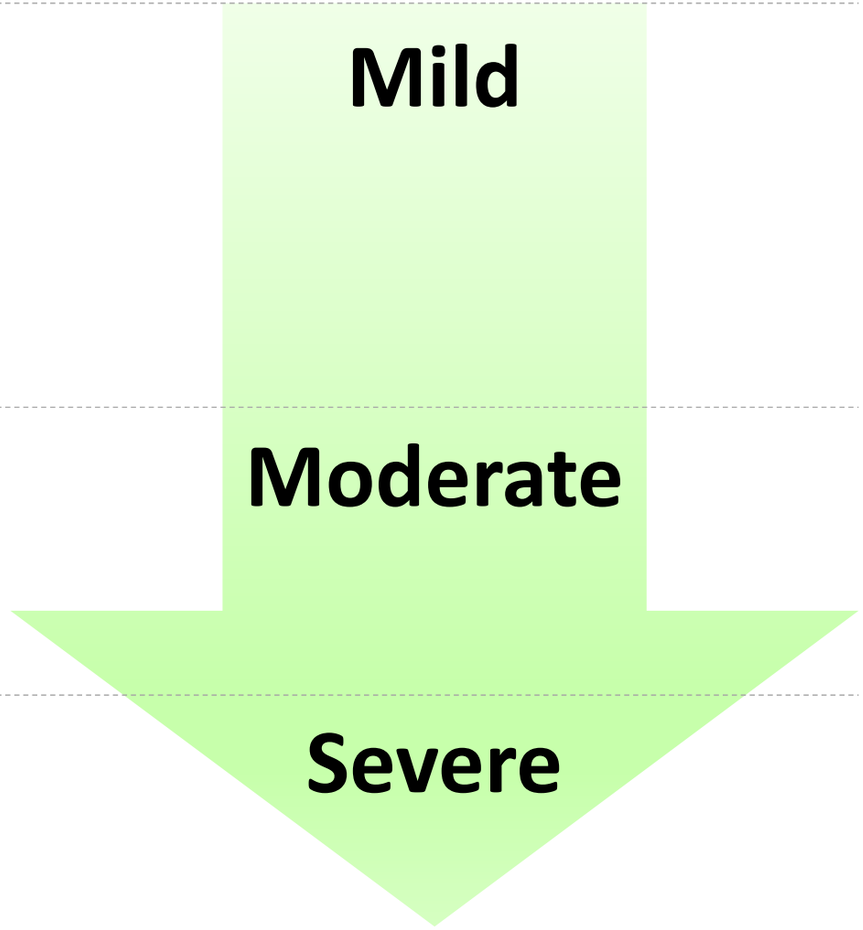
Yes — **BSA ≤1%** — **No**

- **Yes:** Continue current therapy
- **No:** Modify therapy
  - Adjust dose
  - Add another agent (combination therapy)
  - Switch to a new therapy

Armstrong AW, Siegel MP, Bagel J, et al. *J Am Acad Dermatol*. 2017;76(2):290-298.

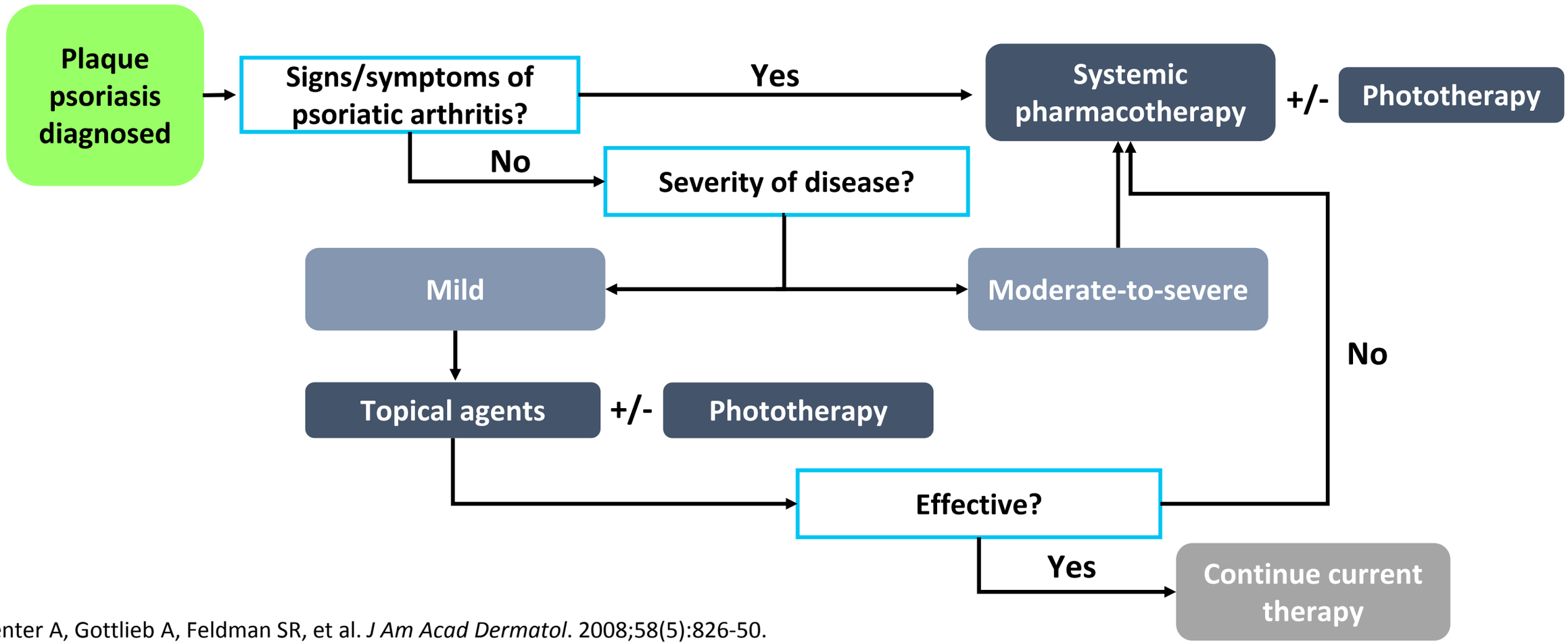
Treatment Options for Psoriasis

- Topical therapies
  - Steroid creams
  - Vitamin D analogues
  - Vitamin A retinoids
- Ultraviolet light/lasers
  - UVB
  - PUVA
- Systemic therapies
  - Traditional/biologic DMARDs



Psoriasis Treatments. National Psoriasis Foundation Web site. https://www.psoriasis.org/about-psoriasis/treatments. Accessed March 2018.

Disease Severity Guides Treatment Selection



Menter A, Gottlieb A, Feldman SR, et al. *J Am Acad Dermatol*. 2008;58(5):826-50.
Menter A, Korman NJ, Elmets CA, et al. *J Am Acad Dermatol*. 2009;60(4):643-59.
Menter A, Korman NJ, Elmets CA, et al. *J Am Acad Dermatol*. 2010;62(1):114-35.

Traditional Systemic DMARDS

Acitretin

- Vitamin A derivative (retinoid)
- Immunomodulatory and anti-inflammatory activity
- Modulates epidermal proliferation and differentiation
- Initial approval: 1996

Cyclosporine

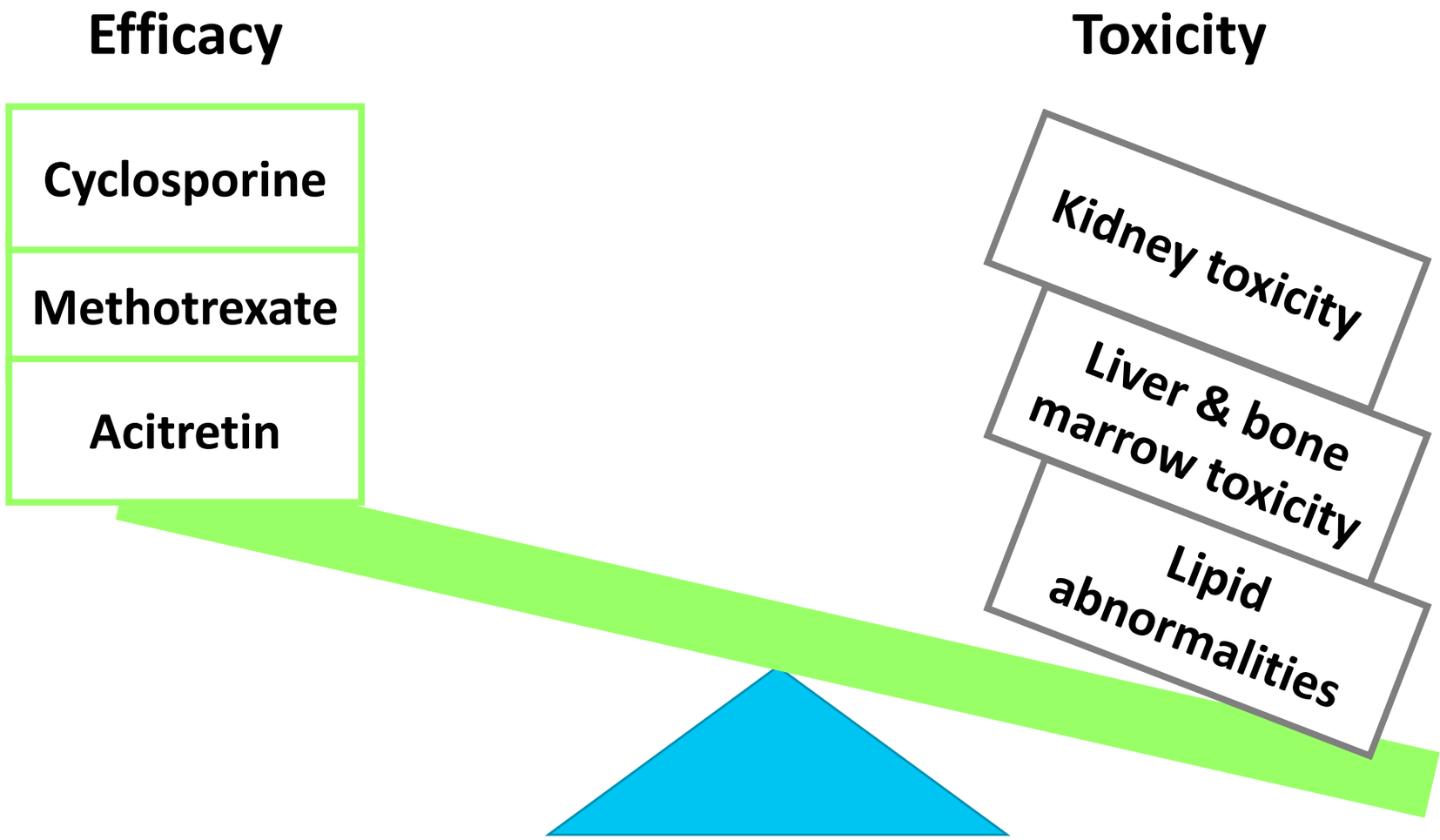
- Blocks inflammatory cytokine production and T-cell activation
- Initial approval: 1997

Methotrexate

- Competitive inhibitor of dihydrofolate reductase
- Interferes with nucleic acid synthesis inhibiting lymphoid proliferation
- Initial approval: 1972

Menter A, Korman NJ, Elmets CA, et al. *J Am Acad Dermatol*. 2009;61(3):451-85.

Risk-Benefit Ratios of Traditional DMARDs



Biologics and Small Molecules Approved for the Treatment of Moderate-to-Severe Psoriasis

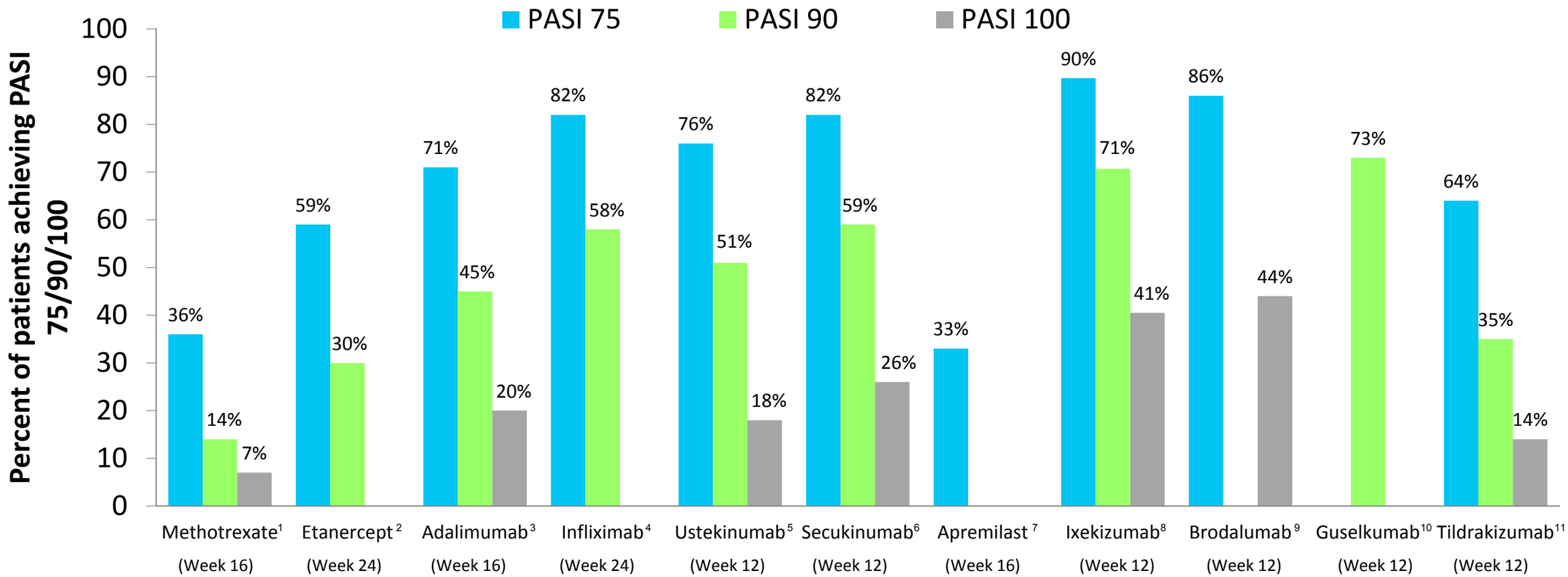
Therapeutic Target

TNF-α	IL-17 Receptor	IL-17A	IL-23	IL-12/23	PDE-4
Adalimumab	Brodalumab	Secukinumab	Guselkumab	Ustekinumab	Apremilast
Certolizumab Pegol		Ixekizumab	Tildrakizumab		
Etanercept					
Golimumab					
Infliximab					
Biosimilars					

TNF=tumor necrosis factor; IL=interleukin; PDE-4=phosphodiesterase

Treatment Comparison. National Psoriasis Foundation Web site. https://www.psoriasis.org/sites/default/files/treatment_comparison_chart_7.pdf. Published December 2017. Accessed March 2018.

Biologics Approved for Moderate-to-Severe Chronic Plaque Psoriasis: PASI 75, 90, and 100 Scores



1. Saurat JH, Stingl G, Dubertret L, et al. *Br J Dermatol*. 2008;158(3):558-66. 2. Leonardi CL, Powers JL, Matheson RT, et al. *N Engl J Med*. 2003;349(21):2014-22. 3. Menter A, Tyring SK, Gordon K, et al. *J Am Acad Dermatol*. 2008;58(1):106-15. 4. Reich K, Nestle FO, Papp K, et al. *Lancet.* 2005;366(9494):1367-74. 5. Papp KA, Langley RG, Lebwohl M, et al. *Lancet*. 2008;371(9625):1675-84. 6. Langley RG, Elewski BE, Lebwohl M, et al. *N Engl J Med*. 2014;371(4):326-38. 7. Otezla (apremilast) [package insert]. Summit, NJ: Celgene Corp.; 2017. 8. Taltz (ixekizumab) [package insert]. Indianapolis, IN: Eli Lilly and Co.; 2018. 9. Siliq (brodalumab) [package insert]. Bridgewater, NJ: Valeant Pharmaceuticals; 2017. 10. Tremfya (guselkumab) [package insert]. Horsham, PA: Janssen Biotech, Inc.; 2017. 9.Sun Pharma announces U.S. FDA approval of Ilumya (tildrakizumab-asmn) for the treatment of moderate-to-severe plaque psoriasis. [news release]. Princeton, NJ: Sun Pharma; March 21, 2018.

Biologics and Small Molecules in Late-Stage Development

Agent	Description/Mechanism	Status
Risankizumab	• Humanized IgG1 monoclonal antibody • Selectively binds the p19 subunit of IL-23	Phase 3
Bimekizumab	• Highly selective monoclonal antibody • IL-17A and IL-17F inhibitor	Phase 3
Piclidenoson	• Small molecule A_3 adenosine receptor antagonist • Downregulates the nuclear factor-κB signaling pathway	Phase 3
Certolizumab pegol	• PEGylated anti-TNF-α biologic • TNF-α inhibitor	Phase 3
LAS41008	• Oral dimethyl fumarate	Phase 3

Drugs in the pipeline for psoriasis and psoriatic arthritis. National Psoriasis Foundation Web site. https://www.psoriasis.org/drug-pipeline. Accessed March 2018.

Biosimilars Approved in the US for the Treatment of Moderate-to-Severe Psoriasis

Biosimilar Product	Reference Product	Approval Date	Status
infliximab-dyyb/Inflectra	infliximab/Remicade	April 5, 2016	Commercially available
etanercept-szzs/Erelzi	etanercept/Enbrel	August 30, 2016	Not available
adalimumab-atto/Amjevita	adalimumab/Humira	September 23, 2016	Not available
infliximab-abda/Renflexis	infliximab/Remicade	April 21, 2017	Commercially available
adalimumab-adbm/Cyltezo	adalimumab/Humira	August 25, 2017	Not available
infliximab-qbtx/Ixifi	infliximab/Remicade	December 13, 2017	Not available

- Biosimilars are successors to biologic agents that have lost patent exclusivity
- Not a simple generic, but highly similar to the reference product
- No clinically meaningful differences between the biosimilar and reference product in terms of the safety, purity, and potency
- Label reflects that of the reference product

Patient Case: Marcus

- **Age and personal status:** 47-year-old male
- **Disease history and diagnosis:** 25-year history of moderate-to-severe psoriasis
- **Current therapy:** none; most recent therapy (adalimumab) discontinued 2 months ago
- **Past therapies:** initially cleared with etanercept and adalimumab, but both agents lost efficacy over time and were discontinued
- **Current complaints:** widespread erythematous plaques with overlying scaling on the chest, abdomen, back, arms and legs; BSA 20%; swollen and tender finger and toe joints

Skin Disease Often Precedes Joint Involvement

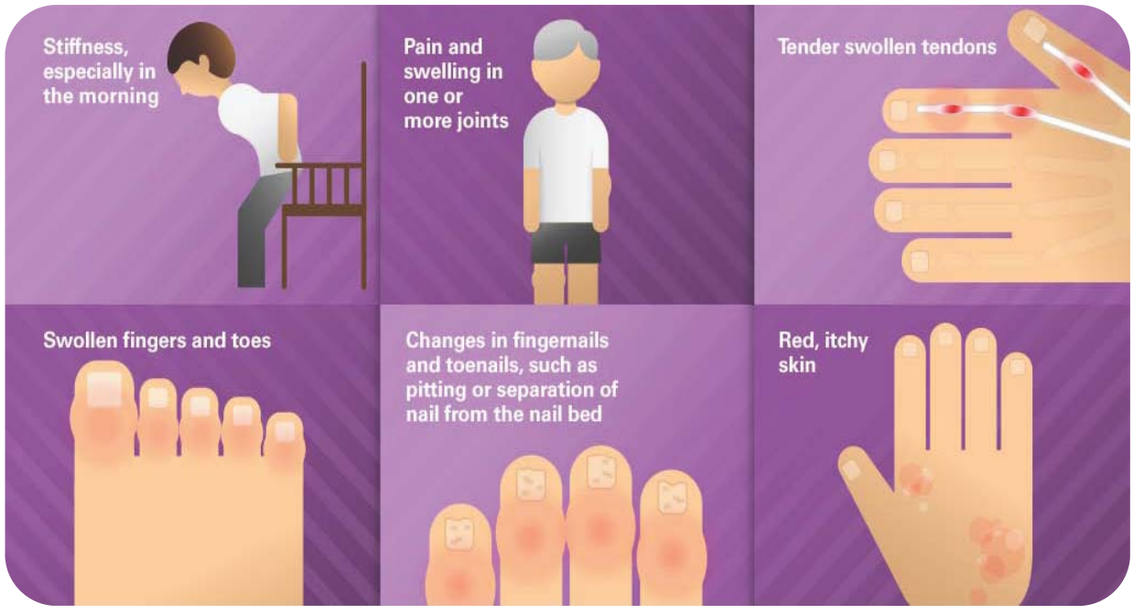
3 in 10

Patients with Psoriasis are Likely to Develop Psoriatic Arthritis

- Skin disease precedes joint disease in >80% of patients
- Severity of skin disease and the severity/course of psoriatic arthritis do not correlate with each other
- 60% of patients with psoriatic arthritis progress to permanent joint destruction if left untreated

Mease PJ, Armstrong AW. *Drugs*. 2014;74(4):423-41.
Gottlieb A, Korman NJ, Gordon KB, et al. *J Am Acad Dermatol*. 2008;58(5):851-64.

Early Referral to a Specialist is Critical for Psoriasis Patients with Joint Symptoms



Early detection and appropriate treatment of psoriatic arthritis in patients with psoriasis can reduce long-term disability and minimize the need for health care resources

Patients with severe or complicated symptoms require care from a multidisciplinary team of providers to manage skin and joint involvement over the long-term

Summary

- Psoriasis is a common chronic inflammatory skin condition associated with significant morbidity
- Comorbidities must be recognized and appropriately managed
- The primary goals of treatment include clearing the skin, minimizing adverse events, addressing comorbidities, and enhancing patient quality of life
- Patient preference should be considered when selecting therapy
- Multiple treatment options are now available
- Dermatologists should screen for joint involvement in their psoriasis patients and collaborate with rheumatologists to adequately manage both skin and joint involvement over the long-term

Psoriatic Arthritis Clinical Update: Assessing the Latest Trial Data and Treatment Algorithms

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David Geffen School of Medicine
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Learning Objectives

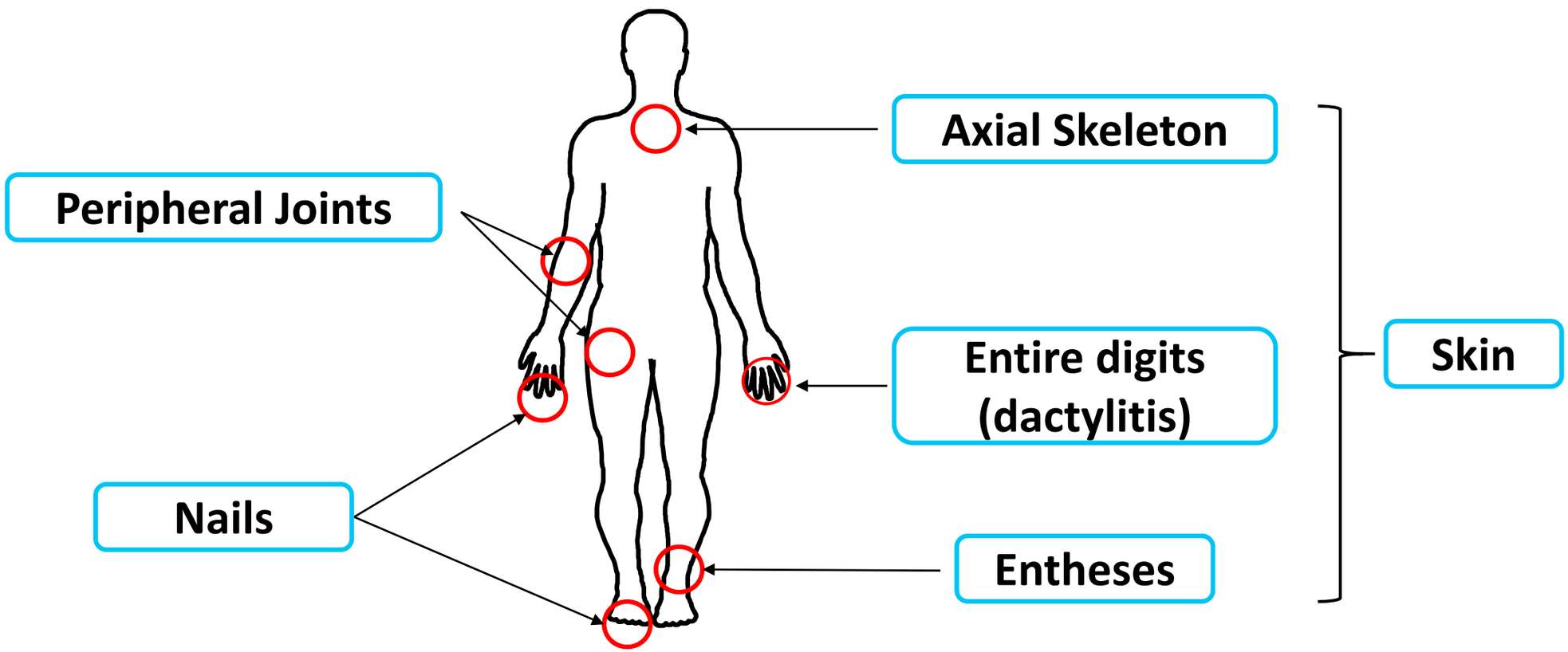
- Assess current and emerging therapies for the treatment of psoriasis and psoriatic arthritis and cite their clinical trial data
- Examine alignment of managed care psoriatic disease treatment algorithms with recent clinical trial data

Patient Case: Referral to Rheumatology

- **Patient:** Marcus, a 47-year-old male with a 25-year history of moderate-to-severe psoriasis
- **Reason for visit:** referred by his dermatologist for evaluation of swollen and tender finger and toe joints

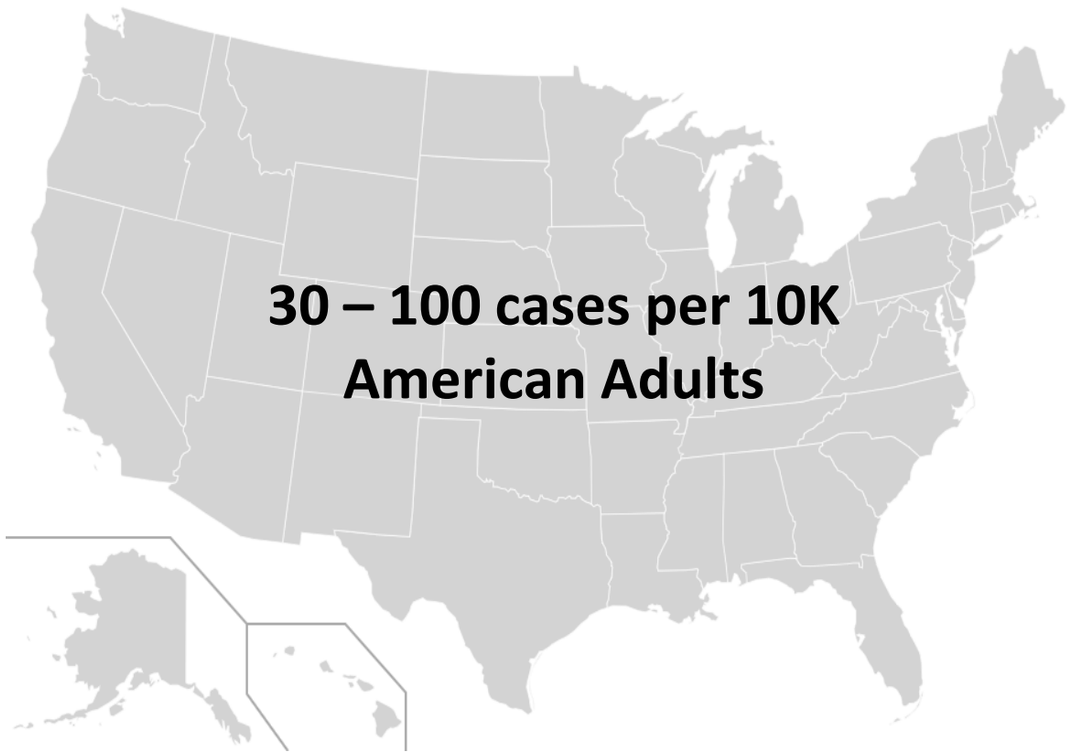
Psoriatic Arthritis is a Common Chronic Inflammatory Disease

- **Psoriatic arthritis (PsA):** a progressive disorder ranging from mild synovitis to severe progressive erosive arthropathy that affects several body areas



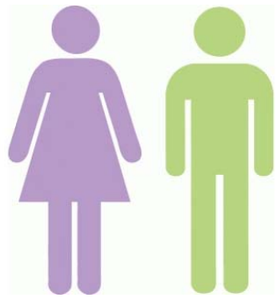
Pipitone N, Kingsley GH, Manzo A, Scott DL, Pitzalis C. *Rheumatology* (Oxford). 2003;42(10):1138-48.

Prevalence of Psoriatic Arthritis in the US

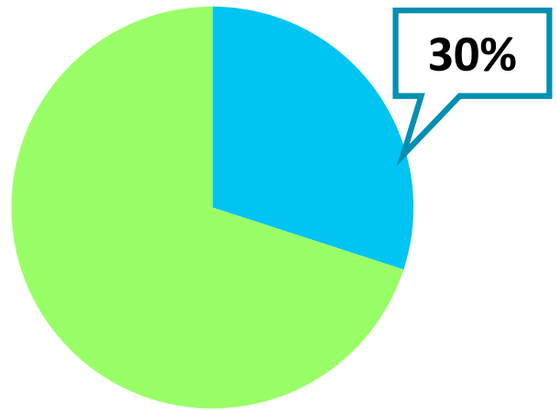


Peak incidence occurs at ages
30 – 55

Affects males and females equally



Occurs in up to 30% of individuals with psoriasis



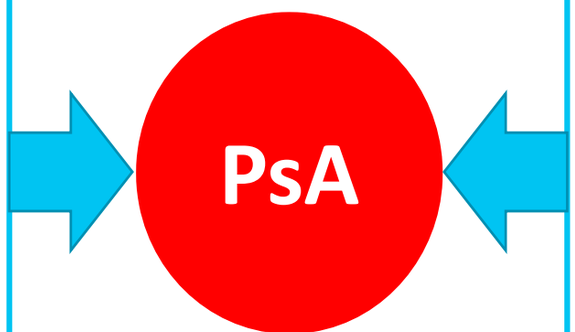
Patients with Diagnosed Psoriasis

Ritchlin CT, Colbert RA, Gladman DD. *N Engl J Med*. 2017;376(10):957-970.

Genes and the Environment Influence the Natural History of Psoriatic Arthritis

Genetics

- Familial aggregation of PsA has been reported
- Associated with Class 1 MHC alleles at the HLA-B*08, B*27, B*38, and B*39 loci
- Polymorphisms in genes encoding *IL23R*, NF-κB, *TNIP1, and TNFAIP3* are associated with PsA as is *TNF* expression



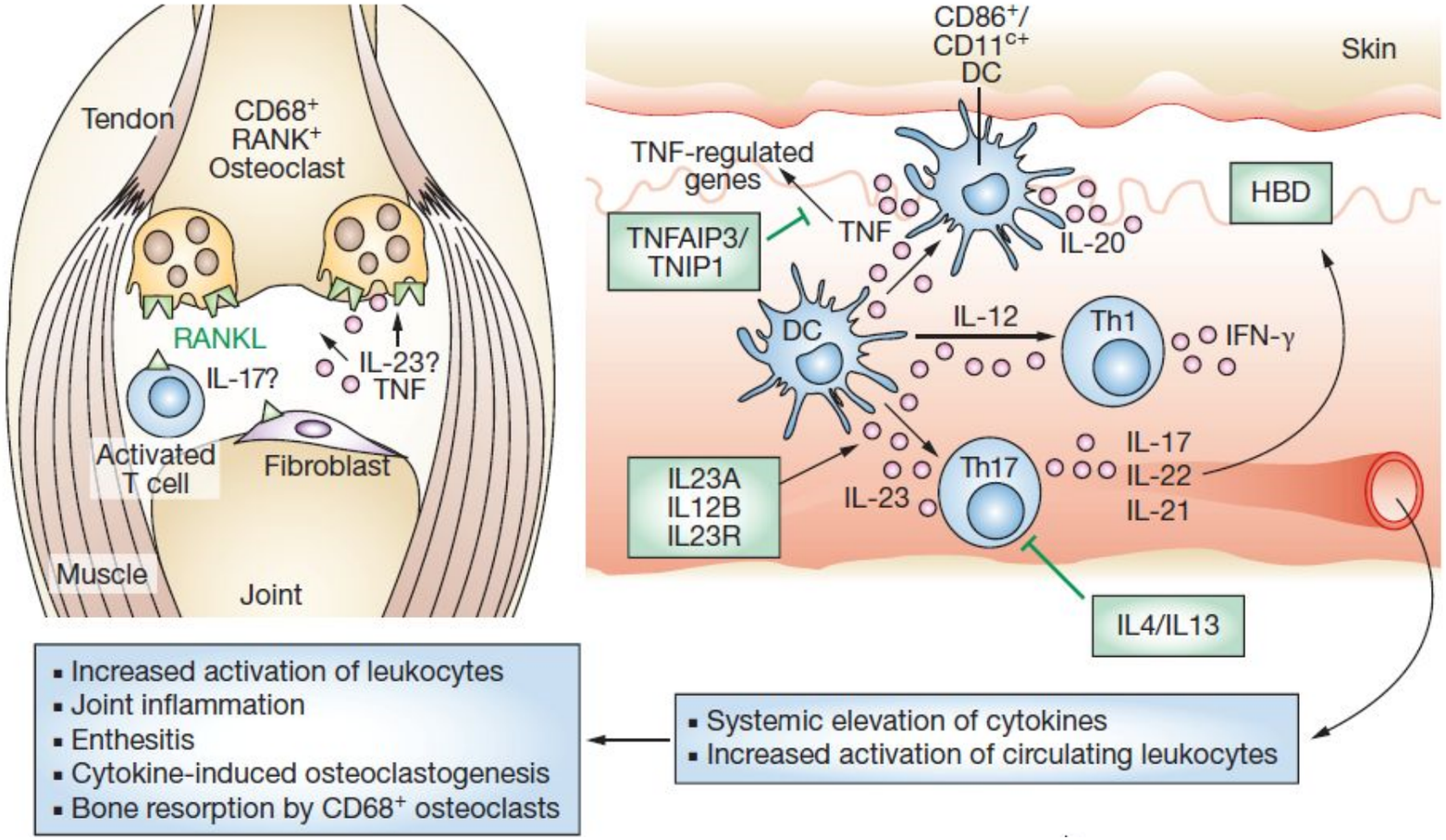
Environmental Influences

- Trauma/injuries
- Severe psoriasis
- Infection requiring antibiotics
- Smoking

Ritchlin CT, Colbert RA, Gladman DD. *N Engl J Med*. 2017;376(10):957-970.

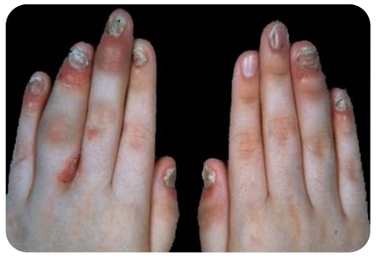
Pathogenic Pathways in Psoriatic Arthritis

- Interaction between genetic and environmental factors in the skin triggers an inflammatory response that may ultimately affect the joints
- Synovial fluid of joints affected by PsA shows increased levels of T-cells and cytokines such as TNF, IL-6, IL-12/IL-23, and IL-17
- These cytokines drive joint inflammation and trigger other downstream effects such as osteoblast and osteoclast activation that contribute to joint damage

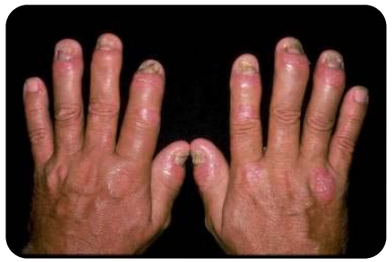


Ritchlin CT, Colbert RA, Gladman DD. *N Engl J Med*. 2017;376(10):957-970. Barnas JL, Ritchlin CT. *Rheum Dis Clin North Am*. 2015;41(4):643-63.
Nograles KE, Brasington RD, Bowcock AM. *Nat Clin Pract Rheumatol*. 2009;5(2):83-91.

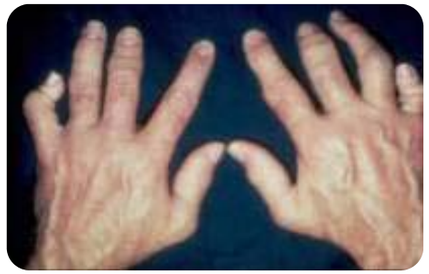
Psoriatic Arthritis has a Heterogeneous Clinical Presentation



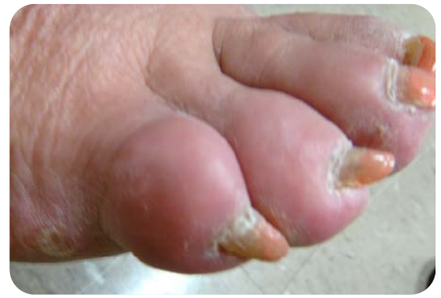
Asymmetric Oligoarthritis



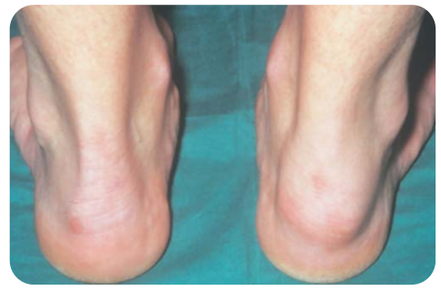
Distal Interphalangeal Predominant (DIP) Synovitis



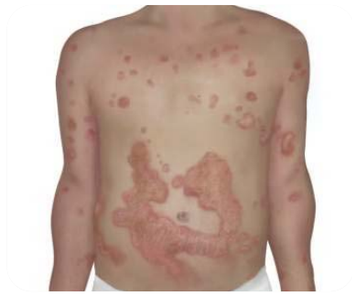
Proximal Interphalangeal Predominant (PIP) Synovitis



Dactylitis



Enthesitis



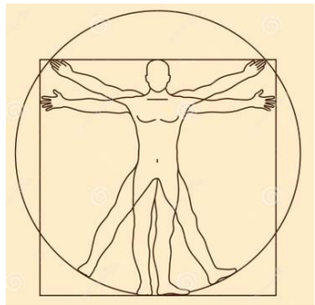
Psoriasis Plaques

Psoriatic Arthritis is Associated with Considerable Psychosocial Burden

- **Sleep disorders**
- **Fatigue**

- **Depression, anxiety and mood disturbances**

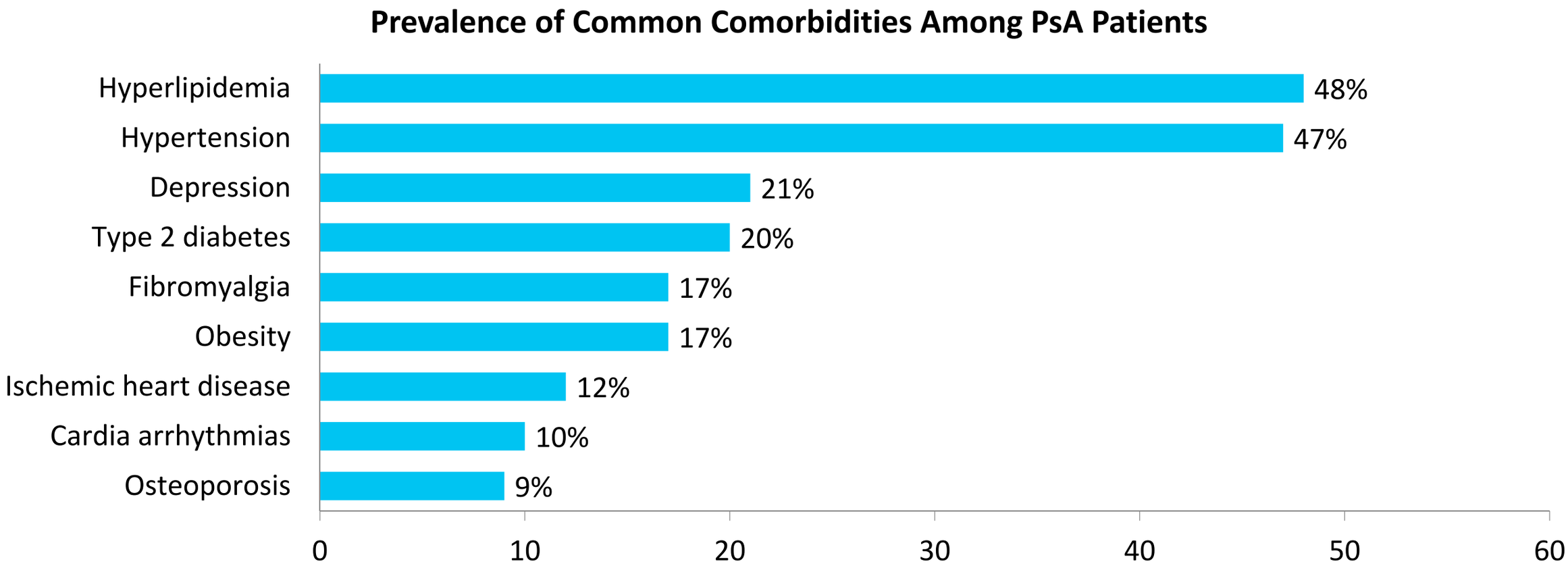
- **Poor body image**



- **Reduced work productivity**

Husni ME, Merola JF, Davin S. *Semin Arthritis Rheum*. 2017;47(3):351-360.

Comorbidities Associated with Psoriatic Arthritis



Analysis of prevalence and incidence rates for 28 comorbid conditions among adult patients (n=94,302) in the Truven Health Analytics MarketScan database with a diagnosis of psoriatic arthritis and having two or more health claims for psoriatic arthritis between July 1, 2008 and July 31, 2015.

Shah K, Paris M, Mellars L, Changolkar A, Mease PJ. *RMD Open*. 2017;3(2):e000588.

A Diagnosis is Based on Clinical, Laboratory, and Radiographic Findings

Clinical

- Psoriasis of skin and nails
- Peripheral arthritis
- Distal interphalangeal involvement
- Dactylitis
- Enthesopathy

Laboratory

- Absence of rheumatoid factor (RF) and anti-citrullinated protein antibodies (ACPA)*
- Elevated acute phase (vs rheumatoid arthritis)

*low levels of RF and ACPA found in 5% -16% of patients

Radiographic

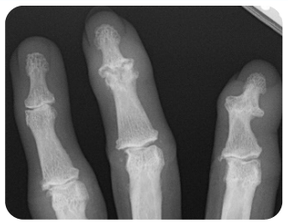
- Erosions and resorptions
- Joint space narrowing or involvement of entheseal sites
- Bony spurs
- Spinal disease†

†sacroiliitis occurs in 40% -70% of patients

Helliwell PS, Taylor WJ. *Ann Rheum Dis*. 2005;64 Suppl 2:ii3-8.

A Delay in Diagnosis is Associated with Worse Outcomes

- Delay in diagnosis >6 months from onset of symptoms is associated with

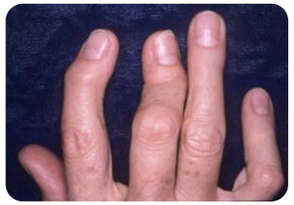


Erosive Disease

- **Odds ratio: 4.6**

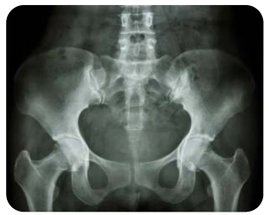
Arthritis Mutilans

- **Odds ratio: 10.6**



Functional Disability

- **Odds ratio: 2.2**



Sacroiliitis

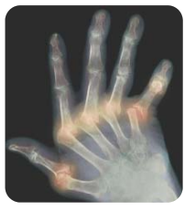
- **Odds ratio: 2.3**

Drug-free Remission

- **Odds ratio: 0.4**

Deformed Joints

- **Odds ratio: 2.3**



Haroon M, Gallagher P, Fitzgerald O. *Ann Rheum Dis*. 2015;74(6):1045-50.

Patients with Suspected PsA Should be Screened To Minimize the Risk of Irreversible Joint Damage

Symptom Recognition

- General symptoms
  - Fatigue
  - Morning stiffness >30 min
- Joint symptoms
- Reduced range of motion
- Stiffness, pain, throbbing, swelling and tenderness in ≥1 joints
  - Swollen fingers and toes

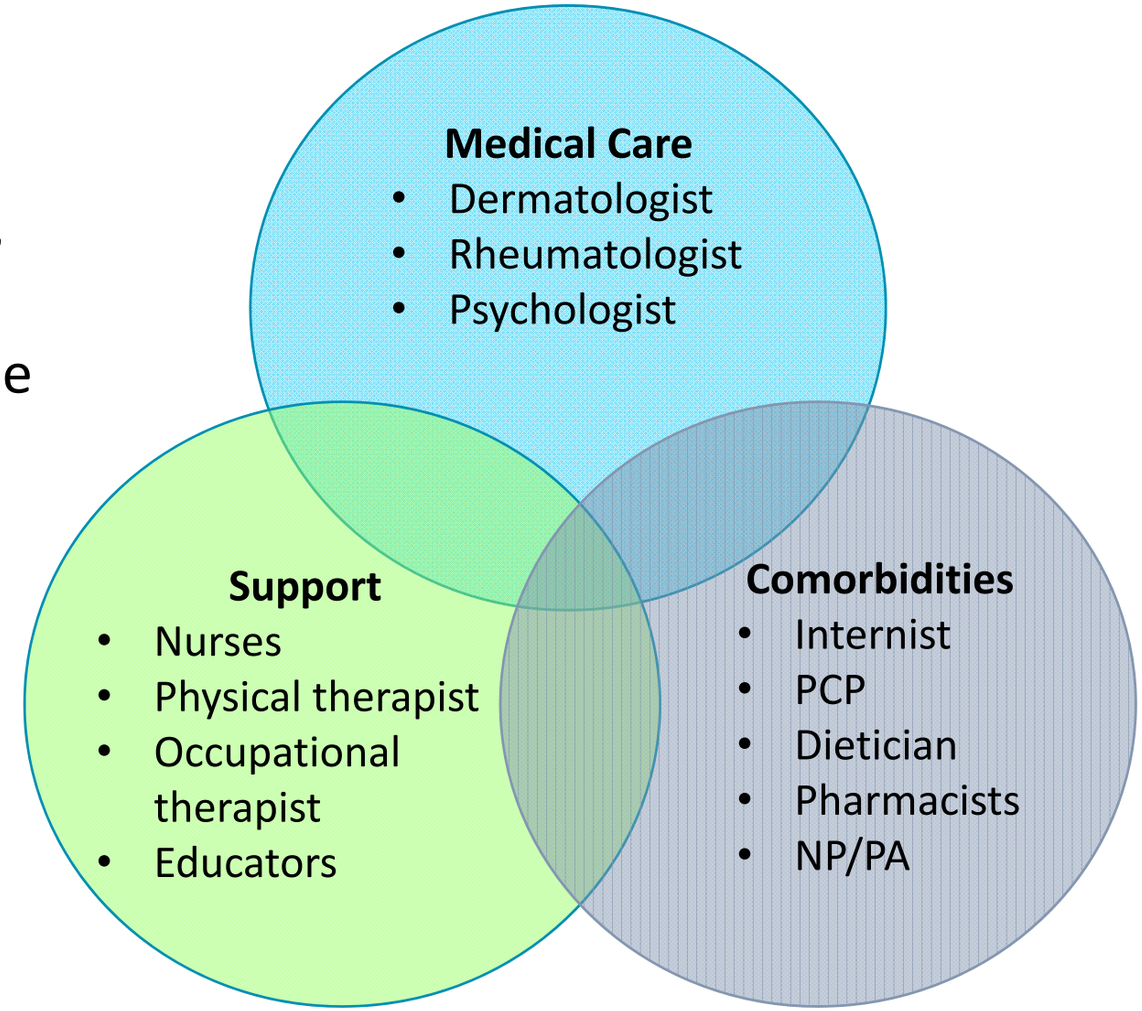
Screening Tools

- Psoriasis Epidemiology Screening Tool (PEST)[1]
- Toronto Psoriatic Arthritis Screen (ToPAS)[2]
- Psoriatic Arthritis Screening and Evaluation tool (PASE)[3]
- Psoriasis and Arthritis Screening Questionnaire (ePASQ)[4]
- Early Arthritis for Psoriatic patients (EARP)[5]

1. Ibrahim GH, Buch MH, Lawson C, Waxman R, Helliwell PS. *Clin Exp Rheumatol*. 2009;27(3):469-74. 2. Gladman DD, Schentag CT, Tom BD, et al. *Ann Rheum Dis*. 2009;68(4):497-501. 3. Dominguez PL, Husni ME, Holt EW, Tyler S, Qureshi AA. *Arch Dermatol Res*. 2009;301(8):573-9. 4. Khraishi M, Landells I, Mugford G. *Psoriasis Forum.* 2010;16:9–16 5. Tinazzi I, Adami S, Zanolin EM, et al. *Rheumatology* (Oxford). 2012;51(11):2058-63.

Refer for Multidisciplinary and/or Specialty Care

- Specialists may more effectively assess the biological, psychological, behavioral, and dietary factors that affect disease control and treatment success



Lebovidge JS, Elverson W, Timmons KG, et al. *J Allergy Clin Immunol*. 2016;138(2):325-34.
Husni ME, Merola JF, Davin S. *Semin Arthritis Rheum*. 2017;47(3):351-360.

CASPAR Disease Classification Criteria

Criteria	Comment
1. Evidence of psoriasis a. Current b. History c. Family history	 a. Psoriatic skin or scalp disease present today b. History of psoriasis c. History of psoriasis in a first- or second-degree relative (according to patient report)
2. Psoriatic nail involvement	Typical psoriatic nail dystrophy, including onycholysis, pitting, and hyperkeratosis, observed on current physical examination
3. RF negative	Preferably by enzyme-linked immunosorbent assay or nephelometry
4. Dactylitis a. Current b. History	 a. Swelling of an entire finger b. History of dactylitis recorded by a rheumatologist
5. Radiologic evidence of juxta-articular new bone formation	Ill-defined ossification near joint margins (but excluding osteophyte formation) on plain radiographs of a hand or foot

CASPAR=CLASsification of Psoriatic ARthritis

Taylor W, Gladman D, Helliwell P, et al. *Arthritis Rheum*. 2006;54(8):2665-73.

Goals of Treatment

Low Disease Activity

- Treat-to-target with protocol-driven therapies to reach the target of remission or minimal/low disease activity
- Regular monitoring is required to appropriately adjust therapy to maintain tight control

Reduce Disease Impact

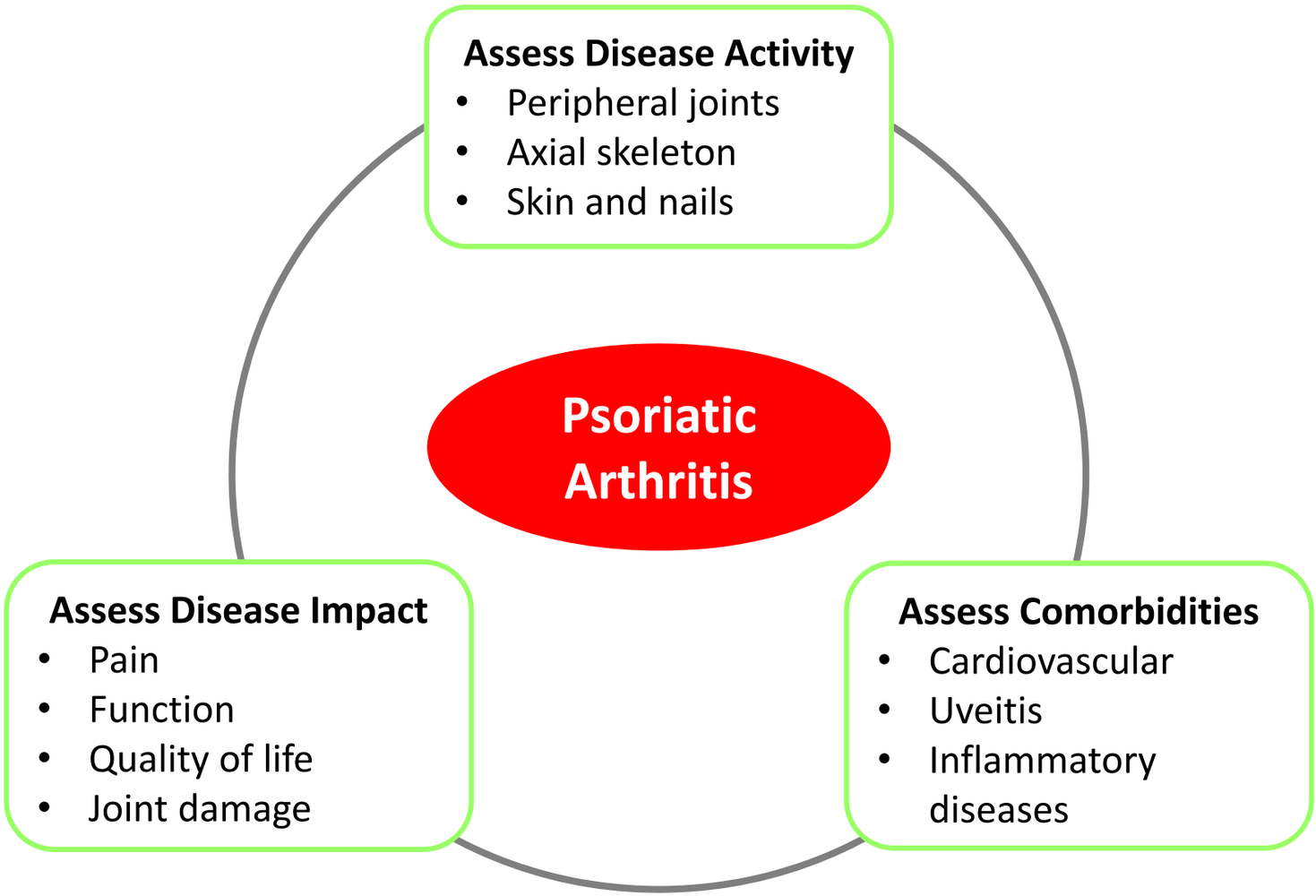
- Optimize function
- Improve quality of life
- Minimize irreversible joint damage

Minimize Complications

- Treat early to quickly achieve disease control
- Select safe and well-tolerated therapies

Coates LC, Moverley AR, Mcparland L, et al. *Lancet*. 2015;386(10012):2489-98.
Coates LC, Kavanaugh A, Mease PJ, et al. *Arthritis Rheumatol*. 2016;68(5):1060-71.

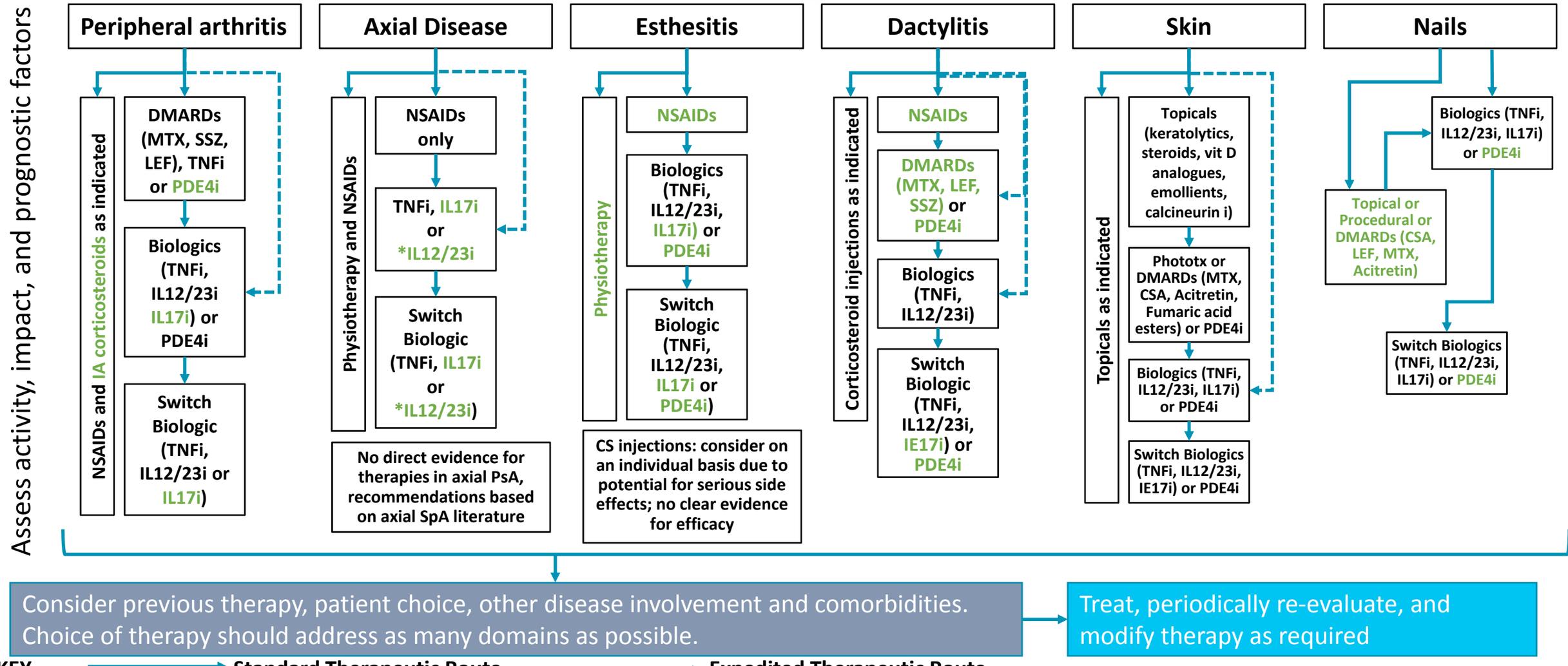
Patient Assessment and Individualization of Treatment



- Therapeutic selection should consider:
  - Patient preference
  - Previous treatment
  - Disease severity
  - Domains of disease involved
  - Comorbidities

Coates LC, Kavanaugh A, Mease PJ, et al. *Arthritis Rheumatol*. 2016;68(5):1060-71.

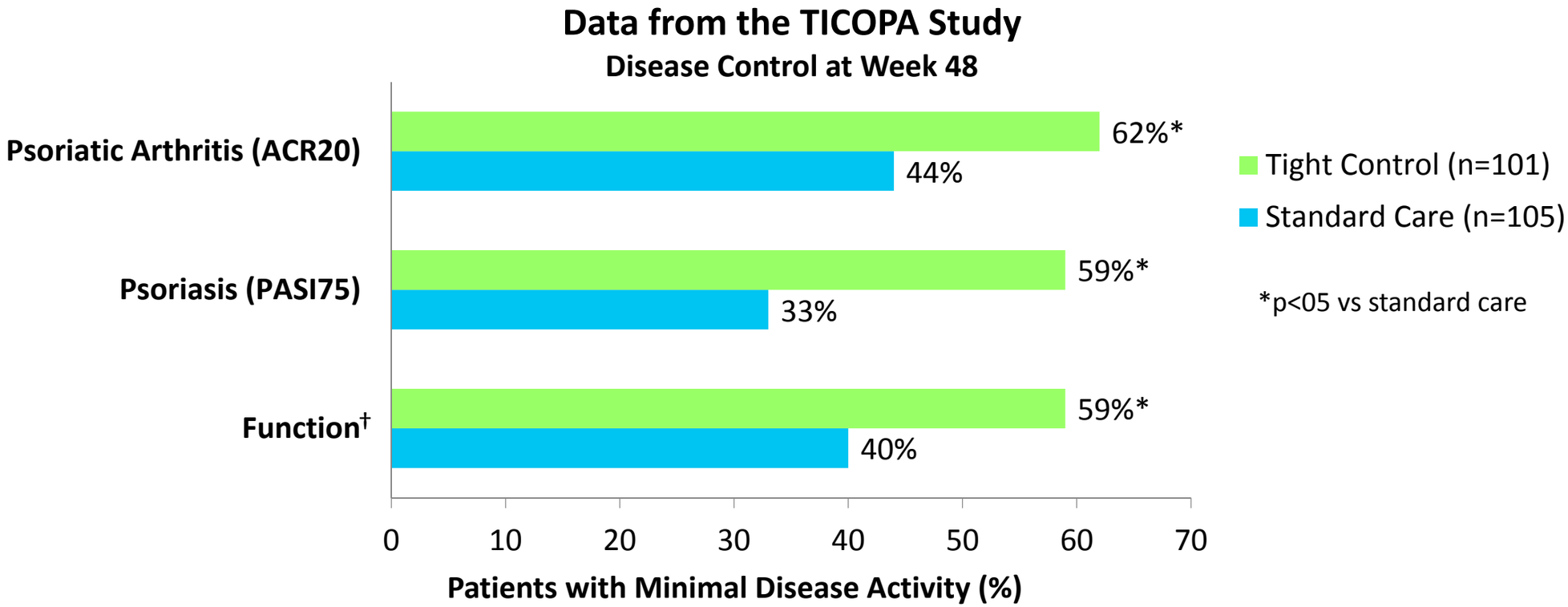
Group for Research and Assessment of Psoriasis and Psoriatic Arthritis (GRAPPA) Treatment Recommendations (2016)



Coates LC, Kavanaugh A, Mease PJ, et al. *Arthritis Rheumatol*. 2016;68(5):1060-71.

Regularly Assess and Adjust Therapy if Needed to Achieve and Maintain Disease Control

- A “treat-to target” approach with regular evaluation and therapeutic adjustment was associated with improved disease control



†BASDAI=Bath ankylosing spondylitis disease activity index; BASFI=Bath ankylosing spondylitis functional questionnaire; PsQoL=psoriatic arthritis quality of life; HAQ=health assessment questionnaire

TICOPA=tight Control in Psoriatic Arthritis; PASI=Psoriasis Area Severity Index; ACR20=American college of Rheumatology 20% response

Coates LC, Moverley AR, Mcparland L, et al. *Lancet*. 2015;386(10012):2489-98.

Psoriatic Arthritis Treatment: Traditional Systemic DMARDS

Methotrexate

- Competitive inhibitor of dihydrofolate reductase
- Interferes with nucleic acid synthesis inhibiting lymphoid proliferation

Sulfasalazine

- Sulfa drug synthesized by combining sulfapyridine and salicylate
- 5-lipoxygenase pathway inhibitor

Leflunomide

- Pyrimidine synthesis inhibitor
- Prevents T cell activation and proliferation
- Off-label use in psoriatic arthritis
  (FDA-approved for the treatment of rheumatoid arthritis)

Raychaudhuri SP, Wilken R, Sukhov AC, Raychaudhuri SK, Maverakis E. *J Autoimmun*. 2017;76:21-37.
Coates LC, Kavanaugh A, Mease PJ, et al. *Arthritis Rheumatol*. 2016;68(5):1060-71.

Psoriatic Arthritis Treatment: Biologics and Small Molecules

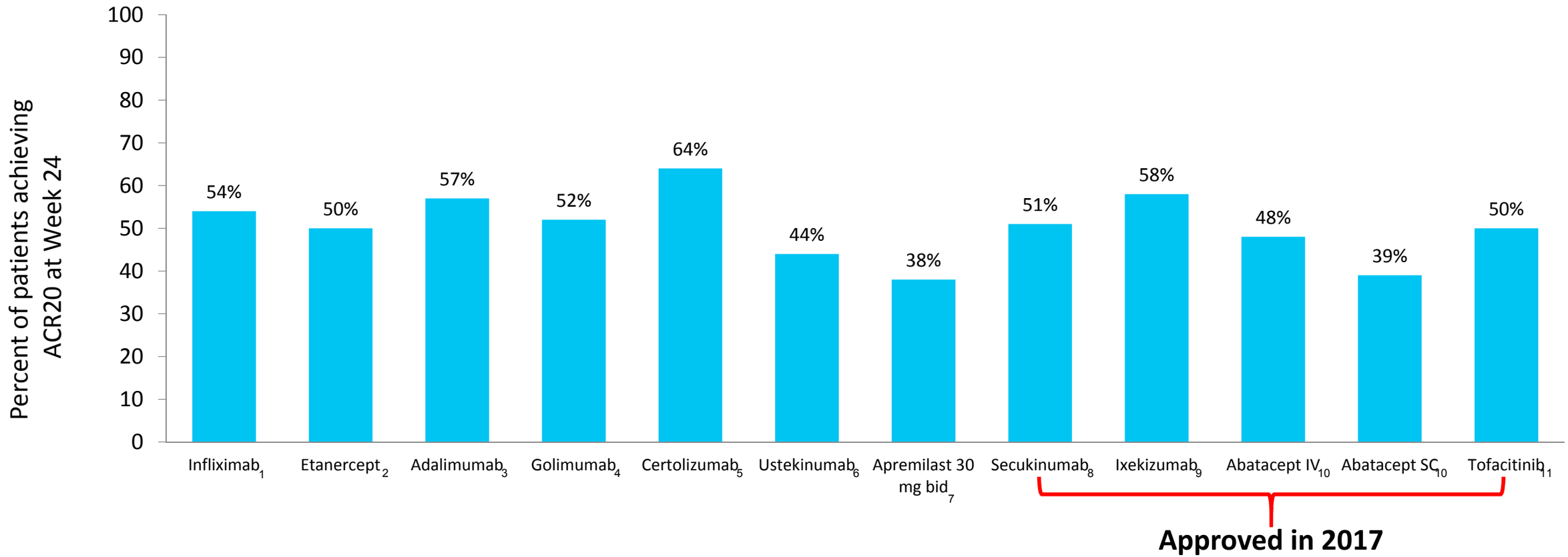
Therapeutic Target

TNF-α	IL-12/23	IL-17A	T Cell	PDE-4	JAK
Adalimumab	Ustekinumab	Secukinumab	Abatacept	Apremilast	Tofacitinib
Certolizumab Pegol		Ixekizumab			
Etanercept					
Golimumab					
Infliximab					
Biosimilars					

PDE-4=phosphodiesterase

Raychaudhuri SP, Wilken R, Sukhov AC, Raychaudhuri SK, Maverakis E. *J Autoimmun*. 2017;76:21-37.
Coates LC, Kavanaugh A, Mease PJ, et al. *Arthritis Rheumatol*. 2016;68(5):1060-71.

Biologic Therapies Approved for Psoriatic Arthritis: ACR20 at Week 24



1. Kavanaugh A, Antoni CE, Gladman D, et al. *Ann Rheum Dis*. 2006;65(8):1038-43. 2. Mease PJ, Kivitz AJ, Burch FX, et al. *Arthritis Rheum*. 2004;50(7):2264-72.
3. Mease PJ, Ory P, Sharp JT, et al. *Ann Rheum Dis*. 2009;68(5):702-9. 4. Kavanaugh A, Mcinnes IB, Mease PJ, et al. *Ann Rheum Dis*. 2013;72(11):1777-85.
5. Mease PJ, Fleischmann R, Deodhar AA, et al. *Ann Rheum Dis*. 2014;73(1):48-55. 6. Mcinnes IB, Kavanaugh A, Gottlieb AB, et al. *Lancet*. 2013;382(9894):780-9. 7. Kavanaugh A, Mease PJ, Gomez-reino JJ, et al. *Ann Rheum Dis*. 2014;73(6):1020-6. 8. Cosentyx (secukinamab) [package insert]. East Hanover, NJ: Novartis Pharmaceuticals Corporation; 2017. 9. Taltz (ixekizumab) [package insert]. Indianapolis, IN: Eli Lilly and Co.; 2018. 10. Orencia (abatacept) [package insert]. Princeton, NJ: Bristol-Myers Squibb; 2017. 11. Xeljanz (tofacitinib) [package insert]. New York, NY: Pfizer. 2017.

Biologics and Small Molecules in Late-Stage Development for Psoriatic Arthritis

Agent	Description/Mechanism	Status
Bimekizumab	• Highly selective monoclonal antibody • IL-17A and IL-17F inhibitor	Phase 3
Brodalumab	• Fully human monoclonal antibody • Targets the IL-17 receptor subunit	Phase 3
Guselkumab	• Fully human IgG1λ monoclonal antibody • Targets the p19 subunit of IL-23	Phase 3
Risankizumab	• High-affinity monoclonal antibody • Targets the p19 subunit of IL-23	Phase 3
Tildrakizumab	• Humanized IgG1κ monoclonal antibody • Targets the p19 subunit of IL-23	Phase 3
Upadacitinib	• Oral JAK inhibitor	Phase 3
Clazakizumab	• IL-6 monoclonal antibody • Direct inhibitor of IL-6	Phase 2b
Remtolumab	• Dual-variable domain immunoglobulin • IL-17 and TNF α inhibitor	Phase 2

Drugs in the Pipeline for Psoriasis and Psoriatic Arthritis. National Psoriasis Foundation Web site. https://www.psoriasis.org/drug-pipeline. Accessed March 2018.

Summary

- Psoriatic arthritis is a chronic, progressive, debilitating disease affecting 0.3 to 1.0% of the US population
- Up to 40% of patients with psoriasis develop psoriatic arthritis; two-thirds of whom will develop bone erosions and joint deformities
- Early diagnosis and treatment can lead to better outcomes
- Screening tools are available but must be routinely implemented in clinical practice to be effective
- With several novel therapeutic options now available and more in development, treatment decisions in clinical practice remain challenging
- Given the heterogeneous presentation of psoriatic arthritis, multidisciplinary approach is needed for its diagnosis and management

Care Pathways in Psoriatic Disease: Recommendations for Managed Care

Jeffrey D. Dunn, PharmD, MBA
Vice President
Clinical Strategy, Programs, and Industry Relations
Magellan Rx Management

Learning Objective

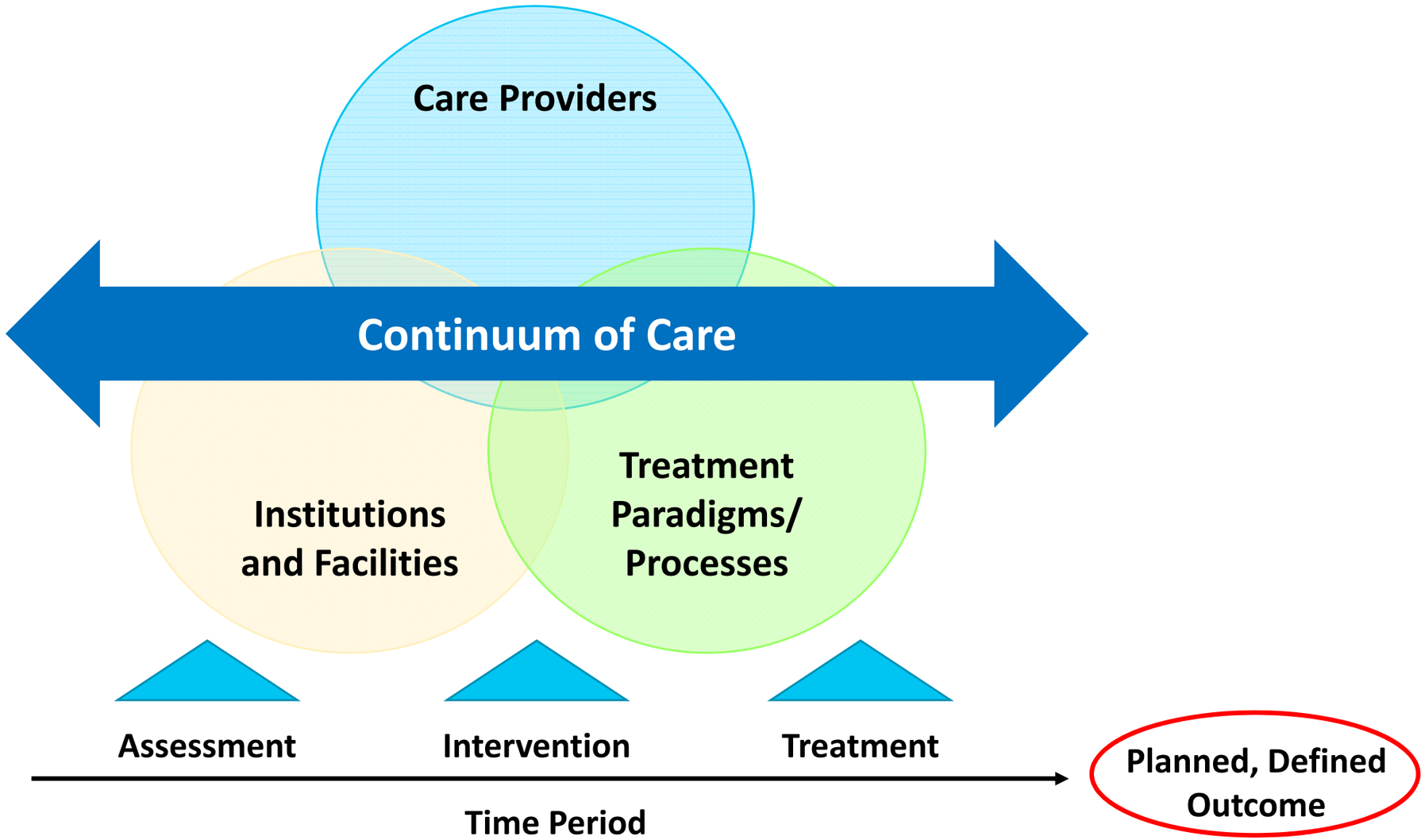
- Describe care pathways and their application as a cost-management tool in psoriatic disease

What is a Care Pathway?

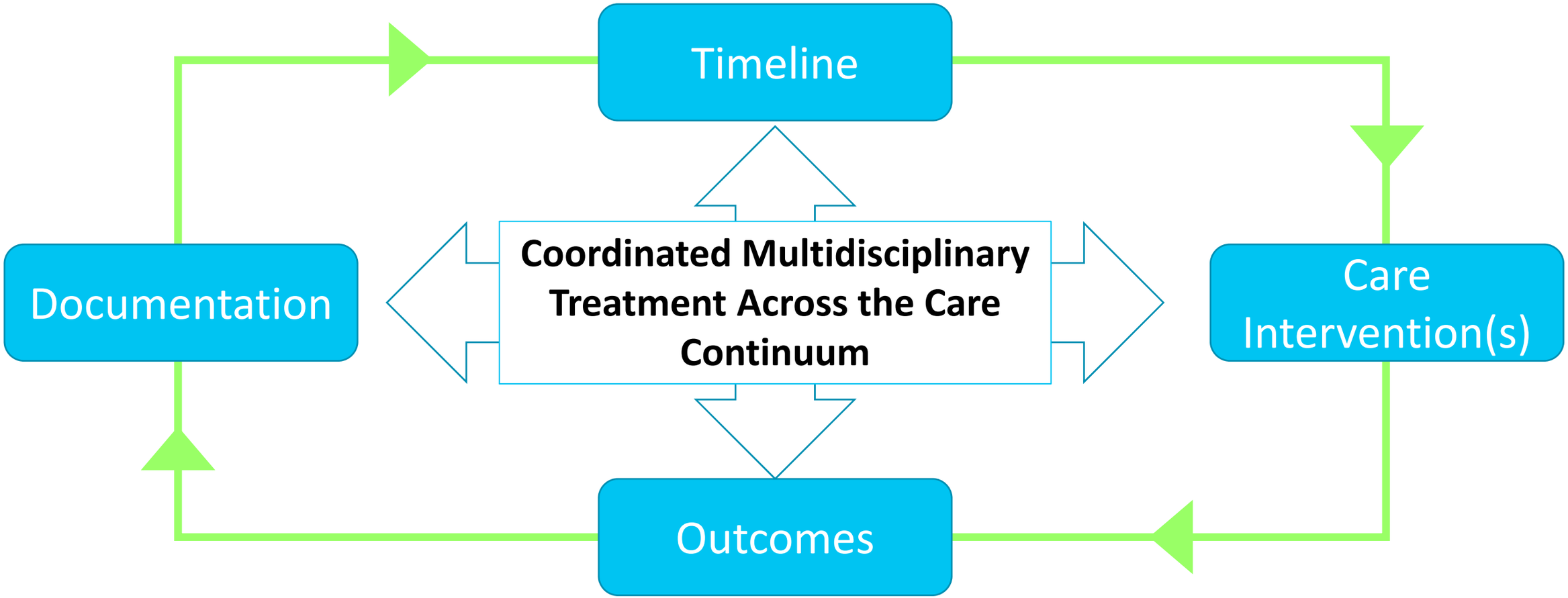
- A proactive, multidisciplinary plan developed to manage patient care, improve quality, reduce variation, and increase efficient use of health care resources
- Pathways reflect care that is planned, standardized, coordinated, and documented

Chawla A, Westrich K, Matter S, Kaltenboeck A, Dubois R. *Am J Manag Care.* 2016;22(1):53-62.

Care Pathways and the Care Continuum



Primary Components of a Care Pathway

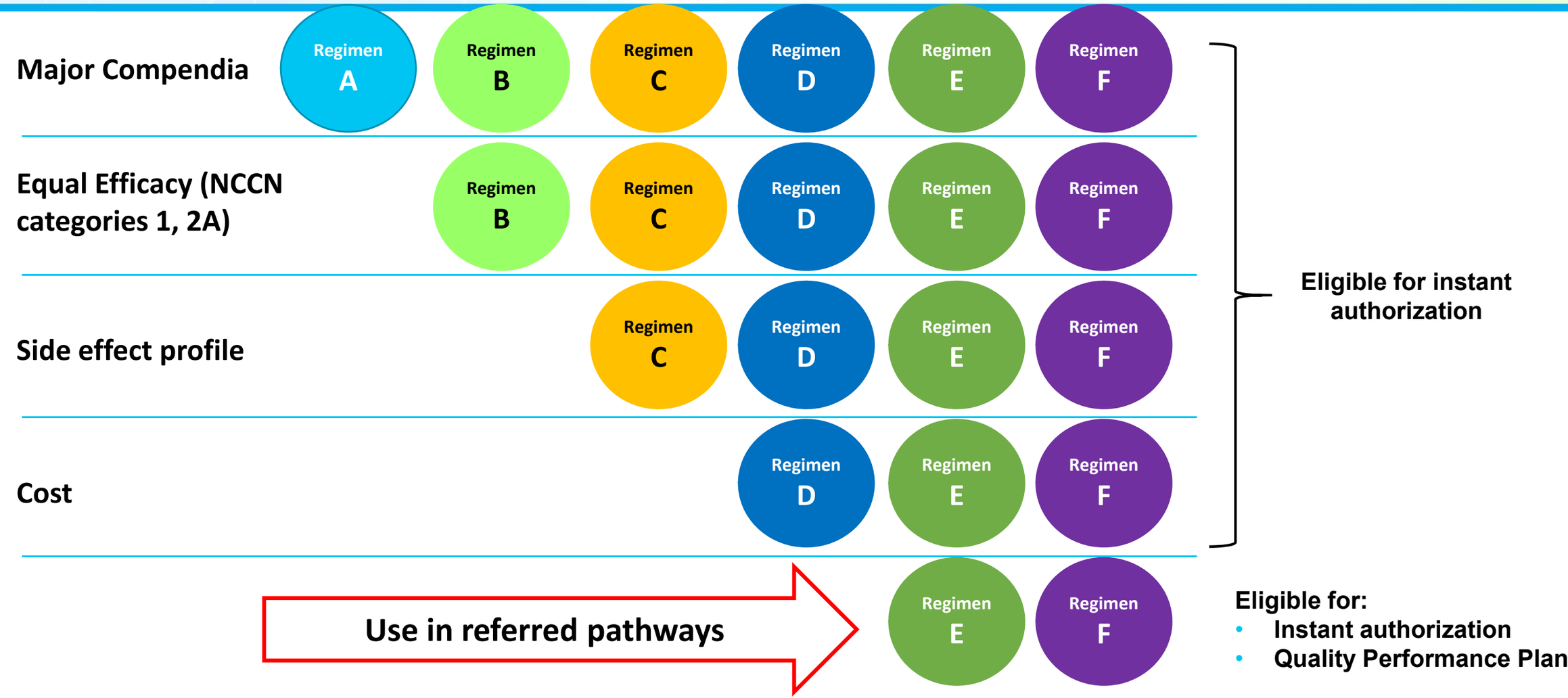


Why Use Care Pathways?

- Reinforce patient-centered care
- Enhance interdisciplinary collaboration
- Reduce unnecessary variation in patient care
- Incorporate local and national guidelines into routine clinical practice
- Support alignment with evidence-based standards of care
- Optimize management of health care resources

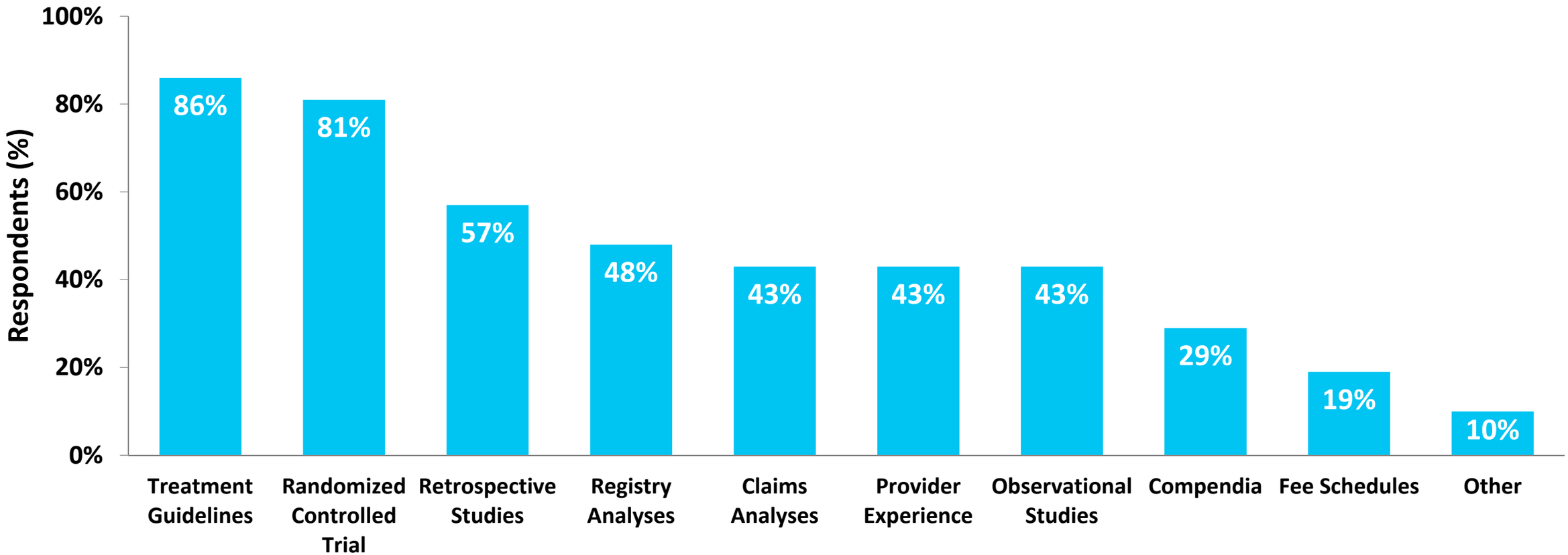
Improving the patient journey: understanding integrated care pathways. http://www.lenus.ie/hse/bitstream/10147/141007/1/Integrated+Care+Pathways.pdf. Accessed April 2018.

Clinical Pathway Considerations in Oncology: High-Quality, Cost-Effective Regimens



The evolution of oncology payment models: What can we learn from early experiments. Deloitte Web site. https://www2.deloitte.com/content/dam/Deloitte/us/Documents/life-sciences-health-care/us-lshc-evolution-of-oncology-payment-models.pdf. Accessed March 2018.

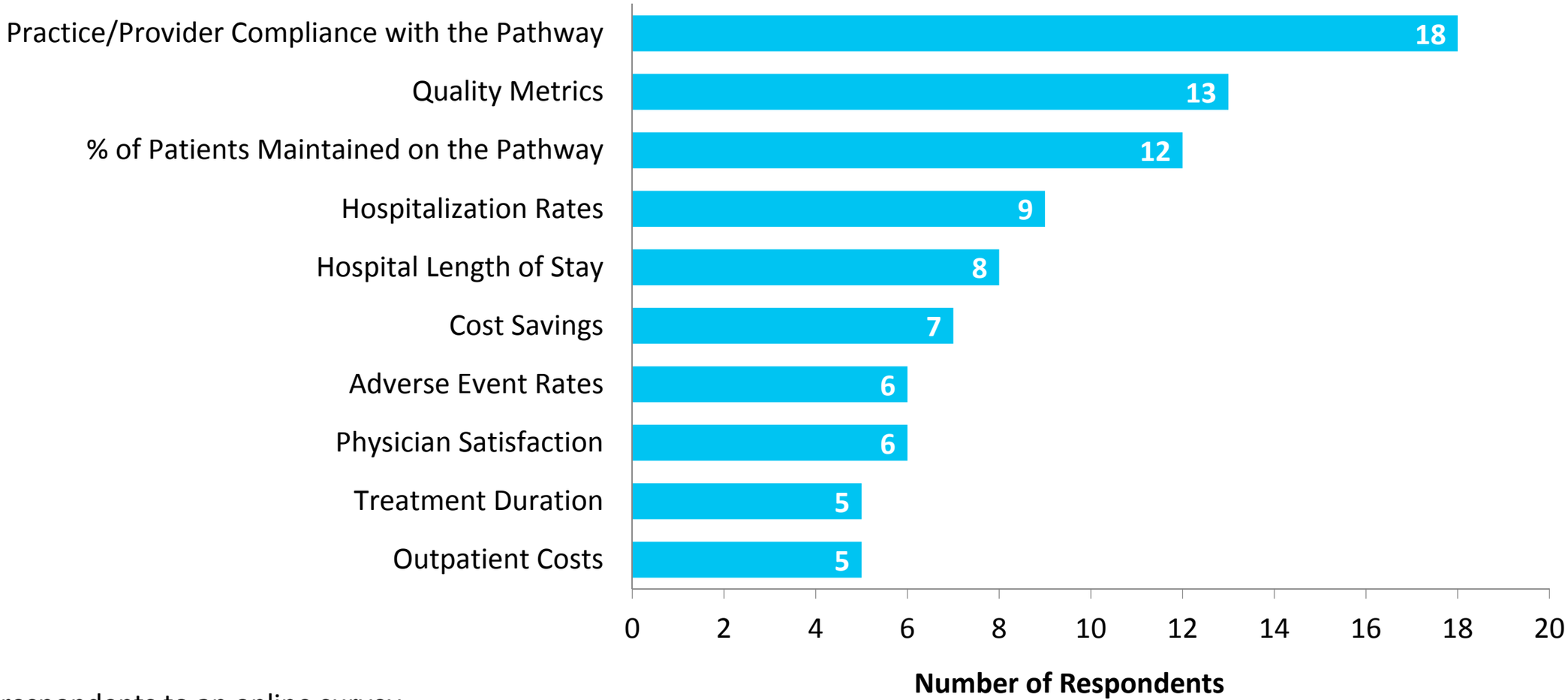
Data Sources for Pathway Development



N=26 respondents to an on-line survey: medical directors (n=8); pharmacy directors (n=2); physicians (n=9); pathway vendors (n=7). Medical and pharmacy directors represented managed care organizations, integrated delivery systems, and pharmacy benefit managers that covered a total of approximately 60 million lives.

Chawla A, Westrich K, Matter S, Kaltenboeck A, Dubois R. *Am J Manag Care.* 2016;22(1):53-62.

Metrics Used to Evaluate the Impact of Care Pathways



N=19 respondents to an online survey

Chawla A, Westrich K, Matter S, Kaltenboeck A, Dubois R. *Am J Manag Care.* 2016;22(1):53-62.

Patient Case:
Managing Skin and Joint Symptoms

- **Patient:** Marcus, a 47-year-old male with a 25-year history of moderate-to-severe psoriasis and recent complaints of swollen and tender joints
- **Challenges**:
  - Confirm a diagnosis of psoriatic arthritis
  - Coordinate care between multiple medical specialties to devise and implement a treatment plan to 1) addresses skin and joint symptoms, 2) minimize risk of progressive joint damage, and 3) safeguard quality of life
  - Address comorbidities including cardiovascular disease and psychosocial conditions
  - Ensure continued access to appropriate therapy

Presence of Joint Symptoms Complicates the Management of Psoriasis

- Presence of psoriatic arthritis increases the overall complexity of psoriatic disease management
- Because joint symptoms appear up to 10 years after skin involvement, dermatologists are well positioned to recognize and refer patients for specialized joint care
- However, psoriatic arthritis remains under-diagnosed in dermatology practices
- Regular screening of psoriasis patients for early evident joint symptoms should be incorporated into daily dermatologic practice

The Psoriatic Disease Patient Journey

Patient seeks care from PCP

PCP refers to dermatology/ rheumatology

Diagnosis of moderate-to-severe psoriasis ± psoriatic arthritis

Treatment Options

Prescription Fulfillment

Adherence Support

Quality of Life & Symptom Assessment

Ongoing Care Management

Care Pathways Can Be Used to Enhance Psoriatic Disease Management

- Increase awareness of psoriatic arthritis among patients, primary care providers and dermatologists

Pre-Diagnosis

- Promote the use of screening tools to identify early symptoms and ensure timely referral
- Develop referral pathways

Referral & Diagnosis

Treatment Initiation & Management

- Promote collaborative care between dermatologists and rheumatologists
- Employ a multidisciplinary care team to provide comprehensive care

- Provide evidence-based care
- “Treat-to-target”; optimize treatment based on response to therapy
- Engage patients in their care

- Perform regular monitoring of patient progress
- Manage comorbidities
- Document outcome

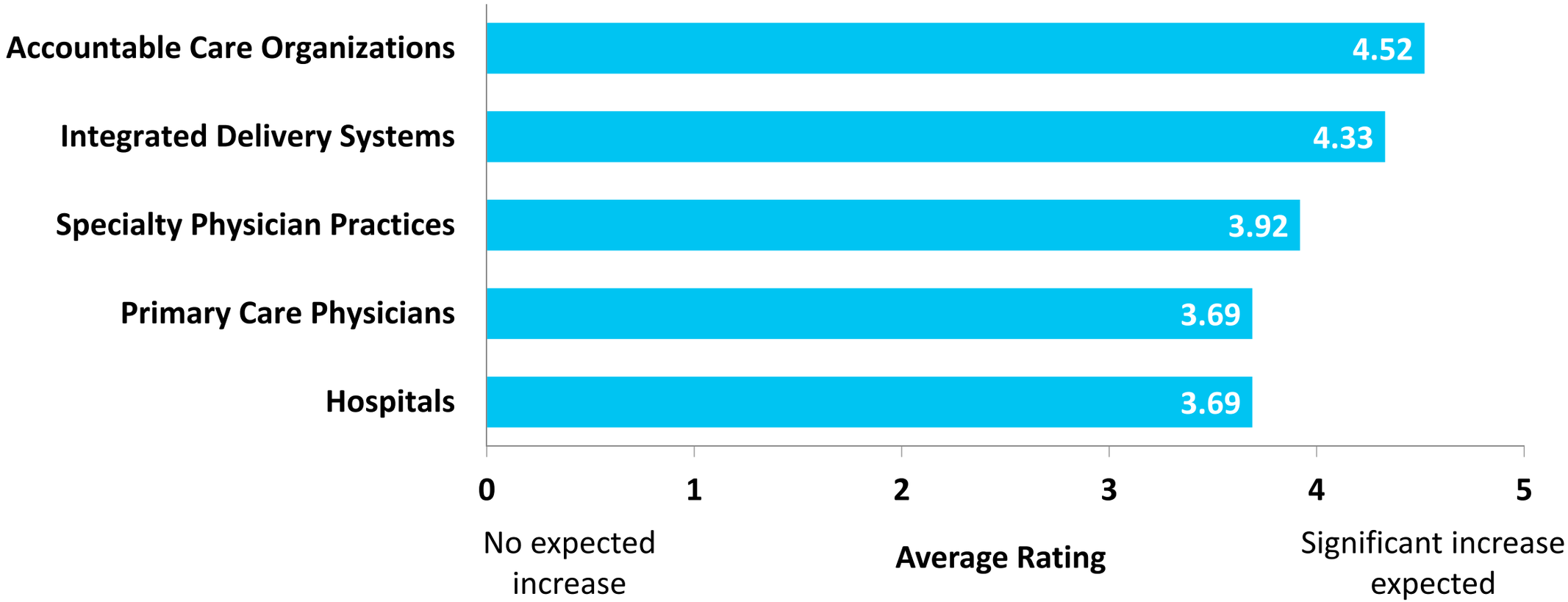
Follow Up

Current Use of Care Pathways in Managed Care

- Although widely used in other parts of the world, use of care pathways in the US is currently limited to managing the utilization of specialty drugs, particularly in oncology and disorders requiring prolonged treatment with specialty pharmaceuticals (eg, rheumatoid arthritis)
- Data on the impact of care pathways on costs, patient outcomes, and quality of care in US health care settings is currently limited
- With movement from fee-for-service to bundled payments in commercial health plans, care pathways are expected to have more influence on quality of care and patient outcomes in the future

Chawla A, Westrich K, Matter S, Kaltenboeck A, Dubois R. *Am J Manag Care.* 2016;22(1):53-62.

Use of Care Pathways Expected to Increase



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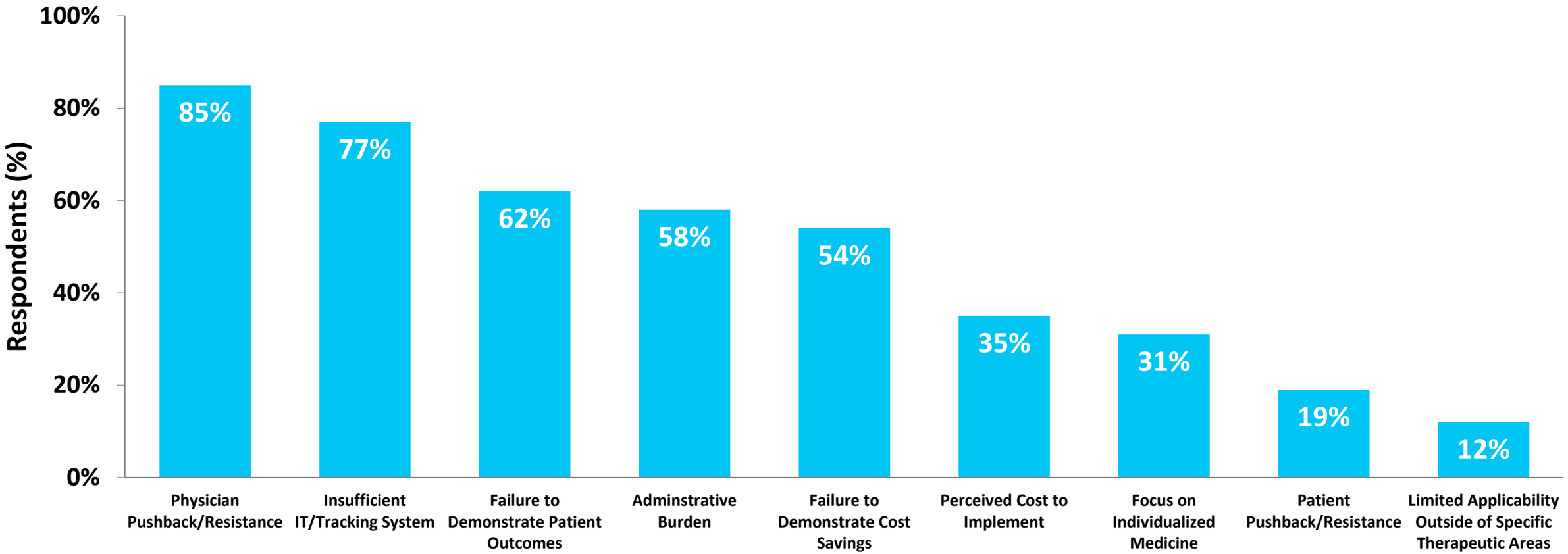
Barriers to Pathways Expansion



N=26 respondents to an online survey

Chawla A, Westrich K, Matter S, Kaltenboeck A, Dubois R. *Am J Manag Care.* 2016;22(1):53-62.

Summary

- Care pathways are proactive, multidisciplinary plans developed to manage patient care, improve quality, reduce variation, and increase efficient use of health care resources
- Use of care pathways in the US is currently limited to managing the utilization of specialty drugs, particularly in oncology
- Implementation of a care pathway for psoriatic disease may be a useful strategy to ensure patients receive a high-quality, evidence-based, cost-effective treatment regimen

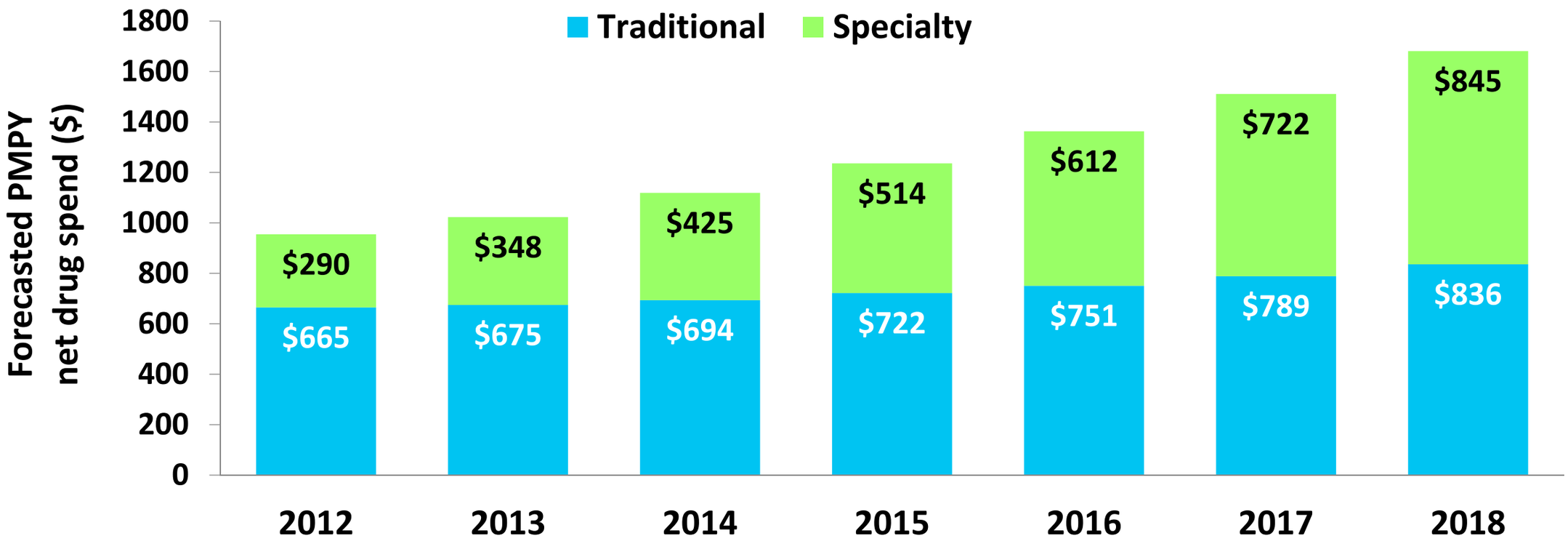
Improving Patient Outcomes with Specialty Pharmacy Services and Disease Management Strategies

Jeffrey D. Dunn, PharmD, MBA
Vice President
Clinical Strategy and Program and Industry Relations
Magellan Rx Management

Learning Objective

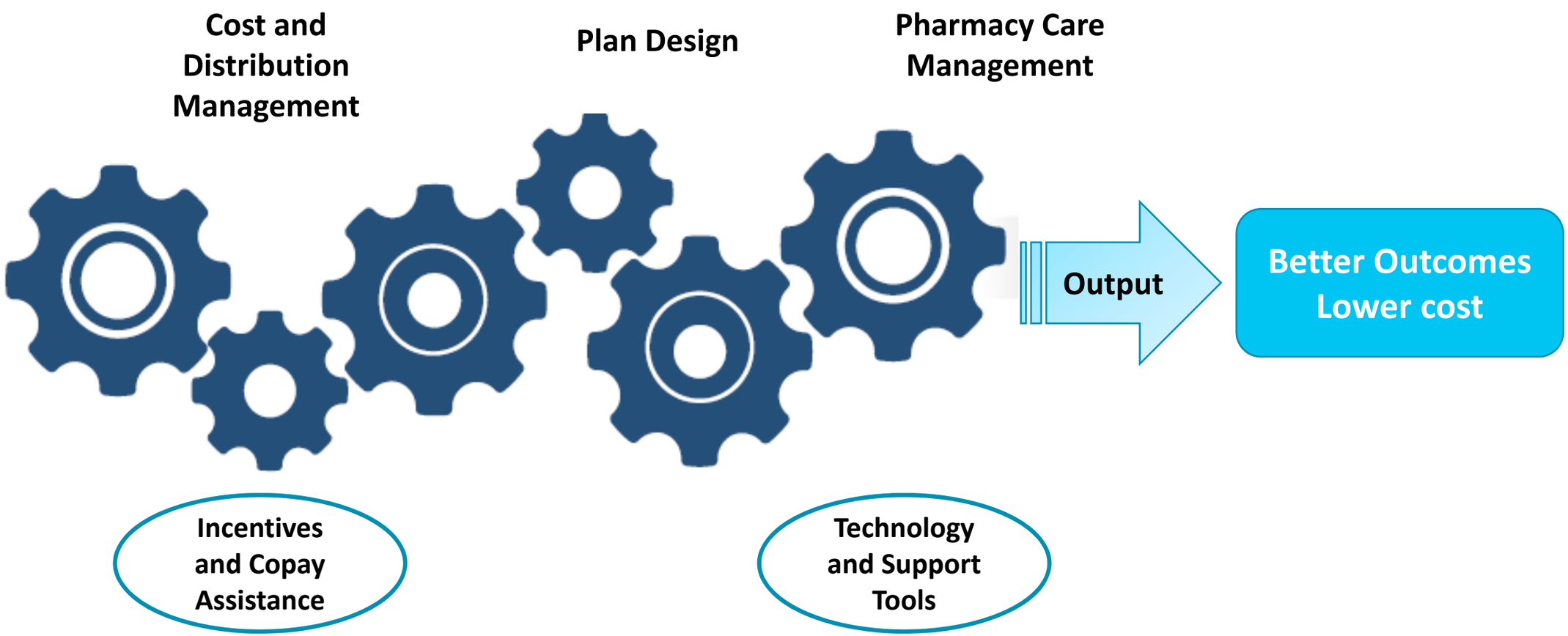
- Employ specialty pharmacy and disease management services for psoriatic disease patients

Pharmacy Spending on Specialty Drugs Expected to Increase as Coverage Shifts From the Medical Benefit



Specialty Drug Trend Across the Pharmacy and Medical Benefit. Artemetrx Web site. http://www.artemetrx.com/wp-content/uploads/2014/08/artemetrx-specialty-drug-trends.pdf. Accessed March 2018.

Costs Can Be Effectively Managed by Aligning Distribution, Plan Design, and Pharmacy Care Management



Basic Tenets of the Specialty Drug Benefit

Utilization Management	• Reduce costs by aggressively managing drug utilization
Preferred Drug Management	• Establish preferred products and formulary tiers • Use cost sharing to drive use of preferred products, but not limit adherence
Contract Management	• Aggressively negotiate rebates • Incent providers to utilize the most cost-effective drugs
Channel Management	• For pharmacy, optimize the distribution network • Optimize site of care
Care Management	• Provide counseling and education to patients and caregivers • Incent coordinated care

Starner CI, Alexander GC, Bowen K, Qiu Y, Wickersham PJ, Gleason PP. *Health Aff* (Millwood). 2014;33(10):1761-9.

Moving From Volume to Value

Emphasis on Value not Volume

- Value-based purchasing
- Shared savings plan
- Gain-sharing
- Bundled payments
- Capitation

Incentives to Drive Coordination of Care

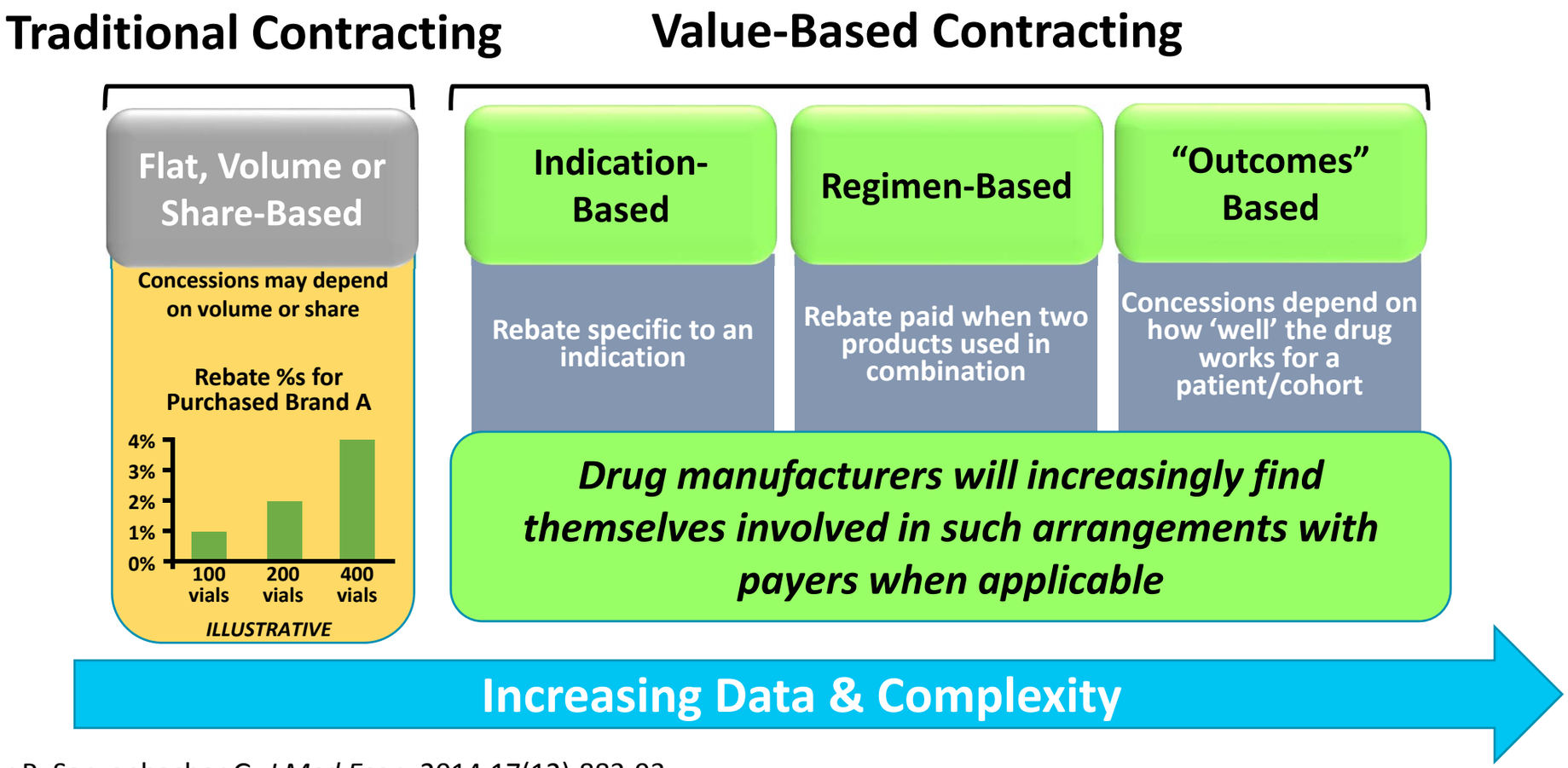
- CMS 5-Star Rating
- Pay-for-Performance

Structures Promoting Integration of Care

- Accountable Care Organizations
- Medical Homes
- Chronic Care Management
- Health Care Innovation Zones

Traditional vs. Potential Value-Based Contracting

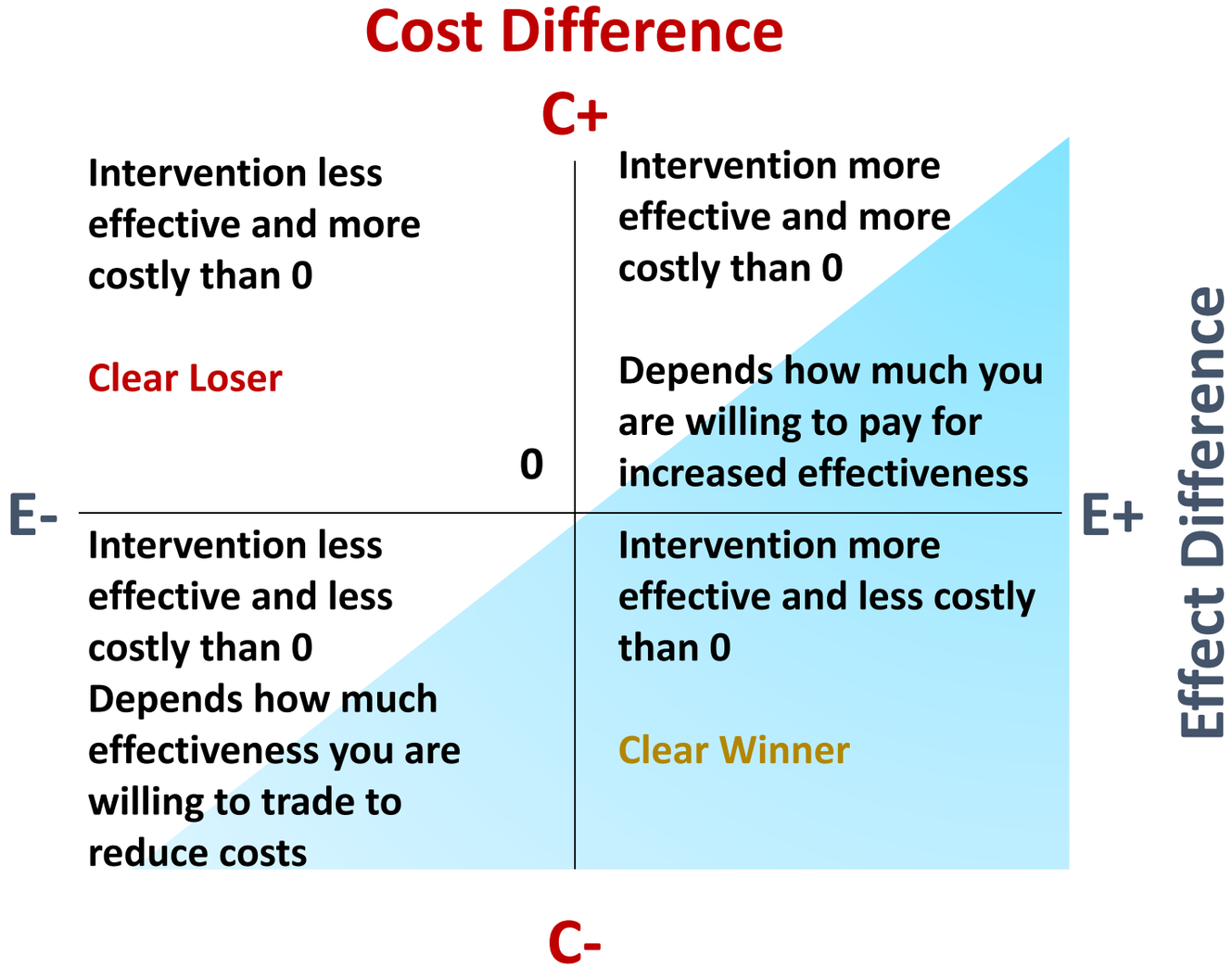
- 45% of private payers were involved in pay-for-performance and risk-sharing programs in 2010; the number rose to 62% in 2013, and usage of these programs was estimated to be as high as 75% in 2016



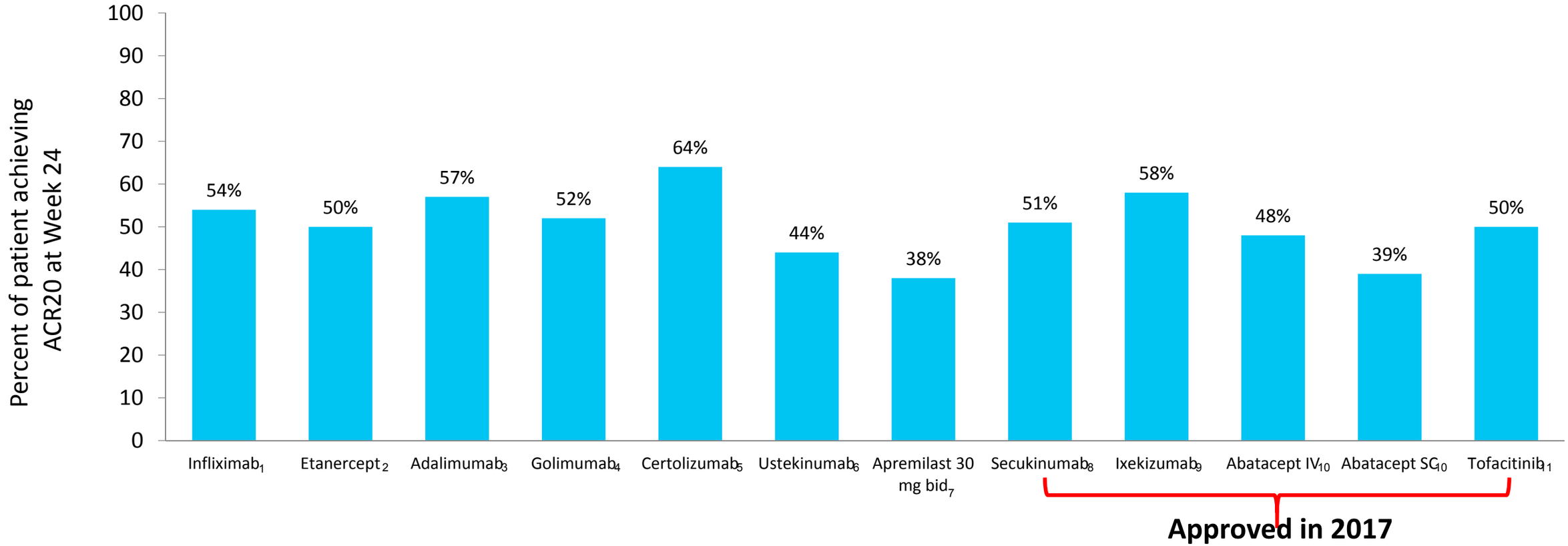
Long G, Mortimer R, Sanzenbacher G. *J Med Econ*. 2014;17(12):883-93.

Value = Cost Effectiveness

- Efficacy
- Price
- Cost per event avoided
- Cost per % improvement
- Helps compare agents
  - When there are no head-to-head trials



Biologic Therapies Approved for Psoriatic Arthritis: ACR20 at Week 24



1. Kavanaugh A, Antoni CE, Gladman D, et al. *Ann Rheum Dis*. 2006;65(8):1038-43. 2. Mease PJ, Kivitz AJ, Burch FX, et al. *Arthritis Rheum*. 2004;50(7):2264-72. 3. Mease PJ, Ory P, Sharp JT, et al. *Ann Rheum Dis*. 2009;68(5):702-9. 4. Kavanaugh A, Mcinnes IB, Mease PJ, et al. *Ann Rheum Dis*. 2013;72(11):1777-85. 5. Mease PJ, Fleischmann R, Deodhar AA, et al. *Ann Rheum Dis*. 2014;73(1):48-55. 6. Mcinnes IB, Kavanaugh A, Gottlieb AB, et al. *Lancet*. 2013;382(9894):780-9. 7. Kavanaugh A, Mease PJ, Gomez-reino JJ, et al. *Ann Rheum Dis*. 2014;73(6):1020-6. 8. Cosentyx (secukinamab) [package insert]. East Hanover, NJ: Novartis Pharmaceuticals Corporation; 2017. 9. Taltz (ixekizumab) [package insert]. Indianapolis, IN: Eli Lilly and Co.; 2018. 10. Orencia (abatacept) [package insert]. Princeton, NJ: Bristol-Myers Squibb; 2017. 11. Xeljanz (tofacitinib) [package insert]. New York, NY: Pfizer. 2017.

Trend is Toward a Multi-Tier Formulary

- Patient cost is dependent on the formulary tier
  - Tier 1: lowest cost
  - Tier 2: slightly higher cost
  - Tier 3: higher cost
  - Tier 4 (specialty drugs): highest cost
- Formulary positioning depends on the demonstrated value of the drug as assessed by the plan sponsor

Tier 1 Generic	Tier 2 Preferred	Tier 3 Non-preferred	Tier 4 Specialty
	$$	$$$	$$$$
Least expensive, including all generics and select brands	**Brand name drugs proven to be most effective** in their class	**Non-preferred brand names** not considered to be the most effective as well as **preferred specialty drugs**	The most expensive drugs; typically **non-preferred, branded specialty drugs**

2017 Aetna Pharmacy Drug Guide. Formulary Navigator Web site. https://fm.formularynavigator.com/MemberPages/pdf/2017AetnaCommercialFourTierOpenFullyInsuredFormulary_9824_Full_0.pdf. Accessed March 2018.

New Formulary Design Example

Pharmacy Benefit		
Tier	**Drug**	**Cost**
Preferred generic		$5
Non-preferred generic		$10
Preferred brand		$50
Non-preferred brand		$100
Preferred specialty		10%
Non-preferred specialty		20%

Medical Benefit		
Tier	**Drug**	**Cost**
Non-specialty		NA
Preferred specialty		10%
Non-preferred specialty		20%

Biosimilars: Where Do They Fit?

Considerations

- Rating/interchangeability
- Data extrapolation/indications
- Safety
- Manufacturing
- Cost

Formulary Limitations

- Tier 1: Generics
- Tier 2: Preferred brand
- Tier 3: Non-preferred brand
- Tier 4: Specialty drugs (often biologicals)
  - Biosimilars?

Cost Shifting: Factors to Consider

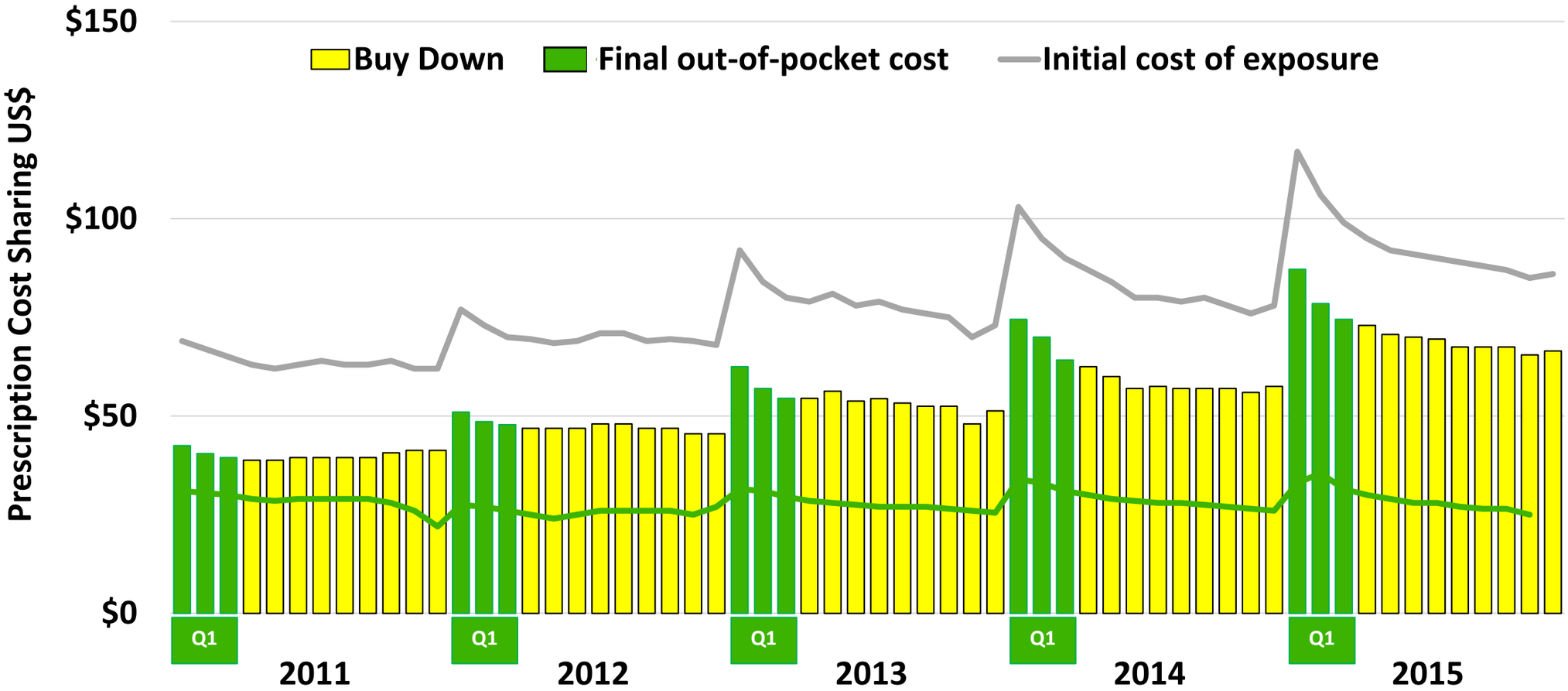
Member Decision Factors

- Cost
- Adherence
- Efficacy & tolerability

Benefit Design Factors

- Medical vs Pharmacy
- Copay vs coinsurance
- Specialty tiers

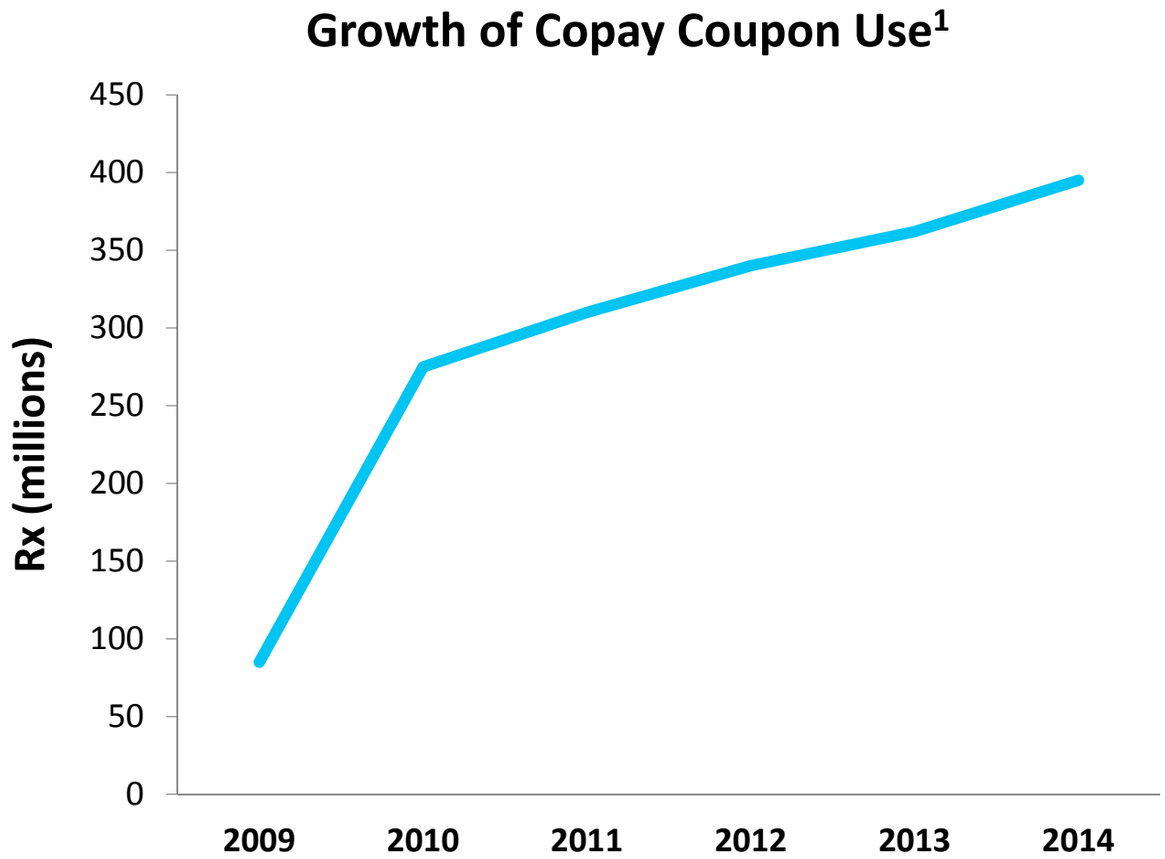
Manufacturers Are Using “Buy Downs” to Offset Increasing Patient Cost Exposure



Averages are calculated among paid claims where a co-pay card is used as the secondary payer and normalized to 30 days.

Medicines Use and Spending in the U.S. IMS Institute for Health Informatics. December 2015. MorningConsult.com Web site. https://morningconsult.com/wp-content/uploads/2016/04/IMS-Institute-US-Drug-Spending-2015.pdf. Accessed March 2018.

Copay Coupons Are Used to Reduce Patient Costs But May Potentially Circumvent Formulary Controls



- In 2015, the pharmaceutical industry spent upward of $7 billion to fund coupons[2]
- 75% of members prescribed a Tier 3 drug are using a copay coupon[3]
- Coupon use is expected to increase to 500 million prescriptions by 2021[4]

1. How Copay Coupons Could Raise Prescription Drug Costs By $32 Billion Over the Next Decade. Pharmaceutical Care Management Association Web site. https://www.pcmanet.org/wp-content/uploads/2016/08/visante-copay-coupon-study-nov-2011.pdf. Accessed March 2018. 2. Koons C, Langreth R. http://www.bloomberg.com/news/articles/2015-12-23/that-drug-coupon-isn-t-really-clipping-costs. Accessed March 2018. 3. Sandu A, Avey S. Copay Coupons for Specialty Drugs: Strategies for Health Plans and PBMs. Managed Markets Insight & Technology Web site. https://aishealth.com/sites/all/files/file_downloads/gc4p04_08-14.pdf. Accessed March 2018. 4. Cahn L. *Managed Care*. https://www.managedcaremag.com/archives/2012/5/how-combat-pharma's-costly-coupon-programs. Accessed March 2018.

Coupons May Be Beneficial for Certain Preferred Drugs

- For traditional drugs and non-preferred specialty drugs, coupons often lead to use of therapies with higher net costs
- Coupons may be beneficial for the subset of members who have high-deductible health plans or high coinsurance and who are prescribed certain preferred specialty drugs
  - Coupon programs that reduce monthly cost sharing to >$250 are associated with a lower risk for patient abandonment of biologic anti-inflammatory therapy
- However, as a way to drive greater savings for plan sponsors, two new specialty copay card programs have been introduced in 2017: accumulator adjustment and copay allowance maximization
  - These programs may have unintended consequences

Starner CI, Alexander GC, Bowen K, Qiu Y, Wickersham PJ, Gleason PP. *Health Aff* (Millwood). 2014;33(10):1761-9.

Real Savings Come From Providing Optimal Clinical Support and Care Management

Patient Case:
Interaction with the Specialty Pharmacy

- Marcus' prescription is sent to the specialty pharmacy to be filled
- Upon receiving the Rx, the specialty pharmacist reaches out to Marcus and provides him additional information about his new prescription including direction on how to:
  - Properly prepare, administer, and store the medication
  - Monitor for side effects
  - Navigate the refill process
- The specialty pharmacist also educates Marcus about how to best coordinate management of his skin and joint symptoms

Focus on Individualizing Care

Disease and Treatment Variables

- Disease severity
- Presence of comorbidities
- Treatment efficacy
- Treat-to-target
- Tolerability/drug interactions
- Adherence

Health Care Delivery Variables

- Patient education
- Provider-patient relationship
- Patient empowerment
- Medication therapy management
- Medication reminders
- Routine monitoring and adjustment of therapy
- Coordinated, multidisciplinary care

Specialty Pharmacy Can Help Streamline Access to Psoriatic Therapy Therapy

- Specialty pharmacists are well-positioned to support access including
  - Verification of benefits: initial claim review and test claim to assess eligibility (e.g., formulary, step therapy, and other payer requirements)
  - Prior authorization and appeals
  - Statement of Medical Necessity
  - Copay programs
  - Manufacturer Patient Assistance Program
  - Alternative coverage organizations
    - Grants
    - Foundations

Specialty Pharmacy is Also Well-Positioned to Support Care Management Activities

Safety Assessment

- Adverse events
- Allergies
- Drug interactions

Drug Dosing / Administration

- Preparation
- Administration technique
- Dosing frequency
- Handling, storage, disposal

Adherence

- Initial fill
- Refills
- Concurrent medications

Monitoring

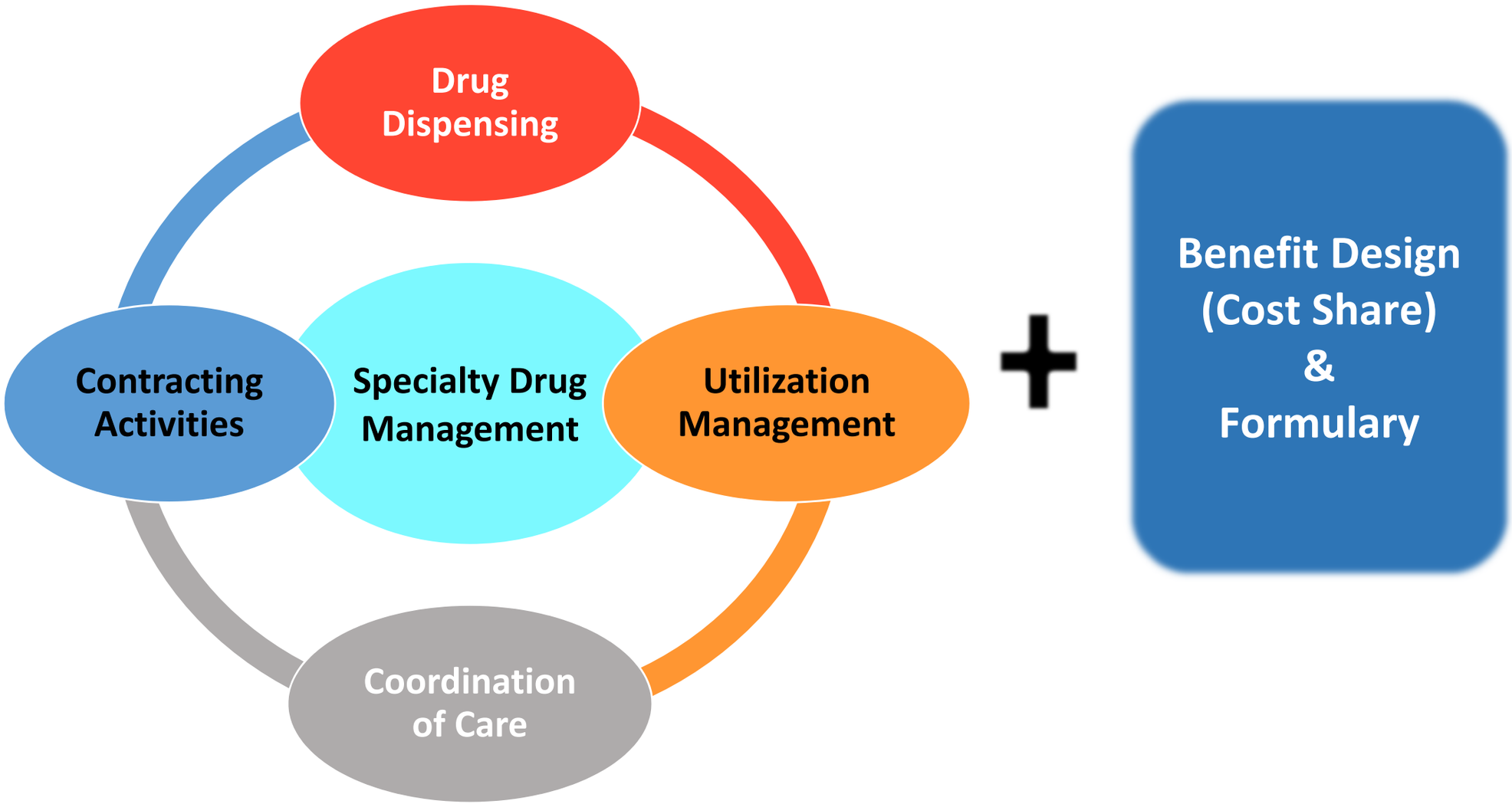
- Review progress toward goals
- Manage therapy interruptions
- Comorbidities

Patient Education

- Treatment expectations
- Storage requirements
- Access support

Hagerman J. Freed S. Rice G. *Pharmacy Today.* APhA Web site. http://www.pharmacist.com/specialty-pharmacy-unique-and-growing-industry. Accessed March 2018.

Successful AD Pharmacy Management Requires Finding the Appropriate Balance



Summary

- The number of novel agents approved to treat psoriatic disease continues to increase
- While the increasing number of treatment options benefits patients, providers, and payers, these same stakeholders are challenged by the acquisition cost of these therapies
- New plan designs and care models that emphasize value over volume of care are being implemented to ensure patients continue to have access to these innovative psoriatic disease therapies
- Specialty Pharmacists are well-positioned to provide support to patients with psoriatic disease throughout their care journey

Meeting the Challenge of Psoriatic Disease:

Optimal Care and Cost Management Strategies for Managed Care

Jointly provided by

Impact Education LLC

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This activity is supported by independent educational grants from Novartis Pharmaceutical Corporation and Celgene Corporation.

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Held in conjunction with AMCP Managed Care & Specialty Pharmacy Annual Meeting 2018