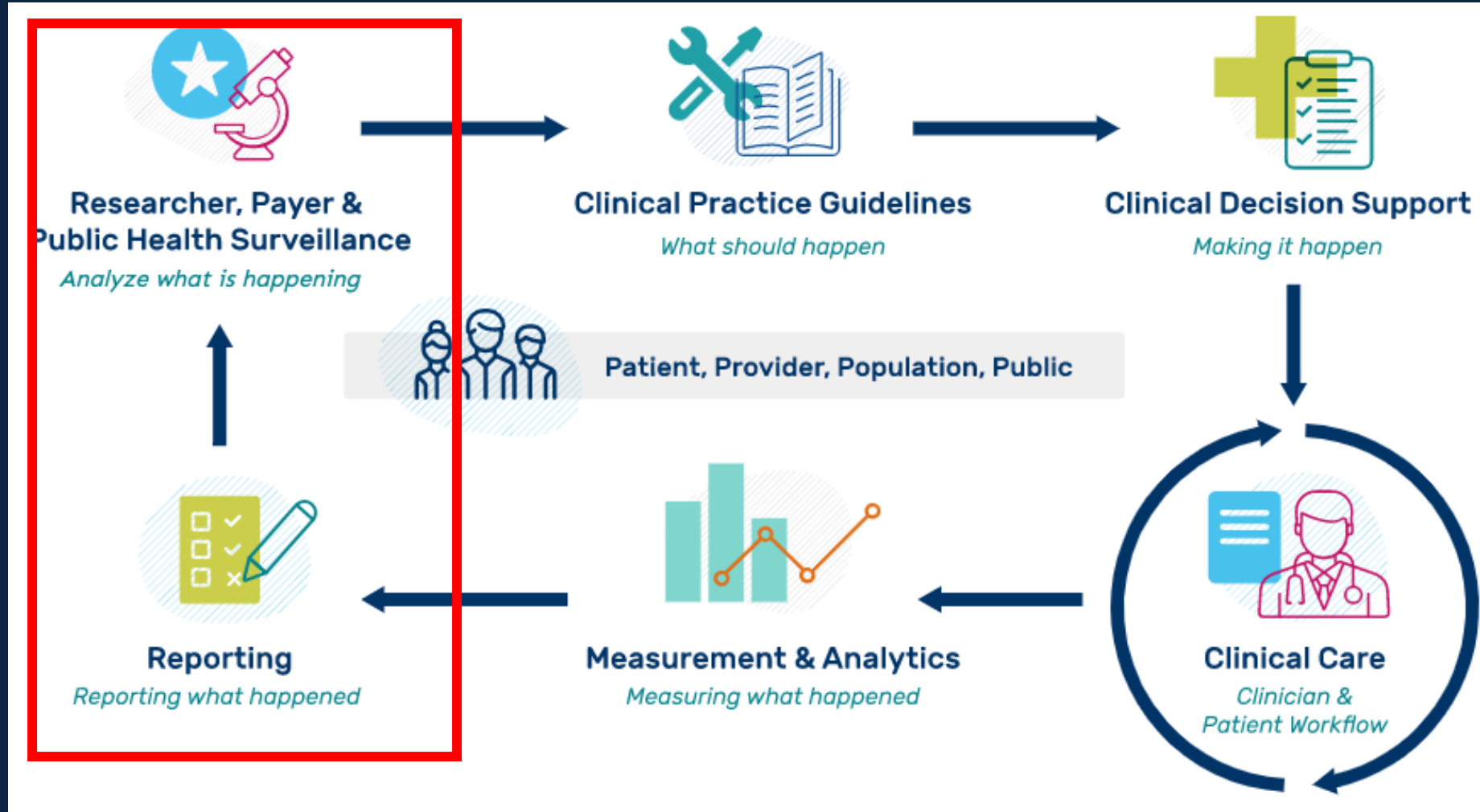# Next Generation of Quality Reporting

Samuel Sayer

About Me

- Samuel Sayer

- Chief Engineer, Health Policy & Operation

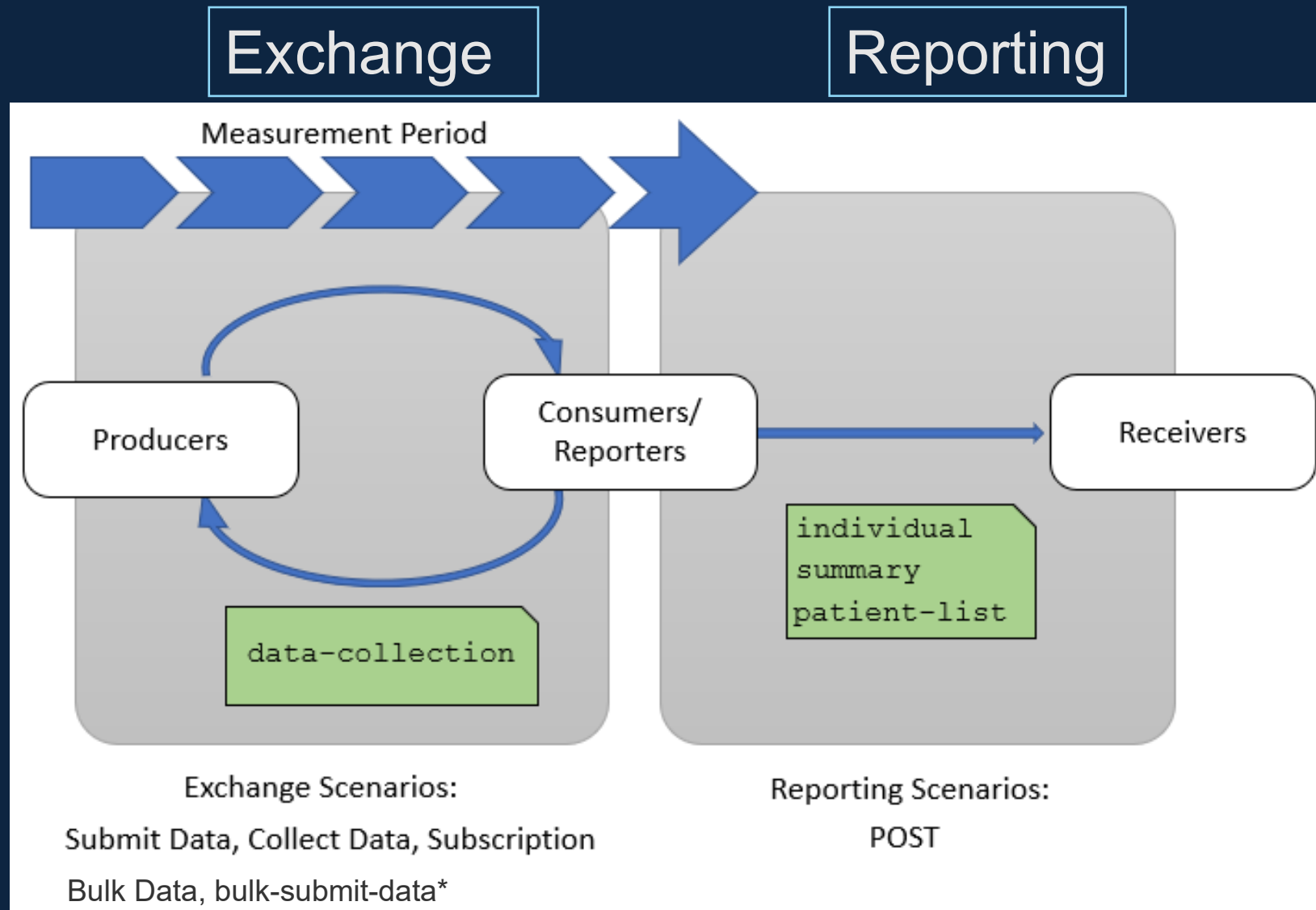- Former Data Exchange for Quality Measures (DEQM) Co-Chair

- MITRE

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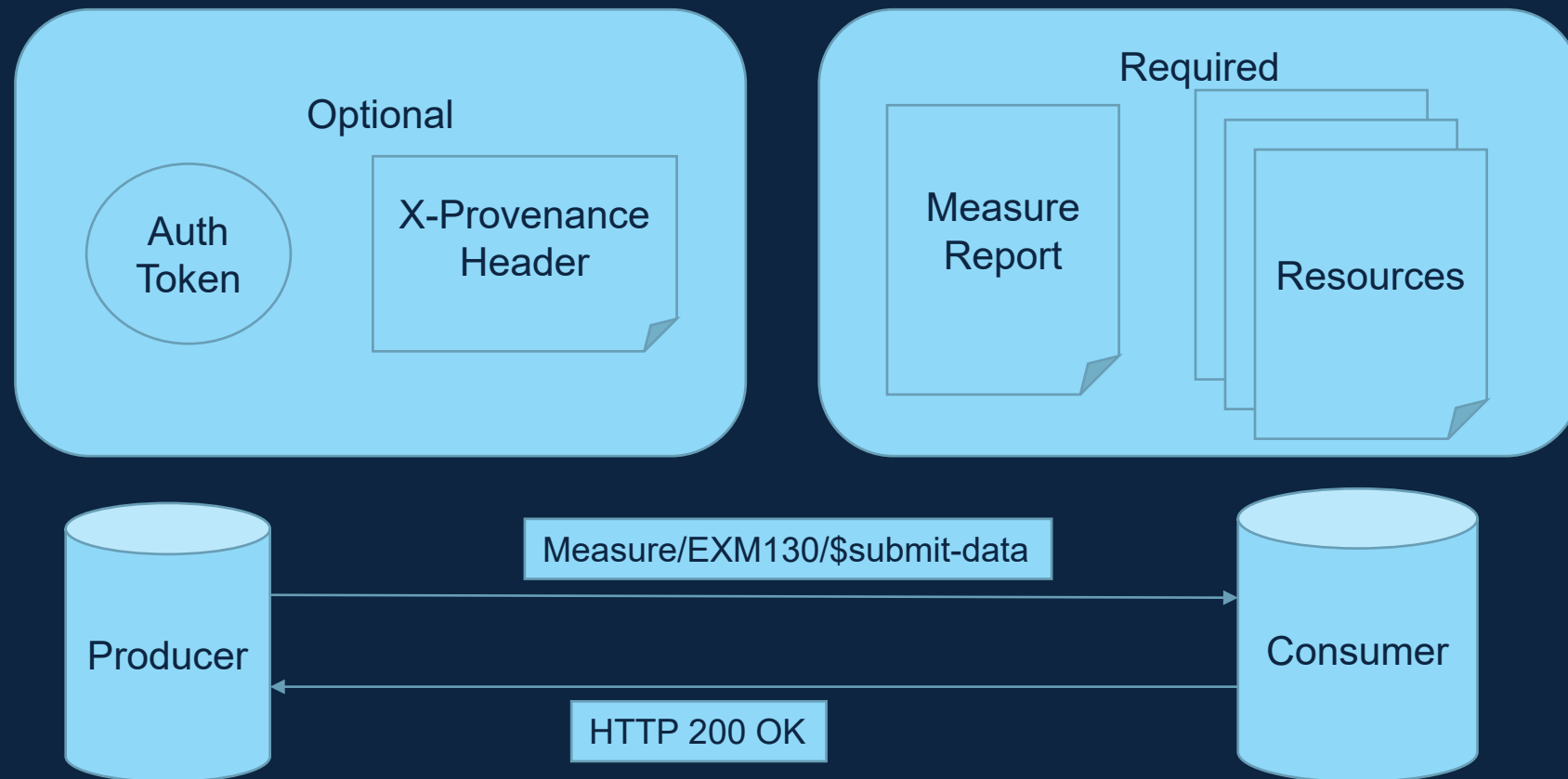# Learning Health System

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Background

- The Data Exchange for Quality Measures (DEQM) implementation guide started development in 2018 under the Da Vinci FHIR Accelerator
  - DSTU1 focused on medication reconciliation and simple use cases
  - DSTU2 included more advanced reporting functionality
  - DSTU3 added support for care gap reports
  - DSTU4 (currently undergoing ballot reconciliation) will add support for bulk transactions and more advance care gap reports
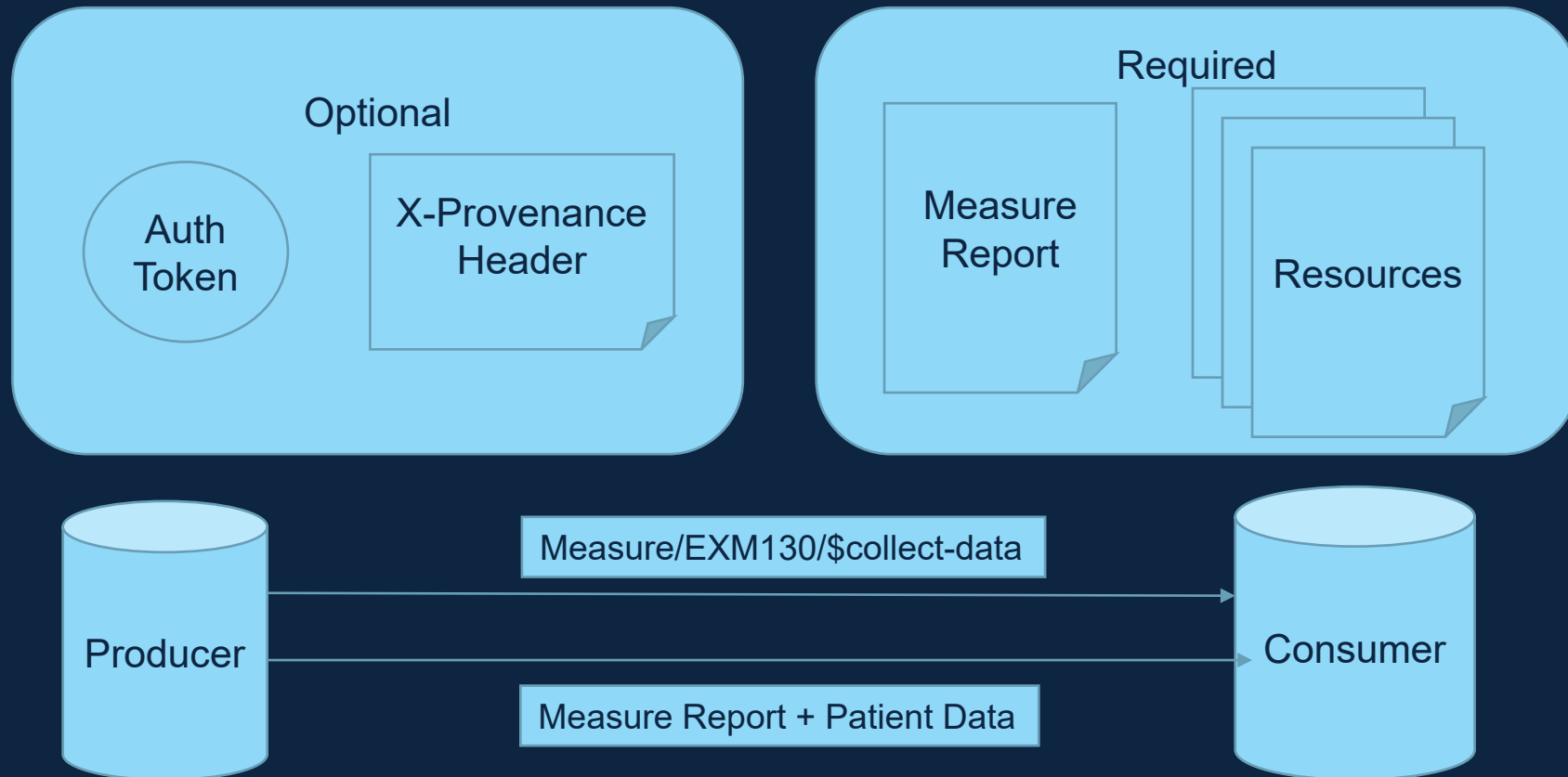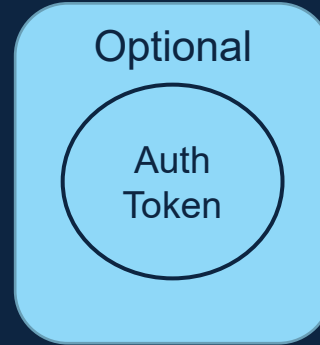
DEQM: Exchange vs Reporting

DEQM Reporting

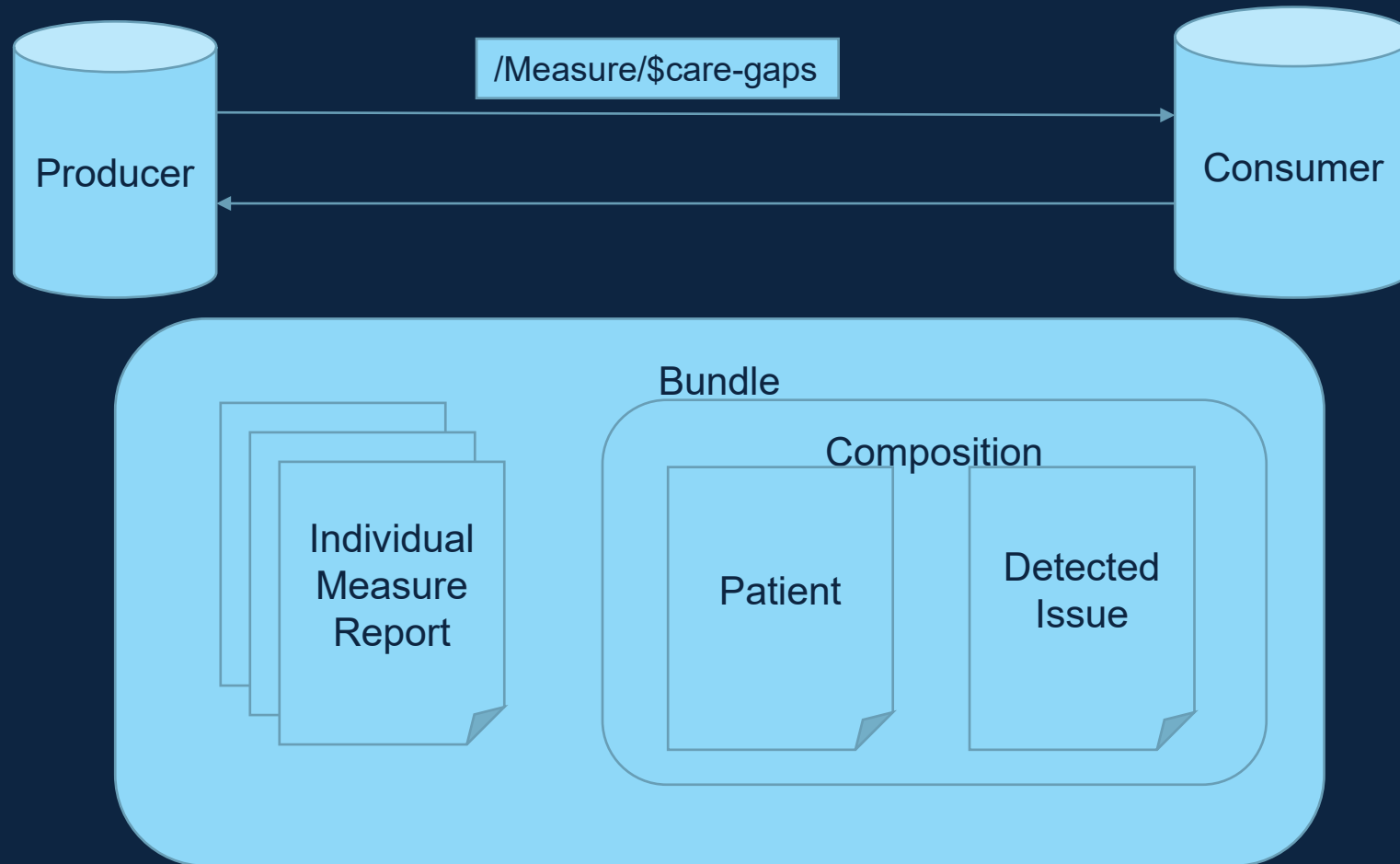Optional

Auth Token

X-Provenance Header

Required

Measure Report

Resources

Producer

Measure/EXM130/$submit-data

HTTP 200 OK

Consumer

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DEQM Data Collection

DEQM Gaps in Care

Reporting Cycle

$submit-data

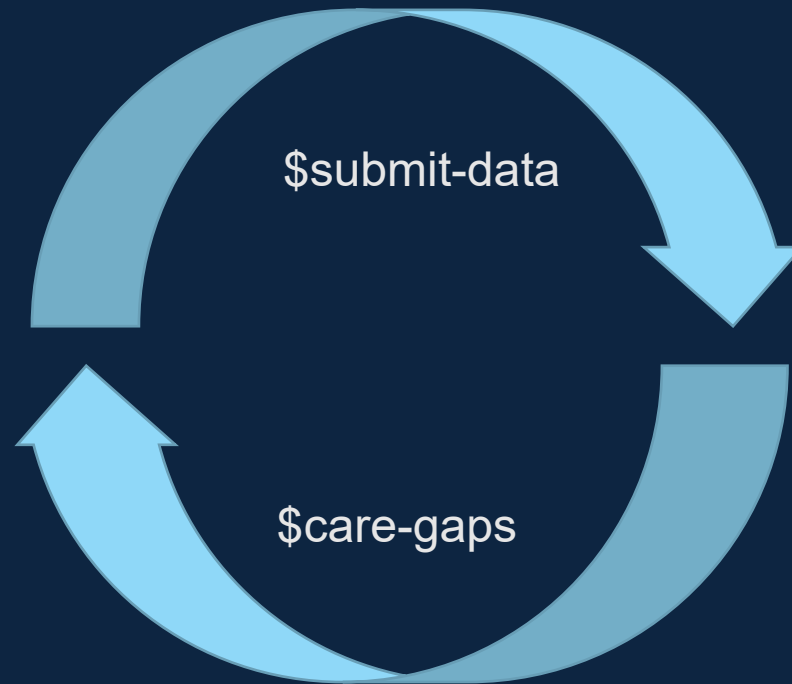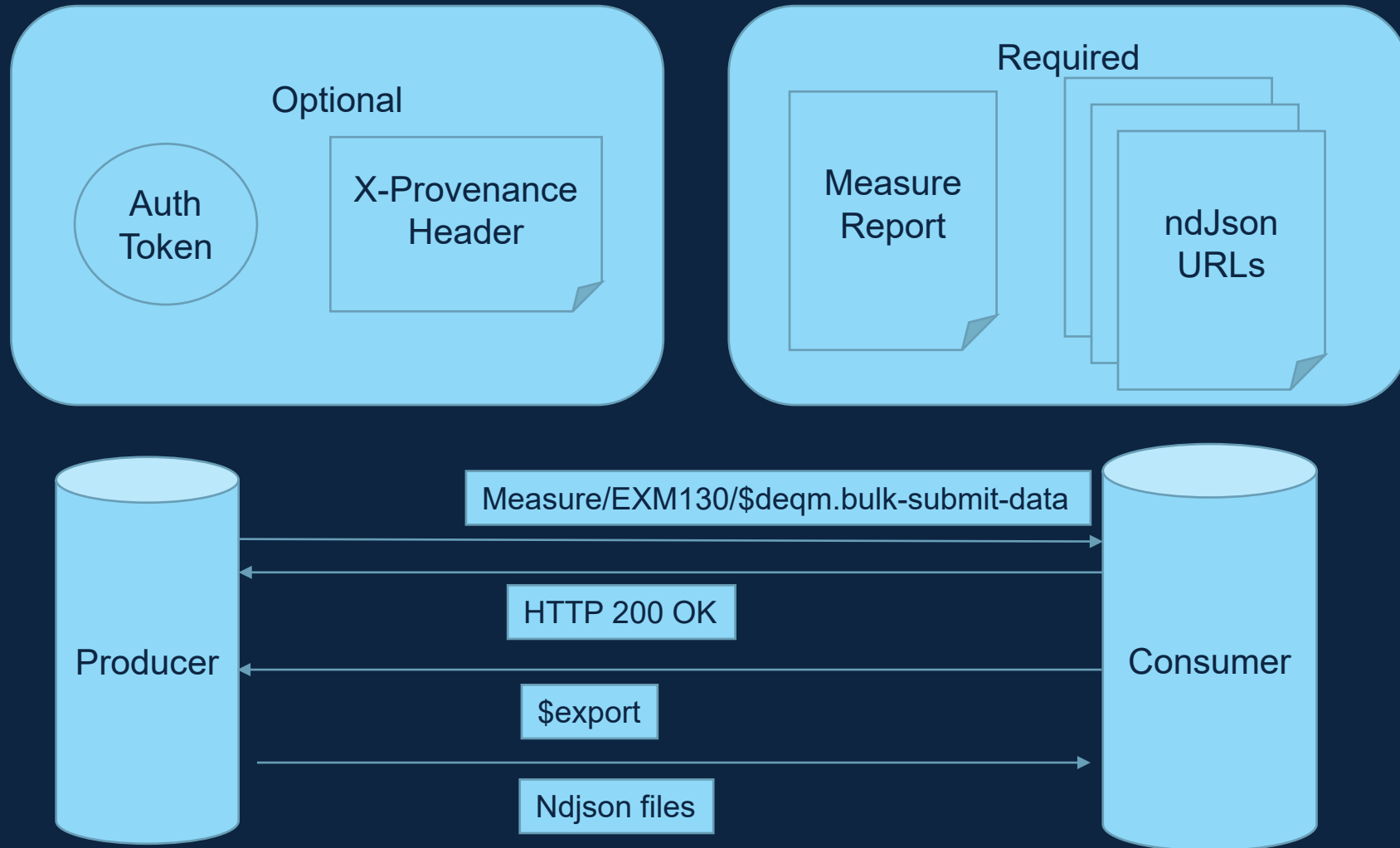$care-gaps

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DEQM DSTU4

Summary of New Features

- Bulk Data Support

- Detailed Care Gaps

- Additional $collect-data/$submit-data functionality

DEQM Bulk Reporting

Optional

Auth Token

X-Provenance Header

Required

Measure Report

ndJson URLs

Producer

Measure/EXM130/$deqm.bulk-submit-data

HTTP 200 OK

$export

Ndjson files

Consumer

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Example Measure – Care Gaps

```
define "Initial Population":
  AgeInYearsAt(date from start of "Measurement Period")in Interval[46, 75]
            and exists AdultOutpatientEncounters."Qualifying Encounters"


define "Denominator":
  "Initial Population"


define "Denominator Exclusions":
  Hospice."Has Hospice Services"
      or exists "Malignant Neoplasm"
      or exists "Total Colectomy Performed"
      or AIFrailLTCF."Is Age 66 or Older with Advanced Illness and Frailty"
      or AIFrailLTCF."Is Age 66 or Older Living Long Term in a Nursing Home"
      or PalliativeCare."Palliative Care in the Measurement Period"

define "Numerator":
  exists "Fecal Occult Blood Test Performed"
      or exists "Fecal Immunochemical Test DNA Performed"
      or exists "Flexible Sigmoidoscopy Performed"
      or exists "CT Colonography Performed"
      or exists "Colonoscopy Performed"
```

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Detailed Care Gaps

- Can we tell the provider which data elements caused a care gap based on quality measure CQL definition?

  - "No valid colonoscopy found for patient"

- How much detail can we give them?

  - "Patient is overdue for colonoscopy; last colonoscopy was 12 years ago"

- Measure logic introduces difficult edge cases

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Negative Improvement Notation, Multiple Paths

◢ Numerator

"Has Most Recent HbA1c Without Result"
or "Has Most Recent Elevated HbA1c"
or "Has No Record Of HbA1c"

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Patient Characteristics


```
define "Numerator":
      exists "Cervical Cytology Within 3 Years"
            or exists "HPV Test Within 5 Years for Women Age 30 and Older"
```

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Multiple ways to close a Gap

```
define "Numerator":
    exists "Colonoscopy Performed"
            or exists "Fecal Occult Blood Test Performed"
            or exists "Flexible Sigmoidoscopy Performed"
            or exists "Fecal Immunochemical Test DNA"
            or exists "CT Colonography Performed"
```

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Counts

```
define "Numerator":
 "Encounter with Two or More Concurrent Opioids at Discharge"
 union "Encounter with a Concurrent Opioid and Benzodiazepine at Discharge"
```

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Detailed Care Gaps

Differential Table	**Key Elements Table**	**Snapshot Table**	**Statistics/References**	**All**

This structure is derived from DetectedIssue ⎘

Name	Flags	Card.	Type	Description & Constraints ❓
🗂 DetectedIssue		0..*	DetectedIssue	Clinical issue with action
⚫ modifierExtension:gapStatus	?! **S**	1..1	DEQMGapStatusModifierExtension	Gap Status
📁 code	**S**	1..1	CodeableConcept	Issue Category, e.g. drug-drug, duplicate therapy, etc. **Required Pattern:** At least the following
🔒 coding		1..*	Coding	Code defined by a terminology system **Fixed Value:** (complex)
🔒 system		1..1	uri	Identity of the terminology system **Fixed Value:** http://terminology.hl7.org/CodeSystem/v3-ActCode
🔒 code		1..1	code	Symbol in syntax defined by the system **Fixed Value:** CAREGAP
🔗 patient	**S**	1..1	Reference(QICore Patient)	Associated patient
📁 evidence	**S**	1..*	BackboneElement	Supporting evidence
🔗 detail	**S**	1..1	Reference(DEQM Individual MeasureReport Profile | Detailed Care Gap Guidance Response)	This references either a DEQM Individual MeasureReport or a GuidanceResponse resource. Note that referencing the GuidanceResponse resource allows potential profiling on GuidanceResponse in the future without breaking backward compatibility.

❓ Documentation for this format

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Guidance Response

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Grouping Gaps

- Multiple care gaps may exist for a single patient

- **OR gaps**

  - A set of gaps for which **only one gap** needs to be closed in order for the patient to meet standards for quality of care

- **AND gaps**

  - A set of gaps for which **every gap** must be closed in order for the patient to meet standards for quality of care

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Additional Functionality

- $collect-data -> $deqm.collect-data

    - Optional validation of data elements

    - Filter queries by a location

- $submit-data -> $deqm.submit-data

    - Support for submission for multiple measures (also in $bulk-submit-data)

Driving Value With Interoperability: Building a Digital Quality Ecosystem, Yale, NCQA and CMS –
Thursday 4:00-5:00pm

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