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# ADA BURCH

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Pharma and Healthcare Writing Samples

Enjoy!





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# UCB - EULAR

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A presentation for the clinical data, research abstracts, and product announcements presented by UCB at the European League Against Rheumatism (EULAR) 2013 Congress, which took place in June 2013 in Madrid, Spain and distribute to all interested parties.







# EULAR 2013

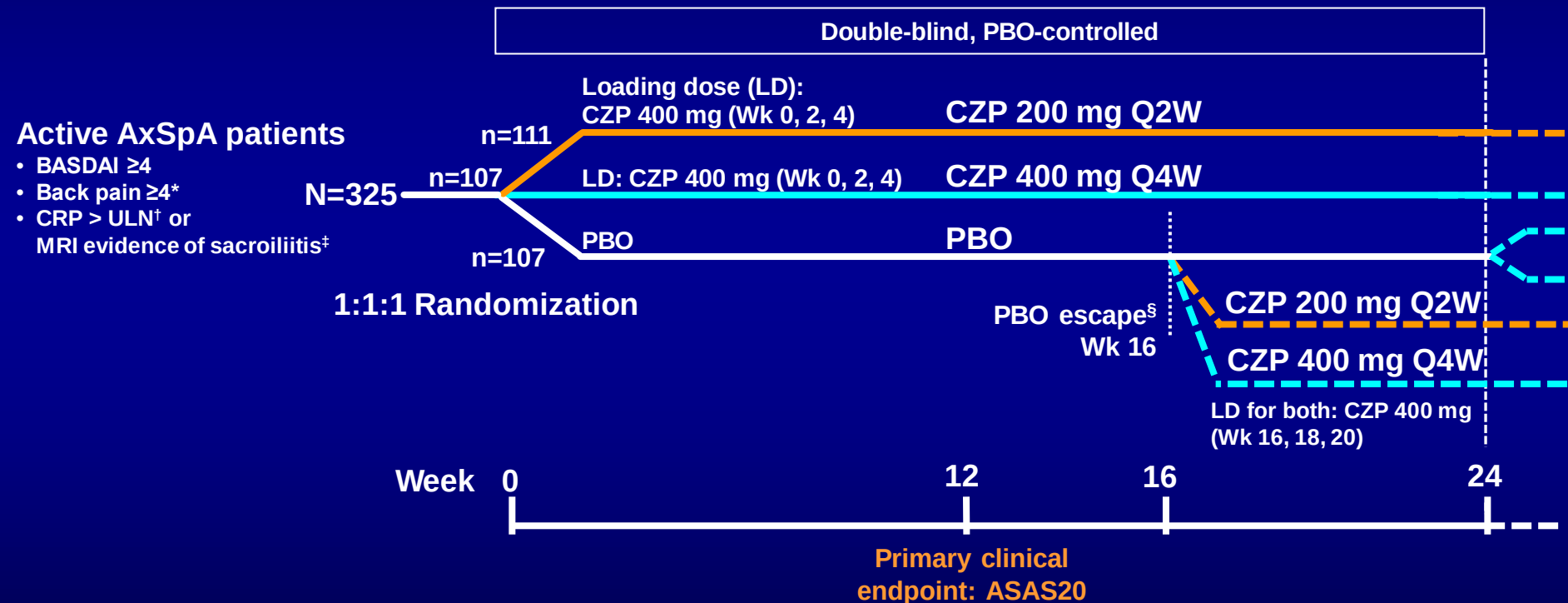


# CZP in AxSpA



# Effects of certolizumab pegol (CZP) on the signs and symptoms of AxSpA at week 24 (RAPID-AxSpA)

- RAPID-AxSpA: Ongoing 204-week trial in adult patients with active AxSpA according to ASAS criteria, including AS (mNY positive) and nr-AxSpA (mNY negative) populations
  - Double-blind and placebo (PBO)-controlled through week 24, dose-blind through week 48, with an open-label extension (OLE) through week 158



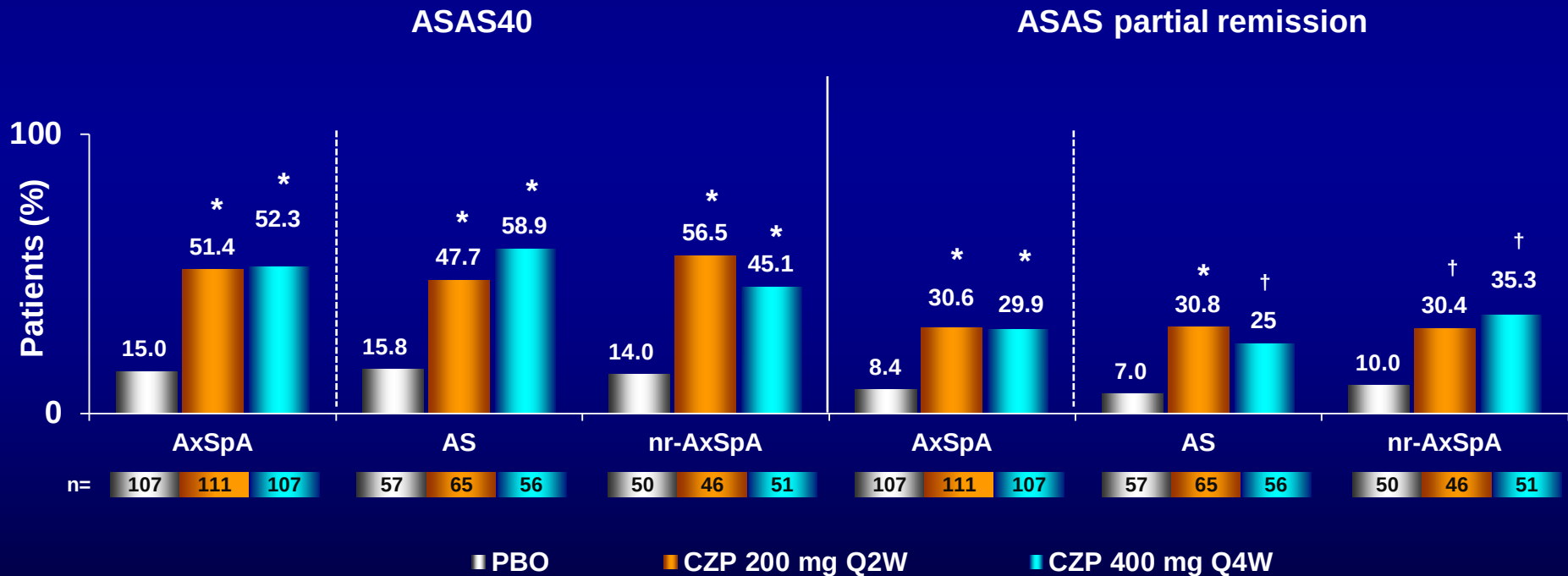
AS, ankylosing spondylitis; ASAS, Assessment of SpondyloArthritis; AxSpA, axial spondyloarthritis; mNY, modified New York; nr-AxSpA, nonradiographic axial spondyloarthritis  
 $^*$  0 to 10 numeric rating scale (NRS; from BASDAI item 2);  $^\dagger$  ULN, upper limit of normal, ULN=7.9 mg/L;  $^\ddagger$  Within the last 3 months from screening, as defined by ASAS criteria;  $^\S$  Patients who failed to achieve an ASAS20 response at both week 14 and week 16 were randomized at week 16 to receive CZP 200 mg Q2W or CZP 400 mg Q4W following loading dose

Landewé et al. *Arthritis Rheum.* 2012;64:S336  
 van der Heijde et al. *Arthritis Rheum.* 2012;64:S730

# Effects of certolizumab pegol (CZP) on the signs and symptoms of AxSpA at week 24 (RAPID-AxSpA)

- **Primary endpoint:** A week 12 ASAS20 response was achieved in significantly more patients receiving CZP 200 mg Q2W and CZP 400 mg Q4W compared with patients receiving placebo (PBO) (57.7% and 63.6% vs 38.3%, respectively;  $P \leq 0.004$ )
  - Significant improvements in ASAS20 were observed as early as week 1 (40.5% and 34.6% in the CZP 200 mg and 400 mg arms, respectively, vs 14.0% in the PBO arm;  $P < 0.001$ ) and were maintained at week 24

## Week 24 response and remission rates (NRI)



AS, ankylosing spondylitis; ASAS, Assessment of SpondyloArthritis; AxSpA, axial spondyloarthritis; nr-AxSpA, nonradiographic axial spondyloarthritis

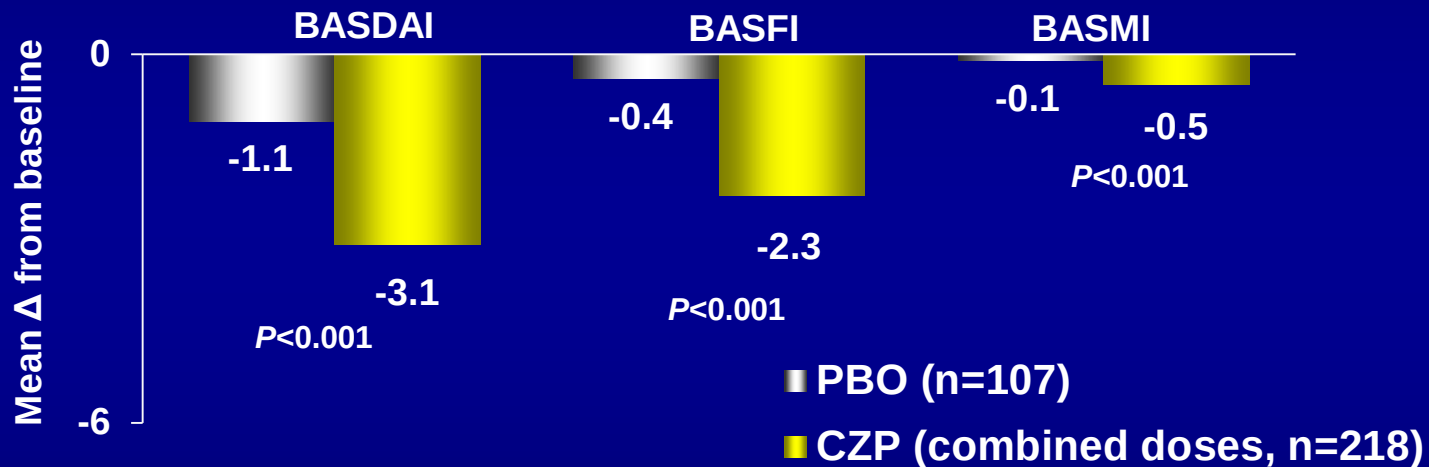
\*  $P \leq 0.001$ ; †  $P < 0.05$



# Effects of certolizumab pegol (CZP) on the signs and symptoms of AxSpA at week 24 (RAPID-AxSpA)

- AxSpA patients (pts)\* showed statistically significant improvements in key secondary endpoints when treated with CZP,<sup>†</sup> compared with pts who received placebo (PBO)
  - Similar improvements were reported with CZP vs PBO in both AS (mNY positive) and nr-AxSpA (mNY negative) subpopulations

## Week 24 change from baseline in AxSpA pts (LOCF)



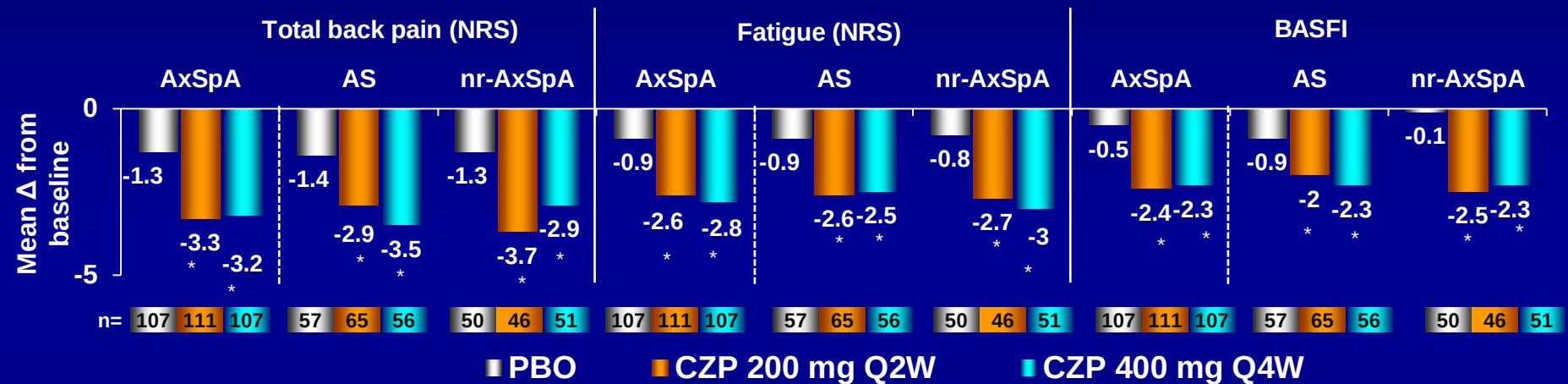
- Adverse events (AEs) occurred in 70.4% vs 62.6%, serious AEs in 4.7% vs 4.7%, and serious infections in 1.1% vs 0% of CZP (combined dose) pts vs PBO pts
  - No deaths or malignancies were reported
- Authors' conclusion:** Both CZP doses rapidly improved symptoms of AxSpA, with similar improvements observed in AS and nr-AxSpA subpopulations, and with no new observed safety signals

AS, ankylosing spondylitis; AxSpA, axial spondyloarthritis; BASDAI, Bath Ankylosing Spondylitis Disease Activity Index; BASFI, Bath Ankylosing Spondylitis Functional Index; BASMI, Bath Ankylosing Spondylitis Metrology Index; mNY, modified New York; nr-AxSpA, nonradiographic axial spondyloarthritis; \* By ASAS criteria; <sup>†</sup> CZP 200 mg Q2W or CZP 400 mg Q4W following loading dose

# Effects of certolizumab pegol (CZP) on patient-reported outcomes in AxSpA (RAPID-AxSpA)

- Patient-reported outcomes (PROs) from patients enrolled in the ongoing placebo (PBO)-controlled RAPID-AxSpA trial and open-label extension were evaluated following 24 weeks of CZP treatment

Mean change from baseline in PROs at week 24 in AxSpA patients (LOCF)



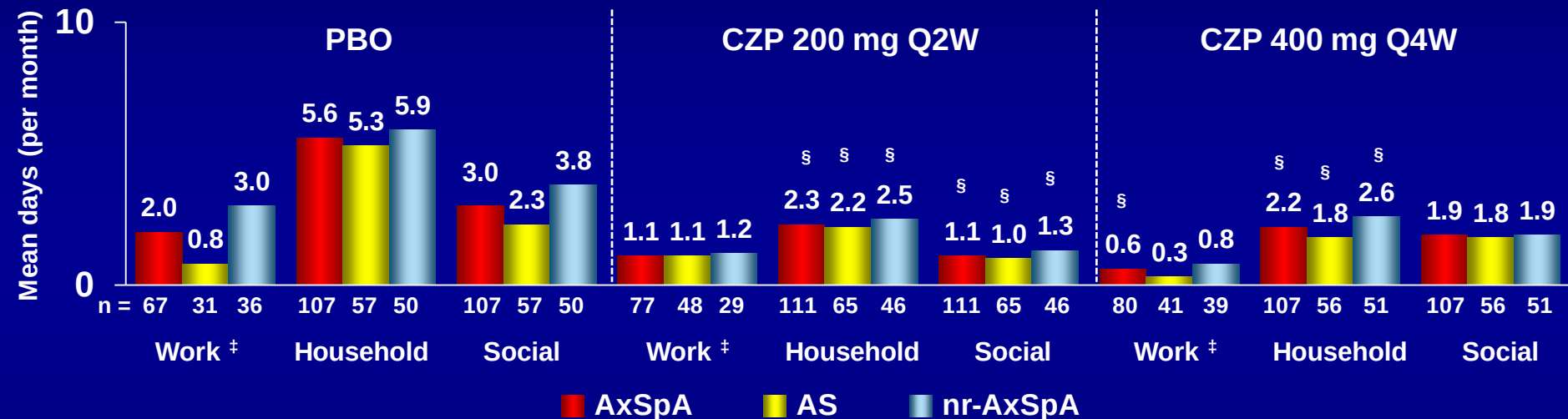
- Patients treated with CZP also had significant improvements in MOS-SPI, SF-36 PCS and MCS components, and AsQoL compared with patients receiving PBO
  - Similar improvements in PROs were observed in both AS and nr-AxSpA subpopulations
  - Relative to PBO patients, CZP-treated nr-AxSpA patients demonstrated a greater improvement in BASFI and sleep compared to AS patients, and were more likely to reach population norms for SF-36
- **Authors' conclusions:** Both CZP dosing schedules rapidly improved all PROs, including pain, fatigue, physical function, and HRQoL of AxSpA, in both AS and nr-AxSpA patients

AsQoL, ankylosing spondylitis quality of life; BASFI, Bath Ankylosing Spondylitis Functional Index; LOCF, last observation carried forward; MCS, Mental Component Summary; MOS-SPI, Medical Outcome Study Sleep Problem Index; NRS, numeric rating scale; PCS, Physical Component Summary; SF-36, 36-Item Short-Form Health Survey; \* $P < 0.05$  vs PBO

# Effects of certolizumab pegol (CZP) on productivity in AxSpA patients (RAPID-AxSpA)

- Patients enrolled in the ongoing, placebo-controlled RAPID-AxSpA trial\* and open-label extension were evaluated for work and home productivity<sup>†</sup> following 24 weeks of treatment with CZP

## Social participation days missed at week 24 (LOCF)



## Authors' conclusions

- In the overall AxSpA population, CZP improved workplace productivity in employed patients by reducing absenteeism, presenteeism, and AxSpA interference with work
- CZP also improved household productivity and increased participation in social and daily activities
- Similar improvements were observed in AS and nr-AxSpA populations

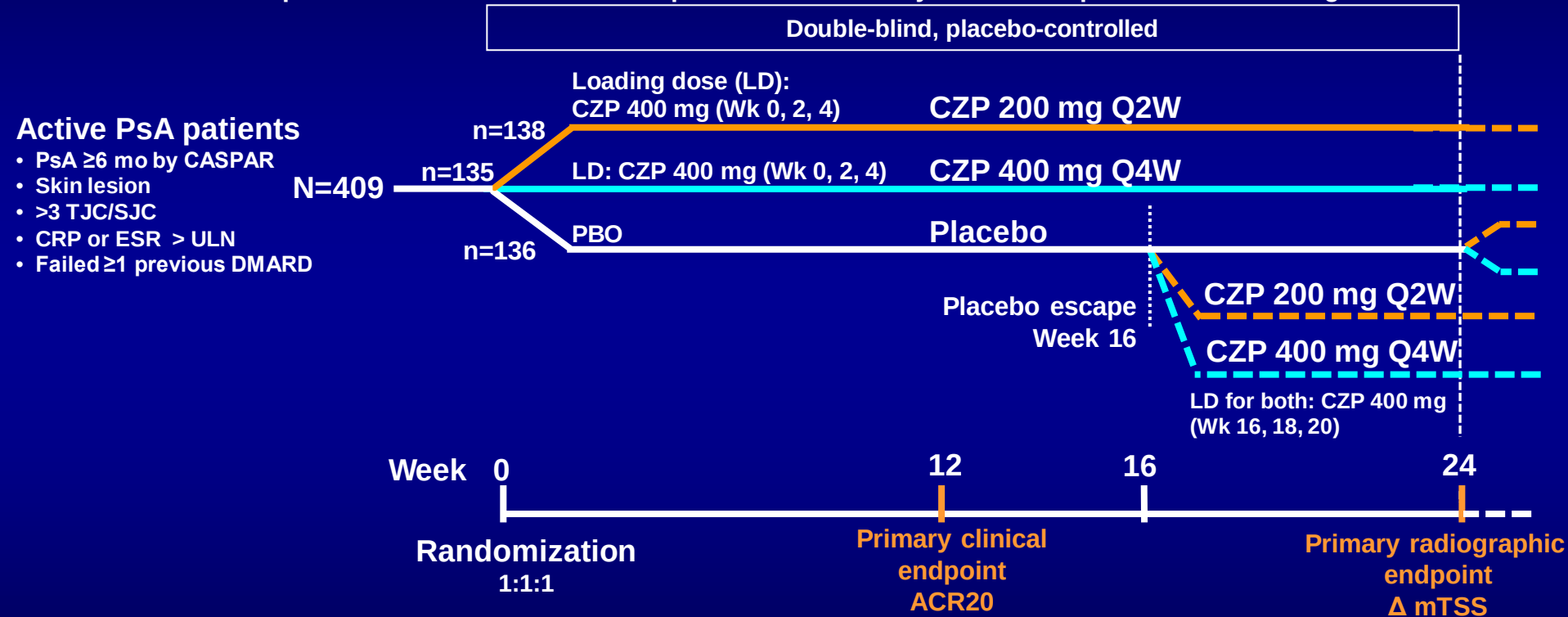
AS, ankylosing spondylitis; AxSpA, axial spondyloarthritis; LOCF, last observation carried forward; nr-AxSpA, nonradiographic axial spondyloarthritis  
 \* Included mNY positive (AS) and ASAS positive/mNY negative (nr-AxSpA) patients with objective signs of active disease (BASDAI ≥ 4, Back Pain NRS ≥ 4, CRP > ULN or MRI evidence of sacroiliitis); <sup>†</sup> Arthritis-specific Work Productivity Survey (WPS) was administered Q4W; <sup>‡</sup> Employed subjects only;  
<sup>§</sup> P ≤ 0.05 vs PBO

# CZP in PsA



# Effects of certolizumab pegol (CZP) on the signs and symptoms of PsA at Week 24 (RAPID-PsA)

- **RAPID-PsA: Ongoing 158-week trial in adult patients with active PsA**
  - Double-blind and PBO-controlled through week 24, dose-blind through week 48, with an open-label extension (OLE) through week 158
  - Enrolled patients included those who experienced secondary failure to 1 previous anti-TNF agent



- **Authors' conclusion:** Both CZP doses improved symptoms of PsA compared with placebo, with no new observed safety signals

CASPAR, Classification Criteria for Psoriatic Arthritis; DMARD, disease-modifying antirheumatic drug; mTSS, modified total Sharp score; PsA, psoriatic arthritis; SJC, swollen joint count; TJC, tender joint count

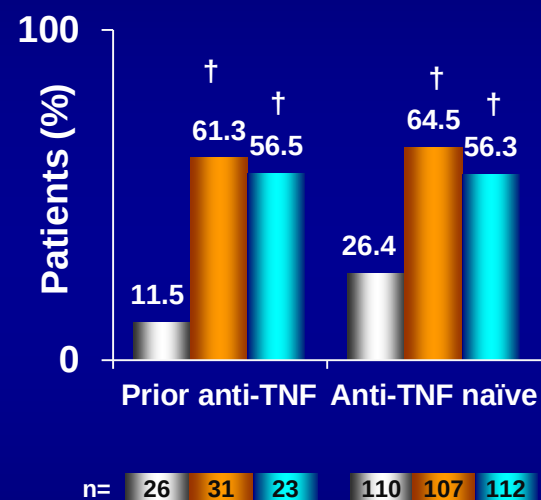
Mease et al. *Arthritis Rheum.* 2012;64:S1107  
 Gladman et al. *Arthritis Rheum.* 2012;64:S242  
 van der Heijde et al. *EULAR* 2013; SAT0281



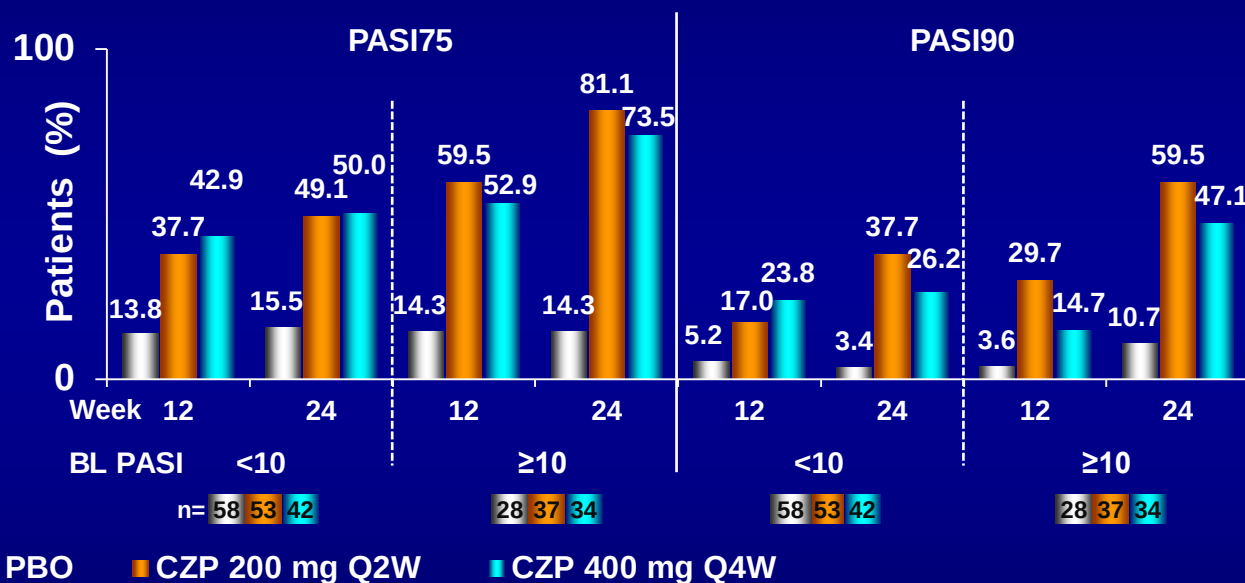
# Impact of prior anti-TNF therapy and skin lesions on the effectiveness of treating PsA patients with CZP (RAPID-PsA)

- The efficacy and safety of certolizumab pegol (CZP) was assessed in adult patients with active psoriatic arthritis (PsA) in RAPID-PsA
  - Through week 24, patients (N=409) were randomized to either placebo (PBO) or 1 of 2 CZP doses\*

Week 24 ACR20 response by prior anti-TNF use (NRI)



Post hoc analyses of PASI response by baseline (BL) PASI score (NRI)†



- Serious adverse events occurred in 7% of combined CZP-treated patients vs 4% in PBO
- Authors' conclusion:** Both CZP doses rapidly improved symptoms of PsA compared with placebo, with no new observed safety signals
  - Patients with higher BL PASI were more likely to achieve a PASI75 and a PASI90 response
  - Similar ACR response rates with CZP were observed in pts with and without prior anti-TNF exposure

\*CZP 400 mg at wk 0, 2, and 4 (loading dose) followed by either CZP 200 mg Q2W or CZP 400 mg Q4W SC

† P<0.001 vs PBO

\*Statistics not reported for the post hoc analyses



# Effects of certolizumab pegol (CZP) on patient-reported outcomes in active PsA (RAPID-PsA)

- Patient-reported outcomes (PROs) were assessed in adult patients with active psoriatic arthritis (PsA) in the ongoing RAPID-PsA study
  - Through week 24, patients (N=409) were randomized to either placebo (PBO) or 1 of 2 CZP doses\*

Baseline (BL) and mean change from baseline (CFB) in PROs at week 24 in PsA patients (LOCF)

| PRO         | PBO<br>(n=136) |           | CZP<br>200 mg Q2W<br>(n=138) |                    | CZP<br>400 mg Q4W<br>(n=135) |                    |
|-------------|----------------|-----------|------------------------------|--------------------|------------------------------|--------------------|
|             | BL             | Wk 24 CFB | BL                           | Wk 24 CFB          | BL                           | Wk 24 CFB          |
| FAS         | 5.8            | -0.6      | 6.3                          | -2.2 <sup>†</sup>  | 6.2                          | -1.9 <sup>†</sup>  |
| Pain (VAS)  | 60.0           | -11.2     | 59.7                         | -28.6 <sup>†</sup> | 61.1                         | -28.4 <sup>†</sup> |
| HAQ DI      | 1.30           | -0.17     | 1.33                         | -0.52 <sup>†</sup> | 1.29                         | -0.43 <sup>†</sup> |
| SF-36 (PCS) | 33.8           | +2.14     | 33.1                         | +8.43 <sup>†</sup> | 33.2                         | +7.58 <sup>†</sup> |
| SF-36 (MCS) | 42.4           | +0.73     | 40.7                         | +5.49 <sup>†</sup> | 41.9                         | +3.49 <sup>†</sup> |
| PsAQoL      | 10.9           | -1.27     | 11.1                         | -4.43 <sup>†</sup> | 11.3                         | -3.30 <sup>†</sup> |
| DLQI        | 7.9            | -1.4      | 9.2                          | -6.3 <sup>†</sup>  | 8.5                          | -5.2 <sup>†</sup>  |

- In post hoc analyses, similar levels of PRO improvement were observed in patients with and without prior anti-TNF exposure
- **Authors' conclusions:** Both CZP dosing schedules improved multiple PROs in patients with PsA, relative to patients receiving PBO

DLQI, Dermatology Life Quality Index; FAS, Fatigue Assessment Scale; MCS, Mental Component Summary; PCS, Physical Component Summary; PsAQoL, PsA quality of life; SF-36, 36-Item Short-Form Health Survey; VAS, visual analog scale

\* CZP 400 mg at wk 0, 2, and 4 (loading dose) followed by either CZP 200 mg Q2W or CZP 400 mg Q4W SC

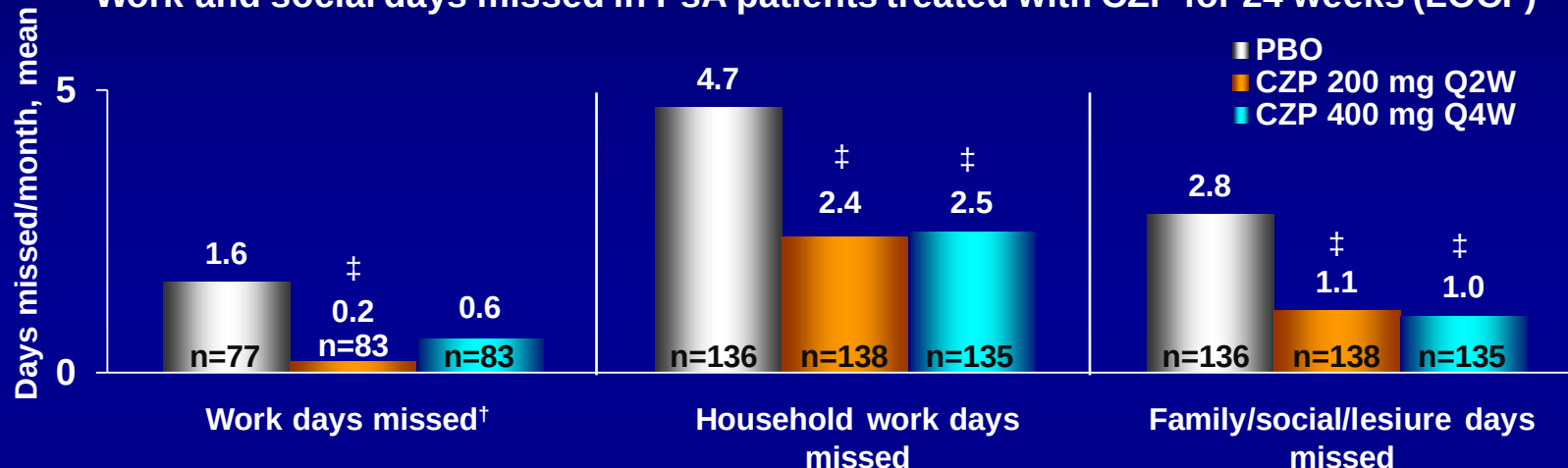
<sup>†</sup> P<0.05 vs PBO



# Effects of certolizumab pegol (CZP) on social participation in PsA patients (RAPID-PsA)

- Changes in home/work productivity in response to treatment with CZP was evaluated in adult patients with active psoriatic arthritis (PsA) in the ongoing RAPID-PsA study
  - Through week 24, patients (N=409) were randomized to either placebo (PBO) or 1 of 2 CZP doses\*

Work and social days missed in PsA patients treated with CZP for 24 weeks (LOCF)



- Patients receiving CZP also had a reduced number days/month in which productivity at work or in the home was reduced by 50% due to arthritis symptoms, compared with patients receiving PBO

## Authors' conclusions

- CZP significantly improved workplace productivity in employed patients with PsA by reducing absenteeism and presenteeism, compared with patients receiving PBO
- PsA patients receiving CZP also experienced improved household productivity and increased participation in social and leisure activities relative to PBO

LOCF, last observation carried forward

Arthritis-specific Work Productivity Survey (WPS) was administered Q4W

\* CZP 400 mg at wk 0, 2, and 4 (loading dose) followed by either CZP 200 mg Q2W or

CZP 400 mg Q4W SC; <sup>†</sup> Employed subjects only; <sup>‡</sup>  $P \leq 0.05$  vs PBO

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For unsolicited request only.

# Impact of imputation methodology on reported radiographic progression outcomes in PsA patients (RAPID-PsA)

- Radiographic progression was evaluated in patients with active psoriatic arthritis (PsA) enrolled in the 24-week, placebo (PBO)-controlled portion of the ongoing RAPID-PsA study
  - Patients (N=409) were randomized to either placebo (PBO) or 1 of 2 certolizumab pegol (CZP) doses\*

| Imputation in pts with <2 X-rays available | LS mean mTSS CFB at Wk 24 (SE) |                          |                        |                          | % of Non-progressors at Wk 24 |                        |                        |                      |
|--------------------------------------------|--------------------------------|--------------------------|------------------------|--------------------------|-------------------------------|------------------------|------------------------|----------------------|
|                                            | PBO (n=136)                    | CZP 200 mg Q2W (n=138)   | CZP 400 mg Q4W (n=135) | CZP combined (n=273)     | PBO (n=136)                   | CZP 200 mg Q2W (n=138) | CZP 400 mg Q4W (n=135) | CZP combined (n=273) |
| Prespecified imputation methodology        | 28.92 (7.73)                   | 11.52 (7.59)             | 25.05 (7.92)           | 18.28 (6.07)             | 80.1                          | 93.5 <sup>†</sup>      | 90.4 <sup>†</sup>      | 91.9 <sup>†</sup>    |
| No imputation                              | 0.29 (0.08)                    | 0.01 (0.08) <sup>†</sup> | 0.12 (0.08)            | 0.06 (0.06) <sup>†</sup> | 86.6                          | 96.2 <sup>†</sup>      | 96.7 <sup>†</sup>      | 96.5 <sup>†</sup>    |
| Median mTSS CFB of all pts observed        | 0.28 (0.07)                    | 0.01 (0.07) <sup>†</sup> | 0.11 (0.08)            | 0.06 (0.06) <sup>†</sup> | 87.5                          | 96.4 <sup>†</sup>      | 97.0 <sup>†</sup>      | 96.7 <sup>†</sup>    |
| Mean mTSS CFB of all pts observed          | 0.28 (0.07)                    | 0.01 (0.07) <sup>†</sup> | 0.11 (0.08)            | 0.06 (0.06) <sup>†</sup> | 87.5                          | 96.4 <sup>†</sup>      | 97.0 <sup>†</sup>      | 96.7 <sup>†</sup>    |
| Maximum mTSS CFB of all pts observed       | 0.66 (0.13)                    | 0.18 (0.13) <sup>†</sup> | 0.52 (0.13)            | 0.35 (0.10) <sup>†</sup> | 79.4                          | 92.8 <sup>†</sup>      | 88.1                   | 90.5 <sup>†</sup>    |
| Maximum mTSS CFB by treatment group        | 0.39 (0.11)                    | 0.14 (0.11)              | 0.49 (0.12)            | 0.31 (0.09)              | 79.4                          | 92.8 <sup>†</sup>      | 88.1                   | 90.5 <sup>†</sup>    |

- The prespecified imputation analysis overestimated radiographic progression in all arms
- Conventional post hoc analyses suggested that CZP inhibited radiographic progression compared to PBO
  - Patients with mTSS ≤6 (median score) or CRP ≤15 mg/L at BL showed little radiographic progression in both the CZP and PBO groups
  - Higher BL mTSS and elevated CRP were also associated with a higher rate of non-progression in CZP vs PBO groups
- Authors' conclusions:** Conventional imputation methods showed that CZP inhibited radiographic progression in PsA patients, particularly in those with a higher risk of progression

mTSS, modified total Sharp score

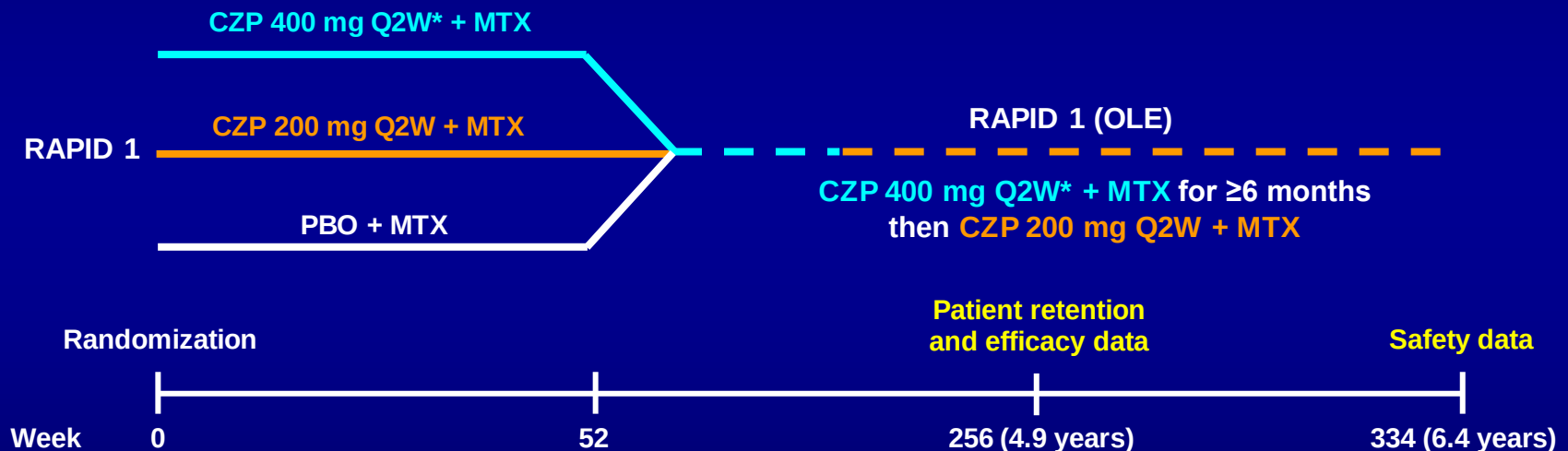
\* CZP 400 mg at wk 0, 2, and 4 (loading dose) followed by either CZP 200 mg Q2W or CZP 400 mg Q4W SC;

<sup>†</sup>P<0.05 vs PBO



# Safety and efficacy of certolizumab pegol (CZP) + MTX after 5 years of treatment in RA patients (RAPID-OLE)

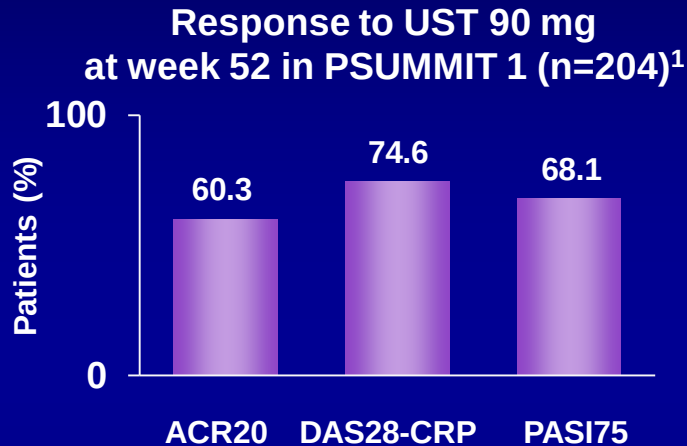
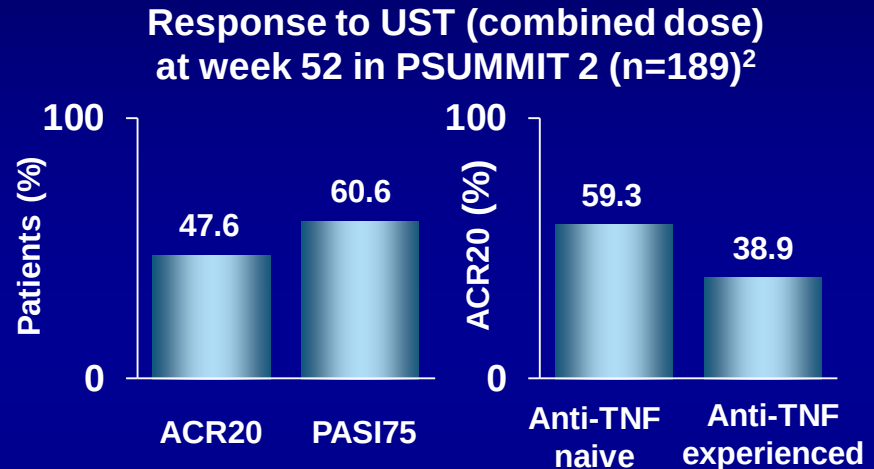
- Eligible RA patients were enrolled in the open-label extension (OLE) to the RAPID 1 study to assess the safety and efficacy of CZP plus MTX over 5 years in RA
- In this OLE to the RAPID 1 study, patients were initially treated with MTX plus CZP 400 mg Q2W,\* with the CZP dose decreased to 200 mg Q2W after  $\geq 6$  months



\* CZP 400 mg every 2 weeks is not an approved maintenance dose. For maintenance, the approved dose of CZP is 200 mg every other week, or alternatively, 400 mg every 4 weeks may be considered

# Efficacy of ustekinumab after 1 year of treatment in patients with active PsA (PSUMMIT 1/2)

- The long-term safety and efficacy of ustekinumab (UST, anti-IL-12/23) was assessed in the 52-week extensions of two phase 3 studies: PSUMMIT 1<sup>1</sup> and 2<sup>2</sup>



- UST was generally well tolerated, with no deaths or tuberculosis and similar rates of adverse events reported across doses in both studies

## Authors' conclusions

- Both UST doses yielded improvements in PsA signs/symptoms with favorable and comparable safety profiles
- UST was effective in both anti-TNF-naïve and anti-TNF-experienced patients, with greater efficacy in anti-TNF-naïve patients

ACR20, 20% improvement in American College of Rheumatology criteria; DAS28; Disease Activity Score including 28-joint count; PASI75, 75% reduction in Psoriasis Area and Severity Index

Adult patients were randomized to receive UST 45 mg or 90 mg at wk 0, wk 4, and Q12W

1. Kavanaugh et al. EULAR 2013; Poster SAT0271

2. Ritchlin et al. EULAR 2013; Oral OP0001



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# MCKESSON COVERMYMEDS

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Presentation for Mckesson's CoverMyMeds enhancements for automation and streamlining the prior authorization (ePA) process and prescription affordability programs for medications.





# Prior Authorization

Foundational Module

**2024**  
JANUARY

# Prior Authorization Overview

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Electronic Hub  
enrollment form



Configurable patient  
support services



Improved prior  
authorization (PA)  
status visibility



Patient level data  
insights for patients  
with HIPAA  
authorization



Human expertise and  
intervention of  
traditional Hubs

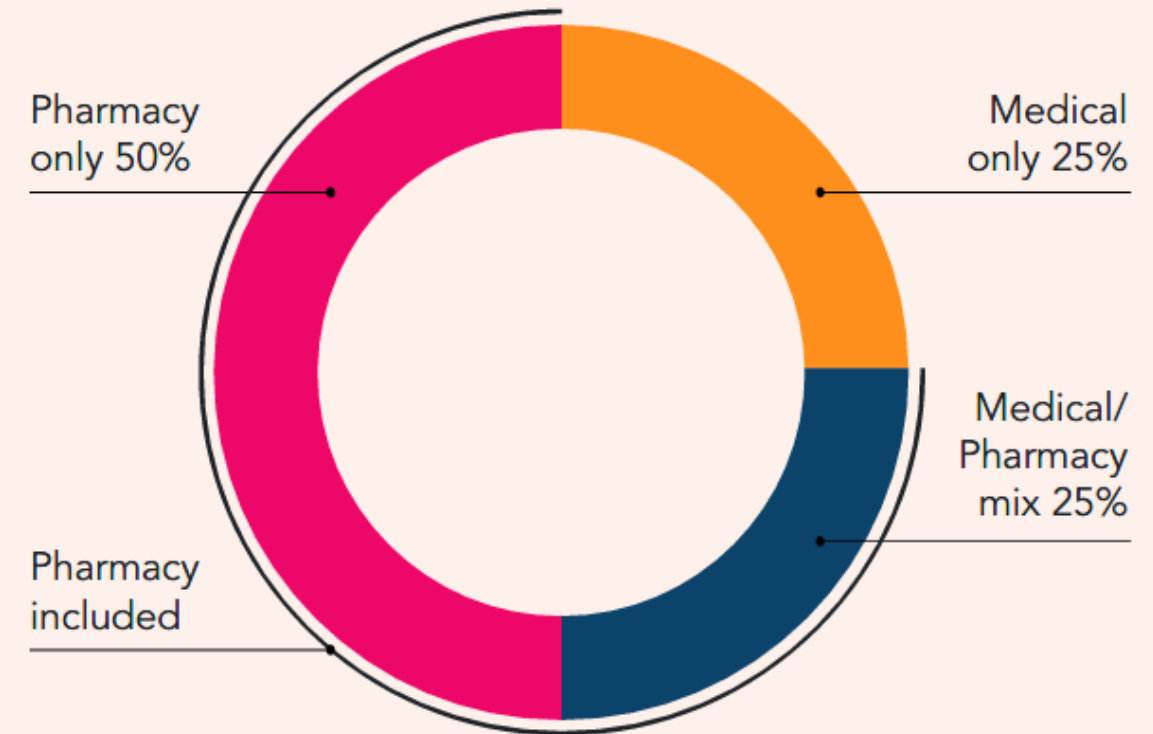


## Important Information

Standard AMP Hub Services are inclusive of PriorAuthPlus (PA+) and HubExpress service solution functionality.

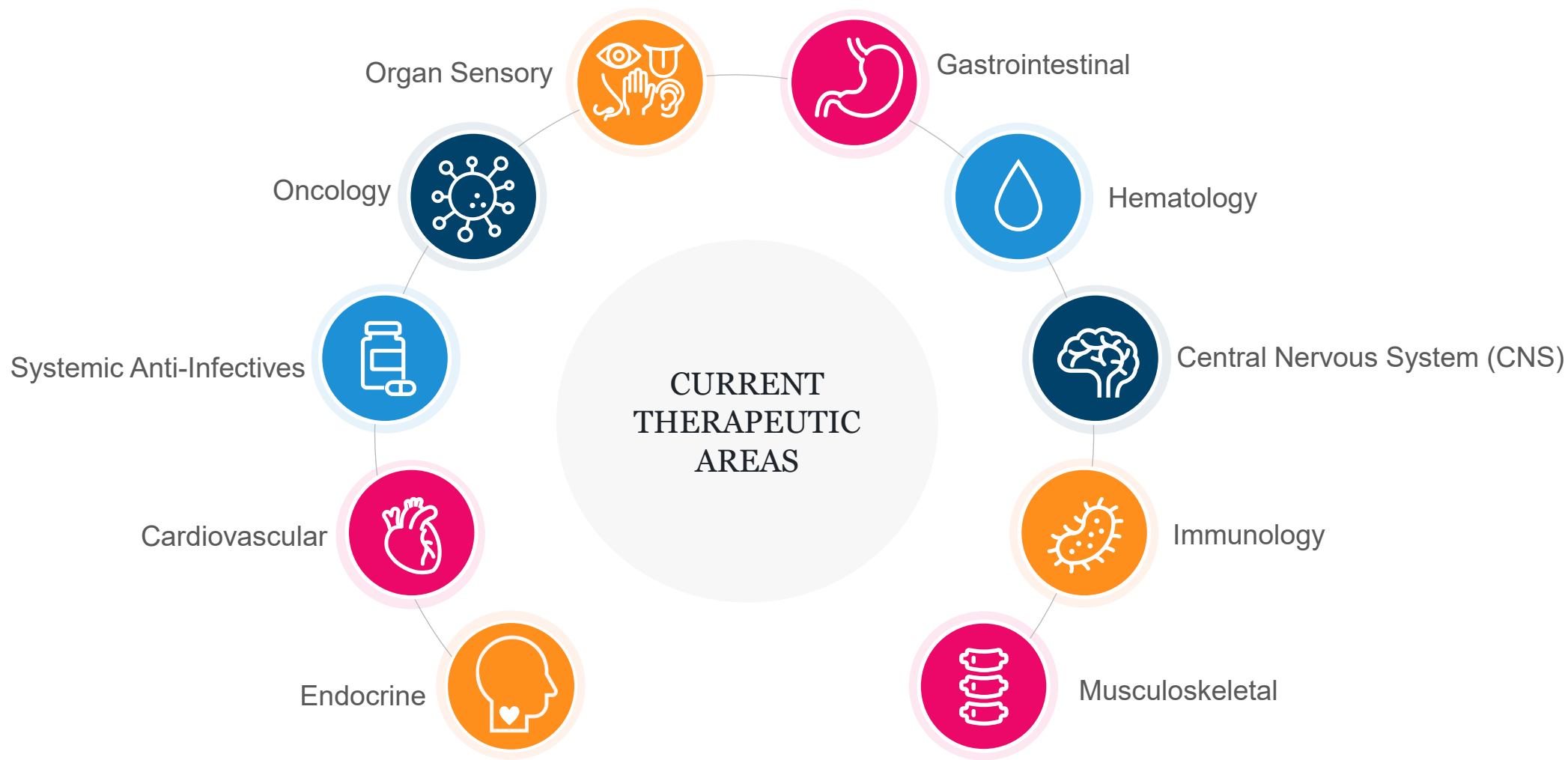
**AMP BENEFIT TYPE DISTRIBUTION**

Specialty drugs can be covered under medical benefit, pharmacy benefit, or both



SECTION 02

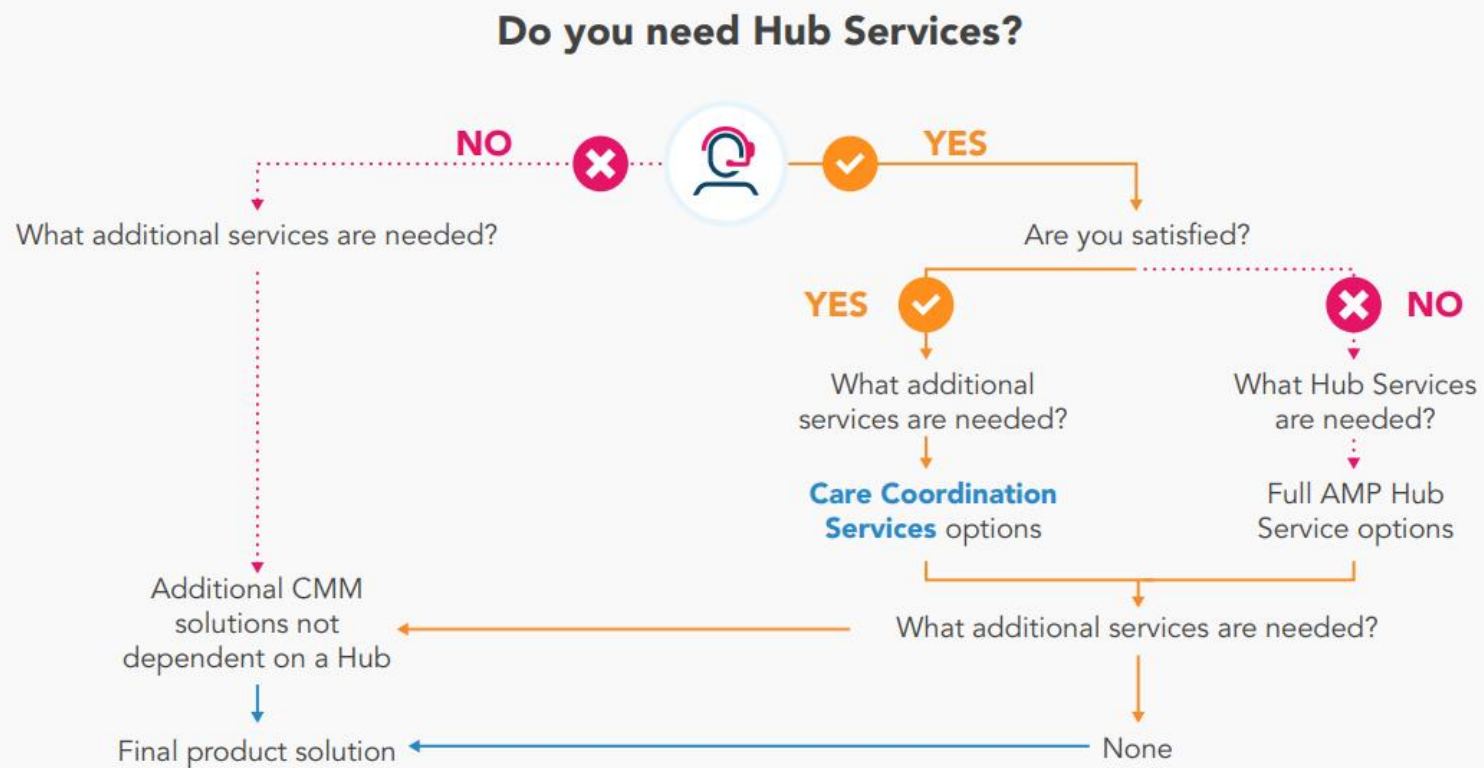
# Customer Information



# Pharma Manufacturer Employee Roles

| ROLE                                 | RESPONSIBILITY                                                                                                                                                                                                                                                                                                                                             |
|--------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Market-Access<br>decision-makers     |  <ul style="list-style-type: none"><li>• Seeks solutions that get the most patients on therapy</li><li>• Supports access, reimbursements, and affordability with the least number of benefit-related barriers</li></ul>                                                   |
| Leads at Patient<br>Support Services |  <ul style="list-style-type: none"><li>• Understands the needs and challenges of their brand's patients and providers</li><li>• Identifies solutions that will support the most seamless patient journey</li><li>• Maintains program operations and maintenance</li></ul> |
| Executive Leadership                 |  <ul style="list-style-type: none"><li>• Defines the strategic need to streamline barriers to the brand's product access and adherence along the patient journey</li></ul>                                                                                                |

# Qualifying



# Care Coordination Base Build

## Standard Capabilities

**Appeal Assistance** - Appeal information obtained by the Hub from the payer once a PA has been denied. This information is entered into a form and surfaced to HCP via CMM for submission to plan

**Drug Safety Reporting** – Logging and reporting any potential adverse event (PAE) or product complaint (PC) with the manufacturer. PAEs or PCs can come from various channels but will be reported per agreed upon program rules

**Brand Support** – Incoming questions or support queries to the CMM support line

**Reporting** – Analytics and data capabilities providing additional visibility or interoperability. This level includes Excel-based PA insights, PA denial insights, and internal tokenization

**Correspondence** – Transactional communications informing the provider at key milestones in the portal

## Enhancements\*

**Additional Brand Support** – Premium dedicated line with IVR and extended hours/on-call line

**Enhanced Reporting** – Sales team reporting

\*Additional costs associated

# Full Hub Support Base Build

## Standard Capabilities

All Standard Capabilities and Enhancements of **Care Coordination Services**.

**Brand Support** – Program-specific line with IVR

**Reporting** – Reimbursement and Access Services report set (RAS), Launch Hypercare, PA Denial Insights, Work in Progress, Adverse Events, Daily Operations

**Correspondence** – Patient direct mail and email, HCP portal and fax

**Enrollment Intake** – Initiation of patient services through a Hub enrollment form submitted via one of the various available channels (e.g., e-Enrollment or fax). Enrollment completeness is defined by brand or program requirements

**Enrollment Follow-up** – The proactive outreach to a provider or patient who has submitted an incomplete enrollment to gather necessary information

**Data Feed and Aggregator** – Data sharing with a data aggregator for HIPAA-authorized patients

**Quality Assurance** – Quarterly call listening session and monthly reporting call

**Benefits (with valid patient HIPAA Authorization, Pharmacy and Medical)** – Determining a patient's pharmacy or medical benefit coverage details and plan structure to get insight into a patient's out-of-pocket cost

**Benefits (without valid patient HIPAA Authorization)** – HCP self-service benefit investigations and visibility in the portal. May leverage direct payer connectivity, predictive capabilities, or manual calls to payers.

**CoverMyMeds (CMM) Specialty Pharmacy Transfer** – The pharmacy destination of the prescription transfer is determined per program rules, supported by AMP Hub agents, and CoverMyMeds specialty pharmacy (SP) executes the transfer of the prescription. CoverMyMeds SP then transfers the valid prescription to the appropriate dispensing pharmacy. This includes working with the commercial or non-commercial dispensing pharmacy to ensure the prescription was received and dispensed

**CoverMyMeds Specialty Pharmacy Intake** – Utilizing the enrollment form to allow CoverMyMeds SP to receive prescriptions. This method provides a single point of intake for prescriptions, which results in supporting office efficiency and less confusion for the HCP. Other methods of standard pharmacy intake include faxed enrollment or prescription and eRx to CoverMyMeds SP via the provider's HER.

# Full Hub Support

## Enhancements\*

**Enrollment Intake** – Patient portal, CMM Specialty Pharmacy (SP) FastLane

**Enrollment Follow-up** – Consent via Direct Mail, Patient Portal

**Benefits (without a valid patient HIPAA Authorization)** – Benefits Investigation, Benefits Investigation Exception Management, HCP Pharmacy Re-Benefits Investigation (up to 1/year), HCP Medical ReBenefits Investigation (up to 12/year)

**CMM Specialty Pharmacy Transfer** – Non-McKesson program pharmacy, integration with third-party pharmacy

**CMM Specialty Pharmacy Intake** – Fax: 5-6 prescriptions, >6 prescriptions, with additional cost based on the number of prescriptions

**Data Feed** – External vendor integration

\*Additional costs associated

# Full Hub Support

## Integrations\*

**Affordability** – Copay vendors, vendor that offers copay card services.

**Hub** – 3rd party hubs which could be a competitor or a manufacturer's internal hub

**Charitable Foundations** – Patient Assistance Programs that are funded by a charitable foundation.

**Program Pharmacies** – Program pharmacy is the free drug pharmacy. They are contracted specifically to dispense for non-commercial purposes.

**Data Aggregators** – Data aggregation vendors collect data from multiple sources that the manufacturer contracts with to receive this information and provide insights

**Clinical Nursing** – Offers nursing support that handle patient visits either in home or virtual. Often performs injection demonstration or other adherence services. AMP integrates with these vendors to schedule appointments and receive statuses back to share to the provider.

**Field Reimbursement Management (FRM)** – Field-based team part of the market access organization that is tasked with helping provider's offices navigate reimbursement issues for the drug that the FRM is supporting.

\*Additional costs associated

# Full Hub Support

## Add-Ons\*

**Affordability** – Copay Enrollment and Alternate Funding Research

**Free Drug Programs** – Prescription Assistance Program (PAP) (Internal and External) management, Quick Start, and Bridge internal or external management

**Communication (to patients and/or providers):**

- **Direct to Patient** – Welcome Correspondence, Patient Communication SMS, Scheduling Support, Adherence Support
- **Direct to Provider** – Shipment Confirmation and Specialty Pharmacy Coordinator Support

**Data and Certification** – Certification Support, Data Migration, Triage Enrollment Packet Support (non-Rx)

**Field Support** – McKesson Field Services, Client Field Services, Nursing Support, and Fulfillment Services

**Seasonal Support** – Seasonal Specialty Pharmacy Coordination Support, Blizzard Reverification

**External Hub Coordination** – Coordination between AMP and another Hub for starting PAs, as well as sharing PA status case details for patients with a valid HIPAA Authorization:

- PA Status Sharing (outbound)
- PA Start (inbound)
- Case Status sharing (outbound)
- Enrollment Sharing (outbound)

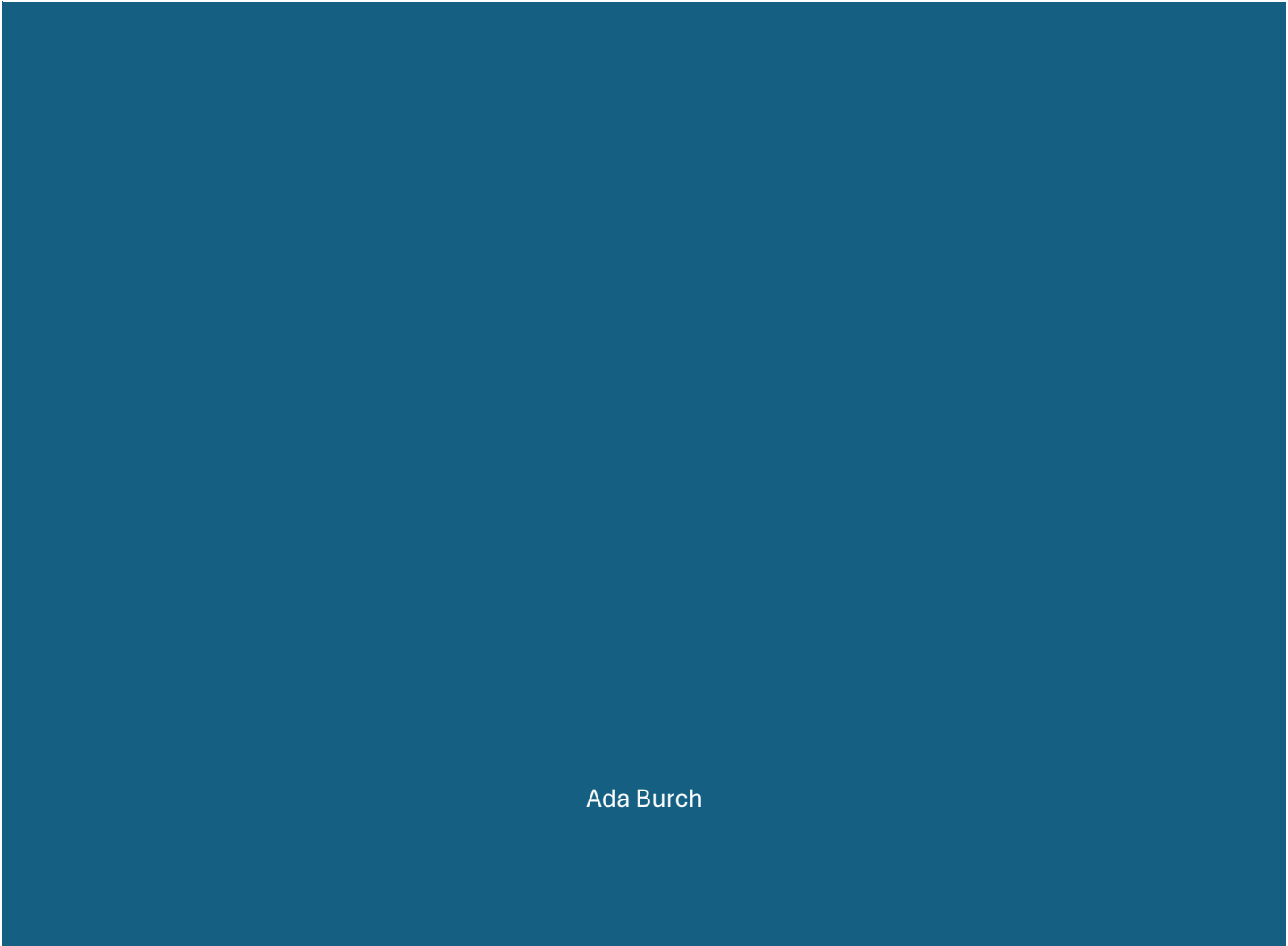
## Premium Add-Ons\*

Additional integrations and configurations are available to meet the needs of the customer. Innovative options are being added and explored on a continual basis.

\*Additional costs associated



# MAYO CLINIC



Ada Burch

# Mayo Clinic

## Situation

Mayo Clinic wanted a complete redesign of their website and redefine the narrative. They wanted to tell the story of the world's best hospital focusing on patient care and the story of how Mayo Clinic became the best hospital for the toughest cases. They needed a skilled UX writer and strategist to work with their internal teams for extensive requirements, presentations to stakeholders, and tight deadlines.

## Solution

I was chosen as the UX writer tasks with creating the new story of Mayo Clinic, telling the history of the hospital, highlighting how they treat the patient as a whole person, and that the extensive research they do saves many lives.

## Result:

The result was the successful redesign of a completely different narrative that increased patient engagement and satisfaction. The content also increased page views and user satisfaction on the site. Research showed that users thought the navigation was easier, they had more confidence in the brand and more confidence in the quality of care they would receive at Mayo.

## Achievements | Lessons learned

### Achievements:

- Successfully content and strategy for the redesign and working under many tight deadlines
- Presenting to Mayo leadership and turning vague instructions into tangible results that engaged patients and increased page views.
- Working with a large team of incredibly talented designers, researchers, developers, analysts, and senior UX leaders.
- **Created UX copy for Mayo Clinic's most viewed pages: [Home Page](#), [About Mayo](#), [Patient Centered Care](#), and [Rankings](#)**

### Lessons Learned:

- Sleep is a good thing.
- Always have back up designs and copy to present at meetings
- Always defer to best practices and user data to support content.

## Wireframes:



Log in



[Home](#)

About Mayo Clinic

Solving the world's toughest medical problems —  
**one person at a time**



Long-distance runner Yasmin Mullings is back in running shoes after a "gift heart" transplant. [>](#)

Who we are

## Transforming health care — yesterday, today, always

Each day, **we're building a future** where the best possible care is available to everyone — and more people can heal at home. Our relentless research turns into earlier diagnoses and new cures.

[Read less about who we are](#) ^

### A legacy of innovation

Our history of innovation started in 1864, when brothers Will and Charlie Mayo pioneered an integrated, team-based approach to medicine. That core value still pushes our pace of discovery. Here, our experts partner to solve the most challenging unmet needs of our patients.

### Top rankings for quality care

Our unwavering drive to create better medicine has earned Mayo Clinic more top rankings for high-quality patient care than any other health care organization. In fact, U.S. News & World Report has again recognized Mayo Clinic as the No. 1 hospital overall and top ranked in 14 specialties.



Our impact

## Building healthy communities where everyone belongs

**Vibrant, healthy, safe communities** are best for our patients and our employees. That's why we work with hundreds of local partners on novel solutions that improve quality of life.

[Explore our community engagement](#)

[Read less about our impact](#) ^



### Partnering with our communities

We collaborate with community programs to provide health care to the uninsured, underinsured, underserved, and unhoused. We advocate for public policy. And we support emerging businesses, meal programs, and educational programs that advance student achievement in science, technology, engineering, and math (STEM).



### Eliminating health disparities

We're working to end health disparities in our communities. We strive to reduce illness and premature death in minority groups through education programs, personalized health care, and community-engaged research.

## People & culture

# Our people make progress happen

**Our staff is on a mission** to provide compassionate, world-class care to 1.4 million patients from 130 countries each year. We're also training the next generation of health leaders.

[Read less about our people](#) ^

We're the largest integrated, not-for-profit medical group practice in the world. Behind our top rankings, you'll find a diverse, inclusive culture of teamwork, professionalism, mutual respect, and dedication to putting patients first.

[Explore careers at Mayo Clinic](#)

[Connect on LinkedIn](#)

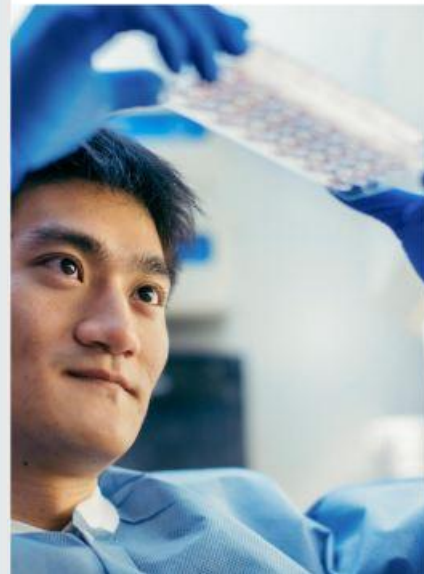
A diverse staff makes every single aspect of our organization better. At Mayo Clinic, we work to create the right environment for our staff to thrive, feel valued, enjoy their work, and provide an unparalleled patient experience.

[Explore careers at Mayo Clinic](#)

[Connect on LinkedIn](#)

A diverse staff makes every single aspect of our organization better. At Mayo Clinic, we work to create the right environment for our staff to thrive, feel valued, enjoy their work, and provide an unparalleled patient experience.

Gianrico Farrugia, M.D.,  
President & CEO, Mayo Clinic



## Early Content

| Condensed                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | V3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <h3>About Mayo Clinic</h3> <h4>Hero</h4> <p>Headline options:</p> <ul style="list-style-type: none"><li>Solving the world's toughest medical problems — one person at a time.</li></ul> <h4>Introduction Section</h4> <p>Eyebrow:<br/>Who we are</p> <p>Headline options:<br/>We believe there's a better way deliver health care. That's why we're transforming it.</p> <p>Body Copy:<br/>For over 150 years, Mayo Clinic has worked tirelessly to put the needs of our patients first, advance medicine with the most innovative treatments, and improve health and wellness around the world. Because we believe there's a better way to deliver healthcare and inspire hope in those who need it most.</p> <p>Headline (options):<br/>Our history</p> <p>Body Copy:<br/>In 1864, a pair of brothers set out to change the face of health care. Learn how they became beacons for hope, healing, and acceptance for patients from all walks of life.</p> <p>CTA:<br/>&lt;Learn more about our history&gt;<br/><a href="https://history.mayoclinic.org/">https://history.mayoclinic.org/</a></p> <p>Card 1 Copy:<br/>150+ years advancing medicine and providing world class care.</p> <p>Ken Burns documentary</p> <p>Headline:<br/>Quality and rankings</p> | <h3>About Mayo Clinic</h3> <h4>Hero</h4> <p>Headline options:</p> <ul style="list-style-type: none"><li>Solving the world's toughest medical problems — one person at a time.</li><li>Mayo cures, connects and transforms</li></ul> <p><i>Patient Story Intro:</i><br/>Andy:<br/>A New face for a new life</p> <p>CTA<br/>Read my story:<br/><a href="https://newsnetwork.mayoclinic.org/discussion/andys-smile-shows-his-progress-two-years-after-face-transplant/">https://newsnetwork.mayoclinic.org/discussion/andys-smile-shows-his-progress-two-years-after-face-transplant/</a></p> <p><i>Patient Story Intro:</i><br/>Dawn:<br/>Overcoming Net Zero Odds</p> <p>CTA:<br/>Read my story:<br/><a href="https://newsnetwork.mayoclinic.org/discussion/dawns-journey-overcoming-a-near-zero-survival-rate/">https://newsnetwork.mayoclinic.org/discussion/dawns-journey-overcoming-a-near-zero-survival-rate/</a></p> <h4>Introduction Section</h4> <p>Eyebrow:<br/>Who we are</p> <p>Headline options:<br/>We believe there is a better way to deliver health care</p> <p>Body Copy:<br/>For over 150 years, Mayo Clinic has worked tirelessly to put the needs of our patients first, because we believe there's a better way to deliver health care and inspire hope in those who need it most.</p> <h3>PROOF POINTS</h3> <ul style="list-style-type: none"><li>Our history<br/>In 1864, a pair of brothers set out to change the face of health care. Learn how they became</li></ul> |

Rare is not rare to us

#### Body Copy:

U.S. News & World Report has again recognized Mayo Clinic as the No. 1 hospital overall and top ranked in fourteen specialties.

#### CTA:

<Learn about our quality and rankings>

#### Headline:

Stories: Mayo Clinic patients and doctors

#### Body Copy:

Our patients, doctors and teams of healthcare professionals are passionate about what makes Mayo so special.

#### Card 1 Story:

Mother finds second chance at Mayo Clinic

#### CTA:

Read her story

#### Card 2 Story:

A new life with a new face.

#### CTA:

Read his story.

#### Card 3 Story:

From patient to doctor: The art of science and never giving up

CTA: Read the story

#### Headline

Join the conversation

#### CTA:

[Learn about care at Mayo Clinic](#)

#### Headline:

Join the conversation

#### Body:

Stay up-to-date on the latest research, innovations, news, <sup>[1]</sup><sub>SEP</sub> and stories from Mayo Clinic.

#### Eyebrow:

Our impact

#### Headline:

Committed to social responsibility and environmental sustainability

#### Body Copy:

We believe health care is more than what happens inside our walls. Improving our communities, grants, global impact in research makes impact.

beacons for hope, healing, and acceptance for patients from all walks of life. Learn more about our history.

- The Mayo Clinic: Faith Hope Science Filmmaker Ken Burns examines how science inspires faith and hope in our treatments. Learn more about the Ken Burns documentary
- Quality and Rankings  
U.S. News & World Report has again recognized Mayo Clinic as the No. 1 hospital overall and top ranked in fourteen specialties. Learn about our quality and rankings

## Care at Mayo Clinic

#### Headline:

Innovation to treatment

#### Body Copy:

Inspiring hope in those who need it most.

#### Movie

#### Headline:

Join the Conversation

#### Body Copy:

Stay up-to-date on the latest research, innovations, news, <sup>[1]</sup><sub>SEP</sub> and stories from Mayo Clinic.

## Impact

#### Headline:

\$11.5 million

#### Body Copy:

contributed to support hundreds of nonprofit organizations in the communities we serve.

#### Headline

No. 4

#### Body Copy:

in DiversityInc's "Top Hospitals and Health Systems" rankings

#### Headline

\$100 million

#### Body Copy:

committed over next 10 years to improve health equity and eliminate racism within Mayo Clinic.

#### Headline:

- Committed to social responsibility and environmental sustainability commitment to advancing medicine knows no boundaries

#### Body Copy:

We believe health care is more than what happens inside our walls. Improving our communities, grants, global

# Disease and Conditions Landing Page Copy -- NOT FINAL

| Page item               | Content                                                                                                    |
|-------------------------|------------------------------------------------------------------------------------------------------------|
| D&C Section Description | Find easy-to-understand answers about diseases and conditions that concern you.                            |
| Section heading         | Search for a disease or condition                                                                          |
| Field text              | Search for a disease                                                                                       |
| Instructional text      | Find a disease or condition by its first letter                                                            |
| Section heading         | Symptom Checker                                                                                            |
| Instructional text      | See what could be causing your symptoms and when to seek care.                                             |
| Button text             | Check symptoms                                                                                             |
| Section heading         | Clinical trials                                                                                            |
| Section description     | Search for clinical trials by disease, treatment or drug name.                                             |
| Link out                | Search clinical trials                                                                                     |
| Section heading         | Mayo Clinic Connect                                                                                        |
| Section description     | Share your experiences and find support from people like you.                                              |
| Link out                | Find a support group                                                                                       |
| Section heading         | <b>TBD</b>                                                                                                 |
| Section description     | <b>TBD</b>                                                                                                 |
| Link out                | <b>TBD</b>                                                                                                 |
| Section heading         | Sign up for free e-newsletter                                                                              |
| Section description     | Get our free e-newsletter to stay up to date on the latest health information from experts at Mayo Clinic. |

## Diseases & Conditions

Find easy-to-understand answers about diseases and conditions that concern you. Our guides are up-to-date and include causes, symptoms, and when to see a doctor.

Search for a disease or condition

Q Search for a disease

Find a disease or condition by its first letter



## Symptom Checker

Find conditions and treatments related to your symptoms.

Check Symptoms



## Clinical trials

We're dedicated to finding the most advanced treatments available through clinical trials—leading to the best possible outcomes for patients.

About clinical trials

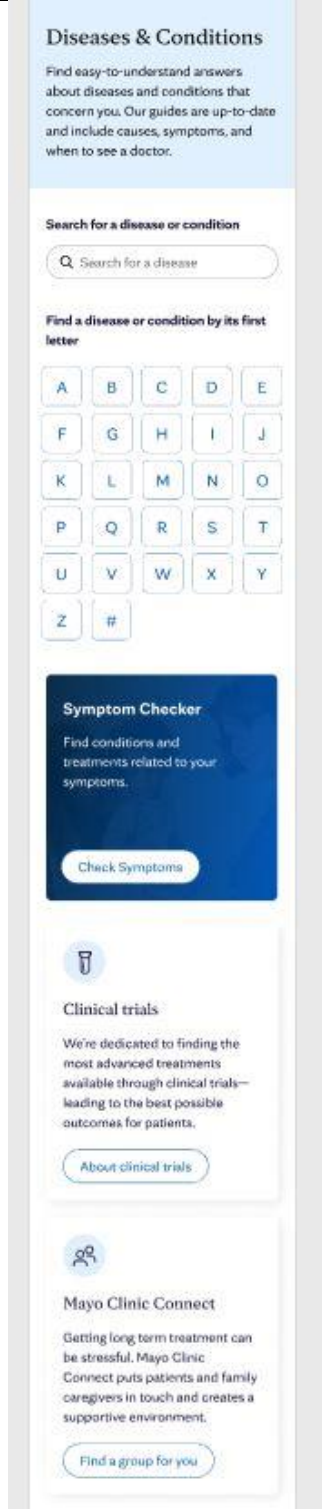


## Mayo Clinic Connect

Getting long-term treatment can be stressful. Mayo Clinic Connect puts patients and family caregivers in touch and creates a supportive environment.

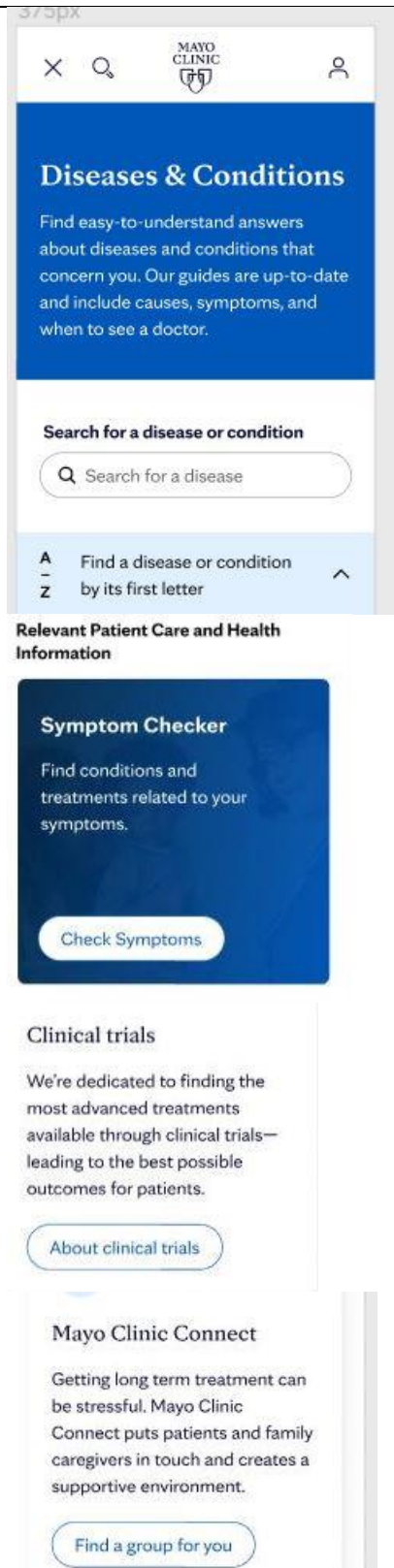
Find a group for you

## Mayo Clinic Disease and Conditions Landing Page

| Page item               | Content                                                                                                                                                           |                                                                                     |
|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| D&C Section Description | Find easy-to-understand answers about diseases and conditions that concern you. Our guides are up-to-date and include causes, symptoms, and when to see a doctor. |  |
| Section heading         | Search for a disease or condition                                                                                                                                 |                                                                                     |
| Field text              | Search for a disease                                                                                                                                              |                                                                                     |
| Instructional text      | Find a disease or condition by its first letter                                                                                                                   |                                                                                     |
| Section heading         | Symptom Checker                                                                                                                                                   |                                                                                     |
| Instructional text      | Find conditions and treatments related to your symptoms.                                                                                                          |                                                                                     |
| Button text             | Check Symptoms                                                                                                                                                    |                                                                                     |
| Section heading         | Clinical trials                                                                                                                                                   |                                                                                     |
| Section description     | We're dedicated to finding the most advanced treatments available through clinical trials - leading to the best possible outcomes for patients.                   |                                                                                     |
| Link out                | About clinical trials                                                                                                                                             |                                                                                     |
| Section heading         | Mayo Clinic Connect                                                                                                                                               |                                                                                     |
| Section description     | Getting long term treatment can be stressful. Mayo Clinic Connect puts patients in touch with potential caregivers and creates a supportive environment.          |                                                                                     |
| Link out                | Find a group for you                                                                                                                                              |                                                                                     |
| Section heading         | IS Mayo Clinic right for me?                                                                                                                                      |                                                                                     |
| Section description     | We place patients first and treat the whole person with our integrated approach to care. Patients have an entire team to support their health and well-being.     |                                                                                     |
| Link out                | Why Choose Mayo Clinic?                                                                                                                                           |                                                                                     |
| Section heading         | Sign up for the free e-newsletter                                                                                                                                 |                                                                                     |
| Section description     | Get our free e-newsletter to stay up to date on the latest health information from experts at Mayo Clinic.                                                        |                                                                                     |

## Disease and Conditions A to Z

| Page item                 | Content                                                                                                                                                           |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Page Header               | Diseases & Conditions                                                                                                                                             |
| Section description       | Find easy-to-understand answers about diseases and conditions that concern you. Our guides are up-to-date and include causes, symptoms, and when to see a doctor. |
| Instructional text        | Search for a disease or condition                                                                                                                                 |
| Field text                | Search for a disease                                                                                                                                              |
| Instructional text mobile | Find a disease by its first letter                                                                                                                                |
| Instructional text        | Find a disease or condition by its first letter                                                                                                                   |
| Description text          | Relevant Patient Care and Health Information                                                                                                                      |
| Section heading           | Symptom Checker                                                                                                                                                   |
| Instructional text        | Find conditions and treatments related to your symptoms.                                                                                                          |
| Button text               | Check Symptoms                                                                                                                                                    |
| Section heading           | Clinical trials                                                                                                                                                   |
| Section description       | We're dedicated to finding the most advanced treatments available through clinical trials - leading to the best possible outcomes for patients.                   |
| Link out                  | About clinical trails                                                                                                                                             |
| Section heading           | Mayo Clinic Connect                                                                                                                                               |
| Section description       | Getting long term treatment can be stressful. Mayo Clinic Connect puts patients in touch with potential caregivers and creates a supportive environment.          |
| Link out                  | Find a group for you                                                                                                                                              |



## Disease and Conditions A to Z

| Page item              | Content                                                                                                                                                                                                                                                                                            |
|------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                        |                                                                                                                                                                                                                                                                                                    |
| Disease and Conditions | Find easy-to-understand answers about diseases and conditions that concern you. Our guides are up-to-date and include causes, symptoms and when to see a doctor.                                                                                                                                   |
|                        | Search for a disease or condition                                                                                                                                                                                                                                                                  |
| Instructional text     | Find a disease or condition by its first letter                                                                                                                                                                                                                                                    |
| Section heading        | Mayo Clinic Connect                                                                                                                                                                                                                                                                                |
| Section description    | Getting long term treatment can be stressful. Mayo Clinic Connect puts patients in touch with potential caregivers and creates a supportive environment.                                                                                                                                           |
| Link out               | Find a group for you                                                                                                                                                                                                                                                                               |
|                        |                                                                                                                                                                                                                                                                                                    |
| Section heading        | 0 Results in Diseases & Conditions                                                                                                                                                                                                                                                                 |
| Description text       | We are sorry, but we couldn't find any matches for "Ajute".<br><br>Search the full website for "Ajute" instead.                                                                                                                                                                                    |
| Section text           | Did you mean to search for "Acute"?                                                                                                                                                                                                                                                                |
| Section text           | Search tips:<br><br>Check your search for typos or spelling errors, use more generic search terms, rephrase your search or use synonyms, or make your search as concise as possible.<br><br>Visit the Health Information Library to explore Symptoms, Tests & Procedures, and Drugs & Supplements. |






### Diseases & Conditions

Find easy-to-understand answers about diseases and conditions that concern you. Our guides are up-to-date and include causes, symptoms, and when to see a doctor.

Search for a disease or condition




Find a disease or condition by its first letter

A

B

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#



#### Mayo Clinic Connect

Getting long term treatment can be stressful. Mayo Clinic Connect puts patients and family caregivers in touch and creates a supportive environment.

[Find a group for you](#)



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# PRO-GENEX

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Marketing material and articles for Pro-GeneX, a healthcare solutions and molecular diagnostics company founded in 2014 and based in Atlanta, Georgia.





## Infectious Diseases: PCR Vs Culture Based Testing

Covid-19 created a hyper focus on rapid results when testing for infectious diseases, putting a spotlight on Polymerase Chain Reaction (PCR). Pro-GeneX uses this type of testing specifically because of its advantages over traditional culture-based testing. However, the benefits of PCR reach much farther than Covid with wider implications to all infectious diseases.

Pro-GeneX uses PCR testing because it is the most well-developed molecular technique in diagnostics and is changing the clinical detection and treatment of patients with infectious diseases. Acute-care settings benefit the most where timely and accurate diagnoses are critical for patient treatment. In addition to being cost effective, PCR is revolutionizing the detection of specific or broad-spectrum pathogens, emerging infections, and antimicrobial resistance profiling in common but problematic infectious diseases including:

- Shingles
- Salmonella
- Hepatitis C
- Pneumonia
- Common cold
- Influenza (flu)
- Common cold
- Toxic shock syndrome
- Escherichia coli (E. coli)
- Staphylococcus aureus (Staph)
- Sexually transmitted diseases
- Severe acute respiratory syndrome (SARS)

The benefits over traditional lab tests do not stop there. While culture-based tests can take anywhere from 3 days to a week, to even longer, PCR results can usually be returned within hours or sooner in many cases. Furthermore, once a pathogen is identified, conventional laboratory tests can take even longer to classify species, strain, virulence factors, and antimicrobial resistance, all of which are critical for proper diagnosis and patient treatment. The importance of rapid diagnostics for accurate therapy, infection control, and vaccination with life-and-death consequences for patients, health providers, and the public cannot be overstated.

At Pro-GeneX, we believe in using genetic molecular testing data to give clinical decision support to providers to maximize efficiency, minimize adverse drug events and select the right drug, right dose, the first time. One example is using PCR as a diagnostic test for influenza in upper respiratory tract specimens with results in approximately 15-30 minutes. With reported sensitivities of available rapid molecular assays ranging from 66-100%, PCR is a valuable tool in diagnosis for treatments that are not only timely, but accurate as well. This is something that current culture-based tests cannot offer.

According to the US National Library of Medicine National Institutes of Health, Culture based tests also have lower sensitivity for patients who have received antibiotics as well as the lack of ability to culture certain pathogens in disease states associated with microbial infection. Detection of antimicrobial

resistance is also imperative for proper and timely treatment that can be lifesaving for many patients, especially in acute care settings.

Significant cost savings for patients and clinics are also an added benefit of PCR. Fewer tests with more accurate diagnosis will lead to proper treatment, less use of ineffective antibiotics, fewer potential complications associated with unnecessary treatment and hospitalizations, and fewer readmissions, thus driving down the cost of treating infectious diseases.

Using PCR as a diagnostic tool for infectious diseases has revolutionized the medical industry by bringing speed, accuracy, and cost savings to patient treatments that culture-based tests simply cannot deliver. Organisms that are difficult to detect can now be found with greater sensitivity and precision. We at Pro-GeneX understand that drug resistance monitoring of mycobacteria using PCR methods can provide important information in early markers for drug resistance, enabling start of appropriate early therapies. PCR is an invaluable tool in infectious disease diagnosis and treatment that delivers fast, lifesaving results.

But Pro-GeneX doesn't just stop with test results, our services expand to consulting with medical staff to ensure the patient gets the right diagnosis and the right treatment the first time. Our clinical team's experience with thousands of hours collaborating with Physicians, Directors of Nursing, Pharmacists, and administration facilitate communication on medication risks in order to support improved patient experience and actionable paths to improve patient treatment and outcomes.

To learn more about Pro-GeneX and PCR testing, visit our [website](#) or contact us at <https://www.pro-genex.com/contact/> or call (844)-794-3637.

## Infectious Diseases: PCR Vs Culture Based Testing

Covid-19 created a hyper focus on rapid results when testing for infectious diseases, putting a spotlight on Polymerase Chain Reaction (PCR). As more is learned about PCR technology, it is being looked at specifically because of its advantages over traditional culture-based testing. However, the benefits of PCR testing reach much farther than Covid with wider implications to all infectious diseases.

PCR is the most well-developed molecular technique in diagnostics that are changing the clinical detection and treatment of patients with infectious diseases. Acute-care settings will benefit the most where timely and accurate diagnoses are critical for patient treatment. In addition to being cost effective, PCR is revolutionizing the detection of specific or broad-spectrum pathogens, emerging infections, and antimicrobial resistance profiling in common but problematic infectious diseases including:

- Common cold
- Influenza (flu)
- Pneumonia
- Severe acute respiratory syndrome (SARS)
- Sexually transmitted diseases
- Toxic shock syndrome
- Shingles
- Escherichia coli (E. coli)
- Tuberculosis
- Hepatitis C
- Salmonella
- Staphylococcus aureus (Staph)

The benefits over traditional lab tests do not stop there. While culture-based tests can take anywhere from 3 days to a week, to even longer, PCR results can usually be returned within hours or sooner in many cases. Furthermore, once a pathogen is identified, conventional laboratory tests can take even longer to classify species, strain, virulence factors, and antimicrobial resistance, all of which are critical for proper diagnosis and patient treatment. The importance of rapid diagnostics for accurate therapy, infection control, and vaccination with life-and-death consequences for patients, health providers, and the public cannot be overstated.

One example is using PCR as a diagnostic test for influenza in upper respiratory tract specimens with results in approximately 15-30 minutes. With reported sensitivities of available rapid molecular assays ranging from 66-100%, PCR is a valuable tool in diagnosis for treatments that are not only timely, but accurate as well. This is something that current culture-based tests cannot offer.

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## **Long term elderly care facilities**

UTIs are the second most common type of bacterial or fungal infections in the U.S., the most common bacterial infection in long term care and causes more than 15 million office and emergency room visits each year. An effective treatment requires accurate identification of the pathogen and the correct antibiotic. Most tests take 48-72 hours for results, leaving patients waiting in extreme discomfort.

## **There is a faster, more accurate way**

PCR (molecular diagnostic technologies) provides a higher specificity, accuracy, and precision to aid in the diagnosis and treatment for your patients.

## **How?**

Utilizing molecular assay technology, leverages quantitative PCR (qPCR) to identify organisms that cause polymicrobial urinary tract infections, along with antibiotic resistance testing for those identified organisms.

Verification data demonstrates qPCR is over 25% more accurate when compared to traditional culture-based methods of detection.

In addition to adding the ability to conduct the urine collection by clean catch or brief swab, ideal for collecting samples from elderly or physically-limited patients, our test:

- Returns same day results in 5-6 hours
- Detects 11 Antibiotic Resistance Markers
- Eliminates false negative and false positive results
- Identifies 25 Most Common Pathogens using Real-Time PCR

The latest molecular biology techniques and methods, PGXL is able to use the genetic material of the pathogen (DNA, RNA) to accurately identify the species of the pathogen and to detect resistance genes expressed by the pathogen to certain pharmacotherapies.

## **Faster more accurate results prevents:**

- Ongoing discomfort
- Chronic infections
- Permanent kidney damage
- Urethral narrowing in men
- Life-threatening sepsis

When patients need solutions fast, clinicians trust the diagnostic precision of Antimicrobial Susceptibility Testing (AST) of PCR molecular UTIs. It is the ultimate solution in patient care for Urinary Tract Infections (UTIs), cystitis, prostatitis, or other types of infections associated with bacteria in the Urinary Tract (UT).

## OBGYN

UTIs are the second most common type of bacterial or fungal infections causing more than 15 million office and emergency room visits each year in the U.S. Millions of women are diagnosed with UTIs and must endure 48-72 hours of discomfort waiting for accurate test results for proper treatment. This is because of the limitations of culture-based testing, which include:

- 30% false negatives (missed positives)
- Missed pathogens that cannot grow in the cultural medium in the required timeframe
- 67% of uropathogens are missed and 50% are missed in patients with severe urinary symptoms

Molecular tests based on PCR technology identify pathogens typically missed by culture-based tests. PCR (molecular diagnostic technologies):

- Has same day result in 5-6 hours
- Yields > 95% analytical sensitivity
- Identifies bacteria regardless of recent antibiotic use
- specificity Identifies of 30 pathogens from a single specimen
- Offers simplicity and convenience of single specimen collection

### Other benefits of PCR:

- Ability to conduct the urine collection by clean catch or brief swab
- Results unaffected by concurrent antibiotic use at the time of the test
- Identification of the pathogens causing the infection as well as the detection of antibiotic resistance
- Detection of polymicrobial infections caused by various combinations of viruses, bacteria, and fungi

Using the latest molecular biology techniques and methods, PGXL uses the genetic material of the pathogen (DNA, RNA) to accurately identify the species of the pathogen and detect resistance genes expressed by the pathogen to certain pharmacotherapies. Verification data shows qPCR is over 25% more accurate when compared to traditional culture-based methods of detection.

### **Accurately identifying the causative uropathogens is essential for effective use of antibiotics for UTIs.**

A 2020 study of 582 patients showed PCR detected bacteria in 36% of symptomatic patients who had negative urine cultures.

When the health and comfort of your patients is critical, you can trust PCR (qPCR) to identify a broad range of organisms that cause polymicrobial urinary tract infections, cystitis, prostatitis, or other types of infections associated with bacteria in the Urinary Tract, along with antibiotic resistance testing for those identified organisms for Urinary Tract Infections (UTIs).

Additional benefits qPCR testing has over culture-based tests are:

**Shorter Time to Treatment:**

The less time it takes to diagnose and specify an infectious disease, the less time a patient must wait for treatment, which can potentially be lifesaving. An example is PCR taking only 15-30 minutes when being used as a type of molecular influenza diagnostic test to detect influenza viral RNA or nucleic acids in upper respiratory tract specimens. Traditional culture-based tests may not have results back for hours or even days. A rapid reliable diagnostic assay, which allows for accurate identification of infected patients and informed early therapeutic intervention, would thus be invaluable for emergency and critical care physicians.

**Ease of testing:**

Specimens used for detection, genotyping, and quantification of a disease in PCR testing can be collected in multiple ways including serum, plasma, urine, semen and even liquid cerebrospinal fluid (CSF). Being able to collect such a wide variety of specimens for testing ensures the patient can be as comfortable as possible during the collection process.

**Better Treatment Choices:**

The high sensitivity, specificity, and antimicrobial resistance profiling of PCR ensures patients get effective and targeted treatment options. Increased efficacy of treatment correlates with decreased hospital readmissions. Patients also avoid taking unnecessary antibiotics that may not be effective and could decrease immune system function, especially in the immune suppressed patient.

**Reduce unnecessary Testing:**

Because PCR is highly accurate it negates the need for additional conventional laboratory tests that can take considerable time to classify species, strain, and other factors which are critical for proper diagnosis and patient treatment.

**Reduce Healthcare Costs:**

The reduction of tests and unnecessary medications, combined with effective patient treatment and fewer readmissions means the cost of treatment decreases for both the patient and the clinics. Patients spend less time in the hospital, doctors can treat more people, and continuity of care increases as does patient satisfaction.

Effective treatment of infectious disease is based on the ability to detect multiple pathogens that are crucial for an accurate diagnosis, identification of coinfections, and assessment of the disease state. PCR testing has revolutionized the medical industry by bringing speed, accuracy, and cost savings to patient treatments that culture-based tests simply cannot deliver.

## Benefits of PCR Testing Vs Culture Based Testing for Infectious Diseases

Every year in the USA, hospitals in both the inpatient and community settings, report millions of cases of recognized infectious-disease-related illnesses with greater numbers remaining unrecognized. Critical and timely diagnosis for these diseases relies on rapid and accurate detection of the pathogen in the acute-care setting and beyond. The gold standard has been culture-based testing, but results can take weeks with no guarantees of accurate diagnosis.

Common infectious diseases include:

- Common cold
- Influenza (flu)
- Pneumonia
- Severe acute respiratory syndrome (SARS)
- Sexually transmitted diseases
- Toxic shock syndrome
- Shingles
- Escherichia coli (E. coli)
- Tuberculosis
- Hepatitis C
- Salmonella
- Staphylococcus aureus (Staph)

Utilizing molecular assay technology, such as quantitative PCR (qPCR), has clinical applications, including specific or broad-spectrum pathogen detection that cause infectious diseases, evaluation of emerging infections, surveillance, early detection, and antimicrobial resistance profiling. In addition, PCR resistance testing for those identified organisms, provides higher specificity, accuracy, and precision to aid in the diagnosis and treatment of patients.

Problem with Culture based tests:

- 30% false negatives (missed positives)
- Less than 100% accuracy in identifying pathogens
- length of time for results can vary from 48 hours upward

Other limitations of the conventional laboratory include requirements for additional testing and wait times for characterizing detected pathogens such as discernment of species, strain, virulence factors, and antimicrobial resistance. Diminished test sensitivity for patients who have received antibiotics; and the inability to culture certain pathogens associated with microbial infection in disease states are also limitations of culture-based testing.

However, molecular tests based on PCR technology identify pathogens typically missed by culture-based tests. Due to its incredible sensitivity, specificity, and speed of amplification, PCR has been championed by infectious disease experts for identifying organisms in instances where existing culture techniques are not sensitive enough to detect.

## Why PCR is Better than Culture Based for Infectious Diseases

The traditional, slow, and multistep culture-based tests cannot provide results in a reasonable time for cases when critical and timely intervention for infectious disease is required. This is compounded by the necessity of additional culture-based testing for species determination, identification of virulence factors, and antimicrobial resistance, further increasing the amount of time required to receive an accurate diagnosis and treatment plan. The alternative, qPCR, can provide the required results in a timely manner since amplification and detection of amplified products are coupled in a single reaction vessel.

PCR is the most well-developed molecular technique in diagnostics to date and it is revolutionizing the clinical detection and treatment of infectious diseases. Acute-care agencies, where timely and accurate diagnoses are critical for patient treatment will surely benefit the most. Additionally, PCR is cost effective and is changing how the industry detects specific or broad-spectrum pathogens, emerging infections, and antimicrobial resistance profiling.

PCR is extremely important in the detection, quantification, and typing of viral pathogens because detection of clinical infectious diseases using culture methods is time-consuming or many times impossible in vitro. Due to incredible sensitivity, specificity, and speed of amplification, PCR has been championed by infectious disease experts for identifying organisms in instances where existing culture techniques are not sensitive enough to detect.

### **Example 1:**

For *Tuberculosis*, the traditional culture-based test is multi-layered and extremely time consuming. However, PCR testing is faster and more efficient because the microbial molecular susceptibility testing for first line drugs is based on the mutation in the *cat* gene and the *rpoB* gene. The technique of using a PCR amplification of the gene fragment followed by electrophoresis in denaturing gels for single stranded conformational polymorphism (SSCP) analysis is highly sensitive and can lead to early diagnosis and treatment.

### **Example 2:**

For *typical pneumonia*: A rapid multiplex PCR based strategy for diagnosis of infections caused by *Chlamydia pneumoniae*, *Mycoplasma pneumonia* and legionellae could determine the most effective and fastest treatment for atypical pneumonias.

Furthermore, acute febrile illness like falciparum malaria, salmonellosis, babesiosis, have been identified using PCR. Especially with falciparum infections use of a single PCR reaction and hybridisation assays with various probes is used in species identification. Other infectious diseases that can benefit from PCR testing include:

- Common cold
- Influenza (flu)
- Pneumonia
- Severe acute respiratory syndrome (SARS)
- Toxic shock syndrome

- Shingles
- Escherichia coli (E. coli)
- Hepatitis C
- Salmonella
- Staphylococcus aureus (Staph)

The benefits over traditional culture-based lab tests do not stop there. PCR results can usually be returned within hours or sooner in many cases, while culture-based tests can take anywhere from 3 days to weeks. The importance of rapid diagnostics for accurate therapy, infection control, and vaccination with life-and-death consequences for patients, health providers, and the public cannot be overstated.

Proper diagnosis is crucial for timely and accurate treatment. When a patient's comfort and health are paramount, real-time PCR-based, application-specific microbial identification and profiling has significant benefits over traditional testing:

- Reduces antibiotic utilization
- Identifies difficult to culture pathogens
- Identifies bacteria regardless of recent antibiotic use
- Yields greater than 95 percent analytical sensitivity and specificity

Using PCR as a diagnostic tool for infectious diseases has revolutionized the medical industry by bringing speed, accuracy, and cost savings to patient treatments that culture-based tests simply cannot deliver. Organisms that are difficult to detect can now be found with greater sensitivity and precision. A drug resistance monitoring of mycobacteria using PCR methods can provide important information in early markers for drug resistance, enabling the start of appropriate early therapies. PCR is an invaluable tool in infectious disease diagnosis and treatment that delivers fast, lifesaving results.



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# CBEYOND

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A whitepaper for Cbeyond, a U.S. technology and telecommunications service provider founded in 1999 and headquartered in Atlanta, Georgia that provided Voice over Internet Protocol (VoIP), broadband internet, cloud services, and IT infrastructure exclusively tailored for small and mid-sized businesses (SMBs).





# Big Marketing Ideas on a Small Business Budget

## Search Engine Marketing

The small business of today is far more than just a storefront on Main Street.

New customers can be reached globally. New relationships and partnerships can be maintained without the business owner or customer ever meeting face to face. New tools, which are now

*“The Small Business playing field is level these days, but only for those who understand how to stretch the dollars they have into marketing opportunities...”*

more advanced than traditional small businesses ever could have imagined, are making the dream of taking a small business global a reality.

The small business playing field is level these days, but only for those who understand how to stretch the few dollars they have for marketing into opportunities to compete with their larger counterparts.

In the past, companies with large budgets, vast resources and a team of experts naturally had an edge in marketing. In order to find and reach the customers most likely to convert, larger companies could afford to conduct market research and identify the most potent demographics. With larger budgets, they could cash in on this information to sponsor events in which the attendees were only in their key demographics, while also bombarding them with advertisements, product placement and other persuasive tactics. Essen-

tially, when it came to marketing in the traditional business environment, those who had money to spend usually reaped more than they had sown. Meanwhile, smaller businesses could do little more than wish for the marketing resources to reach the customers that could help them grow.

Then the internet emerged and, after a few years of development, established new avenues through which small businesses could market themselves similarly without the need for the same expenses and resources. Within that dynamic lies the potential for small businesses with fewer than a dozen employees to reach a customer base in the tens of thousands. In order to do so, every small business must become familiar with a few online marketing techniques.



## 1. Search Engine Marketing

This relatively new technique appears to be the future of marketing. Every day, millions of internet users enter millions more search terms into Google, Bing, Yahoo or any other search engine, and are presented with pages upon pages of results. These results are where a small business

# Big Marketing Ideas on a Small Business Budget

can go from a company unknown beyond its storefront to a household name for internet users nationwide.



Search engine marketing involves the techniques and targeted content needed to help move a company's website to the top

of search engine results that pertain to their business. Because search engines use complex algorithms to help wade through the internet's billions of pages of content so their users are presented with the most relevant results, marketers need to nail down a few practices to manipulate them in their favor.

The big term in this industry is search engine optimization, or SEO. As its name implies, SEO involves the optimization of search engine results, and is usually conducted through the use of strategic keywords that both relate to the company's products or services and are also searched frequently on Google. Those who search these terms are naturally brought to a company's website.

A successful, well-planned search engine marketing campaign can help a small, two-person retail store in the suburbs reach customers on several continents, simply by publishing content that gets noticed on Google.

## 2. Customer Loyalty

This long-time marketing staple is extrapolated by the opportunities on the internet. Online communications connect consumers and busi-

*“Rather than allow online business to become impersonal, SMBs can use [the Internet] to sustain a loyal and interactive customer base...”*

nesses on a global scale and allow them to share information instantly.

However, conducting business online detracts from the traditional loyalty dynamic in which customers are connected to a business in-person. When a customer is only connected to a business through a keyboard, loyalty can be more difficult to maintain in the face of thousands of online competitors.

To sustain customer loyalty, small businesses can use a handful of inexpensive tools at their disposal. Email marketing, regularly updated newsletters and social media updates all remind former customers that a small business is still around, while informing them of new offerings and inviting them to join in the conversation about it.

Rather than allow online business to become impersonal, small businesses can use these tools to their advantage, and sustain a loyal and interactive customer base.



# Big Marketing Ideas on a Small Business Budget

## 3. Public and Community Relations

Similarly, social media has made public and community relations easier than ever before. Small businesses looking to establish a rapport with the public and their community used to be limited to press releases and the hope that a local newspaper would spread the word.

However, small business owners today can be proactive and make their announcements on their own. Now, with even a modest social media following, a small business can create, announce and gauge interest in an event in their community, which could be an essential step to a successful PR/CR campaign.



Similarly, online marketing can be used to repair a damaged public image. Hypothetically, imagine a dissatisfied customer taking it upon him or herself to get revenge on a small business by trashing it on internet forums and social media websites. This information is soon readily available, and emerges in the first page of results when a potential customer searches the company's name.

*“Just as a dissatisfied customer can leave a poor review, ...loyal supporters of a business can spread the word and attract others...”*

Effective SEO can help displace negative publicity, and replace it with information that highlights positive stories and information that, if crafted strategically, can become the face of a company.

## 4. Customer Experience

Interestingly, customer experience is an area in which online marketing has a mirror effect.

Online communications and natural customer behavior have fit together perfectly, with review sites emerging as an outlet for them to share their experiences. Now customers can share their opinions and recommendations on sites like Yelp for local businesses or Trip Advisor for travel and hospitality companies, as well as several others for organizations of all sorts.

However, this works both ways. Just as a dissatisfied customer can leave a poor review of his or her experience with a company,



those who are loyal supporters of a business can spread the word and attract others. To leverage this, small businesses are advised to encourage their customers to turn to Yelp, Trip Advisor, or any other review site that will help a positive customer experience be seen.

# Big Marketing Ideas on a Small Business Budget



## 5. Couponing

Online couponing has become a hot commodity lately, with local deals sites, such as Groupon, LivingSocial, and BuyWithMe, growing rapidly. And rightfully so, as couponing via the web can attract and engage customers who may have never been interested in a company to begin with.

Online couponing can both help establish new customers – especially those who may be more loyal and interactive in the future, considering they discovered coupons online in the first place – and also protect a small business from losing revenue on a deal. Local deals sites often require that an established minimum number of users sign up for a coupon before any of them can use it. That way, small businesses can be sure the deal is reaching sales volume necessary to outweigh the coupon's reduction in cost.

Not all small businesses need to use with Groupon or LivingSocial to benefit from this, as a proactive and innovative company can establish its own online couponing requirements.

## The Next Step

The internet provides plenty of opportunities for a small business to create a large-scale marketing campaign. However, these factors need to be carefully considered and strategically organized before a company dives headfirst into the world of online marketing. Because the pitfalls are as damaging as the opportunities are rewarding, a successful small business online marketing campaign involves a well-balanced, strategic approach that covers all the bases.





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# CORE MILESTONE

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A 375 page technical geological proposal for Core Milestone to present to an oil and gas company.





## 1.8 Faults and Fractures [40 CFR 146.82 (a)(3)(ii)]

### 1.8.1 Known Faults and Fractures

Pervasive fractures are expected in both the Devonian and Ellenburger sections due to their relatively high young's moduli of 8 MPSI+. High Young's moduli indicate these formations strain very little before failure and are very incompressible. Areas of Ellenburger modified by karsting has been mapped by Loucks (2022) (Fig. 40).

Significant fracturing in the Ellenburger and Devonian has also been observed in core in the Barnhart Ellenburger Unit #3 well from the Bureau of Economic Geology (BEG). A series of cave collapse breccias were observed in this core by Loucks and Kerans (2019) (Fig.41). These fractures are expected to increase the system permeability within the Ellenburger or Devonian flow unit but not extend into the seals.

The Woodford, Barnett and Simpson have massively more compliant Young's moduli, 2-4 million psi in the shales compared to 8-12 million psi in the carbonates.

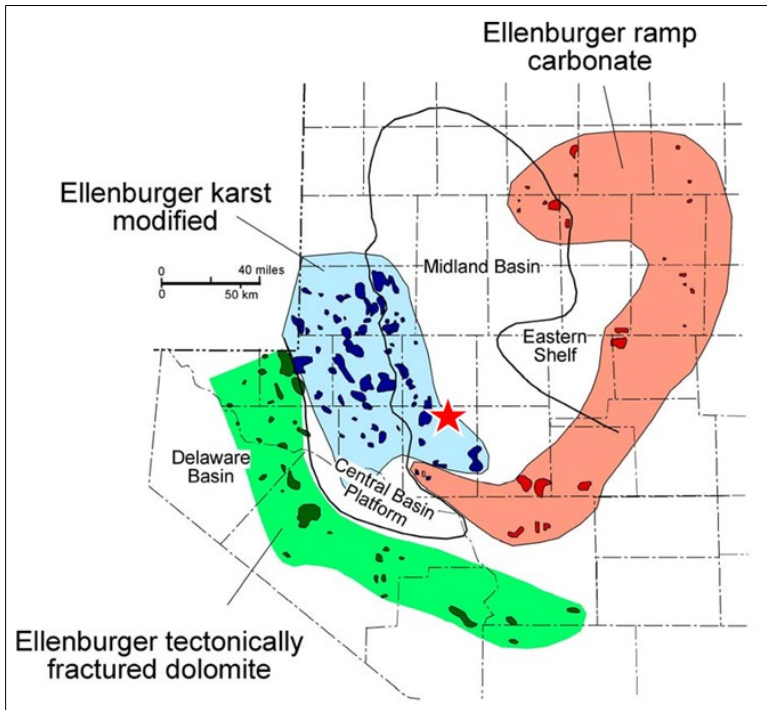


Figure 40: Ellenburger Group Reservoir Types

Figure 40: Distribution of Ellenburger Group Reservoir types by Holtz and Kerans (1992) showing Karst Modified areas. (Loucks, 2023) Red Star for Dusek CCS #2 location. Notice how the location is on the edge of the Karst modified area but still within it.

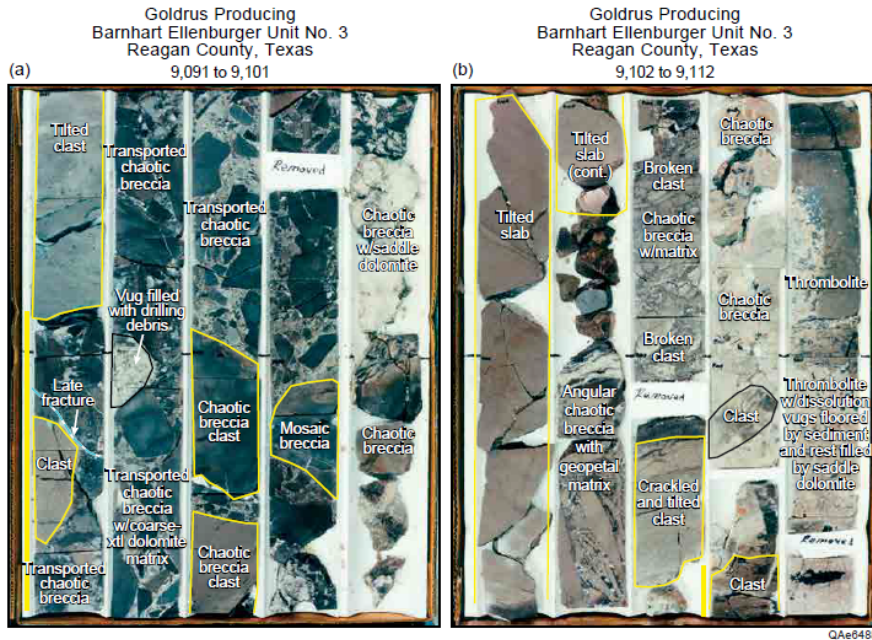


Figure 41: Ellenburger paleocave facies

Figure 41: Copied from Loucks and Kerans 2019, *Example of several Ellenburger paleocave facies from Goldrus Producing Company Barnhart Ellenburger Unit No. 3 core in Reagan County, Texas*. Larger clasts are outlined in yellow. (a) Debris-flow chaotic breccia in a paleocave passage. Notice that some clasts show crackle brecciation by compaction. (b) Large deformed blocks with crackle-breccia overprint at far-left column and far right two columns.

There is little pattern or orientation to the fracture systems. No preferred orientation has been observed. This is likely due to the chaotic nature of karst collapse features with the additional overprint of some tectonic fracturing in the ancient Tabosa Basin. Shales form an upper boundary to the fracturing and natural fractures are not expected to penetrate the Woodford or Barnett Shale formation.

There are no known faults in close proximity to the proposed location or within the CO<sub>2</sub> plume area of review (AoR). The closest fault to the proposed location is 9.8 miles to the west (Fig. 50) and is associated with the Pegasus Field. The next closest fault is 10 miles away, NW of the proposed site. Both are unlikely to interact with the injection. See Fault slippage analysis below in section 1.8.3 for more details.

The biggest unknowns regarding the fractures are the quantity and depth range of fracturing at the proposed well-site. From offset injection and core data it surmised that fractures are pervasive in the area but since there are currently no penetrations, we do not yet have an accurate accounting of the fractures. Before drilling, 3D seismic attributes will be used to attempt to determine which areas of the AoR are more heavily fractured.

A workflow has been developed for Ellenburger and Devonian rocks using 3D seismic that has been proven effective in the Fort Worth Basin. McDonnell et al. 2007 was able to show that heavily fractured and karsted areas correlated to sag features that were identifiable on 3D seismic (Fig. 42 and 43).

Horizons were mapped only where the reflection was distinct and continuous (assumed unkarsted host rock). Intervening low-amplitude, chaotic reflections are assumed to be paleocave collapse-brecciated zones. These areas correlated strongly with observed image log data in the Fort Worth Basin (Fig. 43). This seismic analysis scheme will be used to enhance the numerical simulation and static geomodel.

Additionally, an image log will be run when the well is drilled to determine the quantity, extent and orientation of fractures. Whole core will also be obtained to determine fracture width and provide a secondary source of fracture information although the core will not be oriented. This testing scheme detailed in section 4.9 should address any unknowns related to the fracture system at the injection location.

This information will further be used to refine the static and dynamic simulation model to attempt to determine if the fractures cause any unusual geometries in the plume.

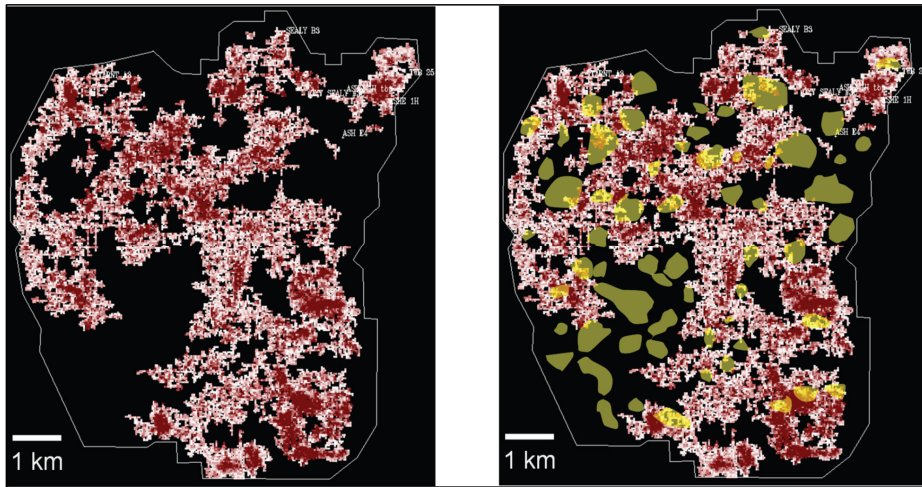


**Figure 42: Intra-Ellenburger Horizon Amplitude Map**

Figure 42: After McDonnell et al. 2007, amplitude map extracted from an intra-Ellenburger horizon. The horizon was mapped only where the reflection was distinct and continuous (assumed unkarsted host rock). Intervening low-amplitude, chaotic reflections are assumed to be paleocave collapse-brecciated zones. (B) Overlay of circular sag structure locations shows that they correspond to chaotic Ellenburger zones (i.e., paleocave zones). This suggests a good correlation between collapse feature locations and their causal mechanism

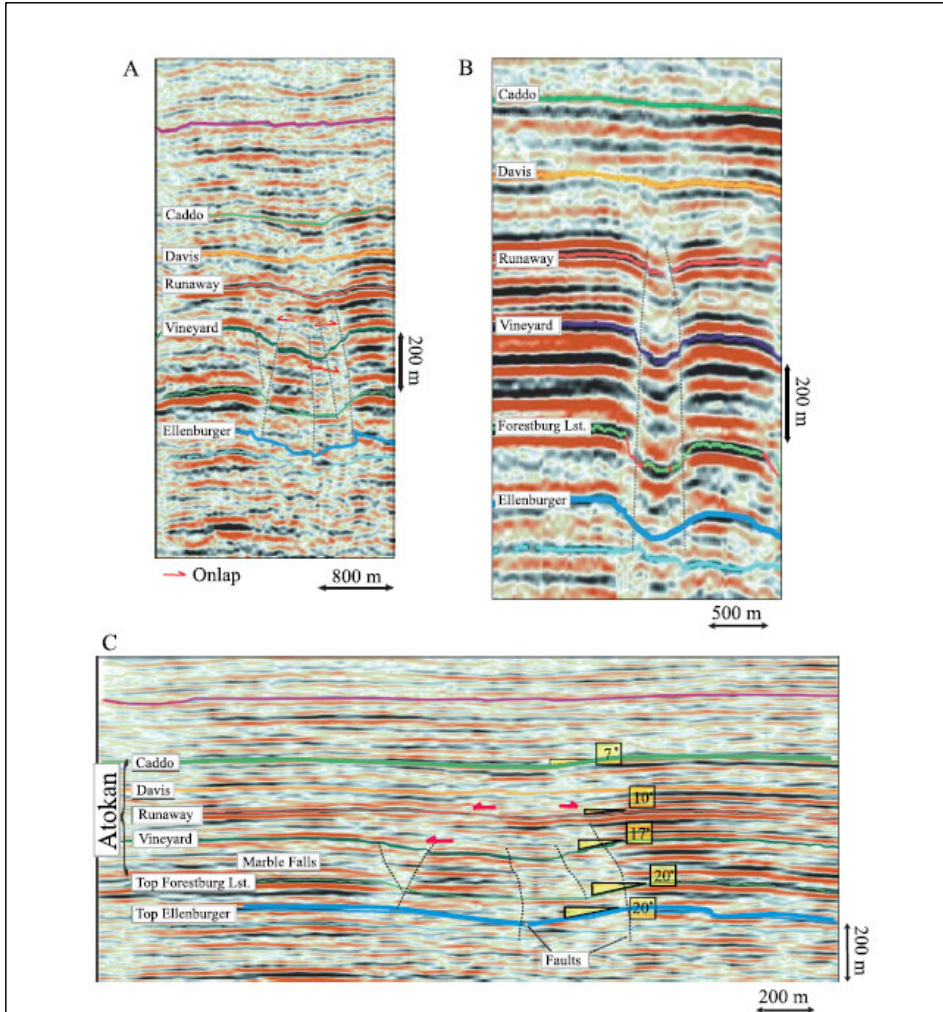


**Figure 43: Seismic Cross Section / Sag Structure**

Figure 43 After McDonnell et al. 2007, (A) seismic cross section of one of the largest sag structures in the data volume. Local onlap (red arrows) and infill are observed, indicating that deposition was influenced by sag formation. Steep faults bound an inner trough. (B) Seismic section of one of the typical circular to subcircular sag structures observed. Steep faults delimit the edge of the sag. The faults appear to emanate within the Ellenburger Group and extend upward through the Atokan succession. Both of these examples are shown at a compressed scale (3:1), which is typical of published seismic examples of karst collapse. (C) Image of (A) at 1:1 scale. The sag structure is less obvious; however, both inward- and outward-dipping structural elements are observed. Seismic resolution is insufficient to allow detailed analysis of fault architecture. At a 1:1 scale, the angle of sag for consecutive stratigraphic levels ranges from 20° at the Barnett Shale level to 7° by the Caddo level.

### 1.8.2 Seismic History

An important consideration in the design and development of all new injection well projects is the determination for the potential of injection activities to induce a seismic event.

Studies completed by the U.S. Geological Survey (USGS) indicate there is a low probability of earthquake events occurring in west Texas that would cause damage to infrastructure with only 2-4 damaging earthquake events predicted to occur over a 10,000-year time period (Fig.44) (Geological Survey, 2019).

A 1-year seismic forecast (including both induced and natural seismic events) released by USGS in 2016 determined West Texas has very low risk (less than 1% chance) of experiencing any seismic events resulting in damage (U.S. Geological Survey, 2016).

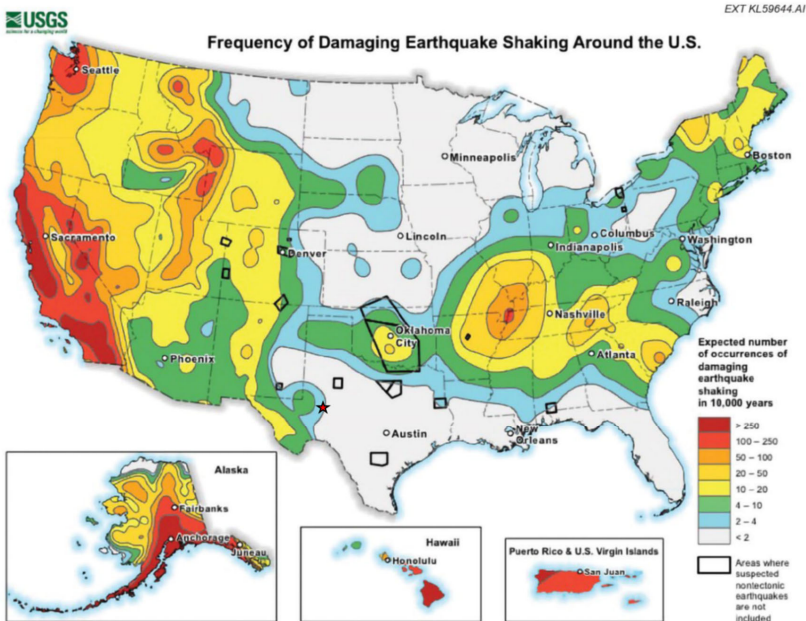


Figure 44: Frequency of U.S. Damaging Earthquakes

Figure 44: Probabilistic map showing how often scientists expect damaging earthquake shaking around the United States (U.S. Geological Survey, 2019). The map shows there is a low probability of damaging earthquake events occurring in West Texas area near Dusek CCS #2 well (red star).



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# ADA BURCH

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I hope you have enjoyed my writing samples. I am a principal with 15+ years shaping enterprise-scale systems and product experiences across finance, healthcare, telecom, and frontier AI platforms. I am the trusted advisor that defines standards, builds trust, and translates capabilities into production-ready, human-centered experiences. I lead teams, negotiate terms, strategize benefit outcomes and work collaboratively across an enterprise to benefit of my clients.

But more than that, I build relationships. Real. Human. Tangible. And there's no app for for that.

I love what I do and it shows. I also love chocolate, living in Texas and the pursuit of good wine.



