

Thema SARS-CoV-2-Varianten

Evolution im Zeitraffer

Für den Fortgang des pandemischen Geschehens spielen Fragen zu Eigenschaften, Verbreitung und Bedeutung mutierter Varianten von SARS-CoV-2 eine große Rolle. Die molekulare Surveillance erfolgt am Robert Koch-Institut unter anderem mittels Gesamtgenomsequenzierungen.

Definitions: Viruses of Concern (VOC), Viruses of Interest (VOI), WHO -25.02.2021

(<https://www.who.int/publications/m/item/covid-19-weekly-epidemiological-update>)

Working Definition of “SARS-CoV-2 Variant of Concern”

A VOI (as defined above) is a variant of concern (VOC) if, through a comparative assessment, it has been demonstrated to be associated with

- **Increase in transmissibility** or detrimental change in COVID-19 epidemiology;
- **Increase in virulence or change in clinical disease presentation**; or
- **Decrease in effectiveness of public health and social measures or available diagnostics, vaccines, therapeutics.**

OR

assessed to be a VOC by WHO in consultation with the WHO SARS-CoV-2 Virus Evolution Working Group

Working Definition of “SARS-CoV-2 Variant of Interest”

A SARS-CoV-2 isolate is a variant of interest (VOI) if it is **phenotypically changed compared to a reference isolate** or has a genome with mutations that lead to **amino acid changes associated with established or suspected phenotypic implications**;

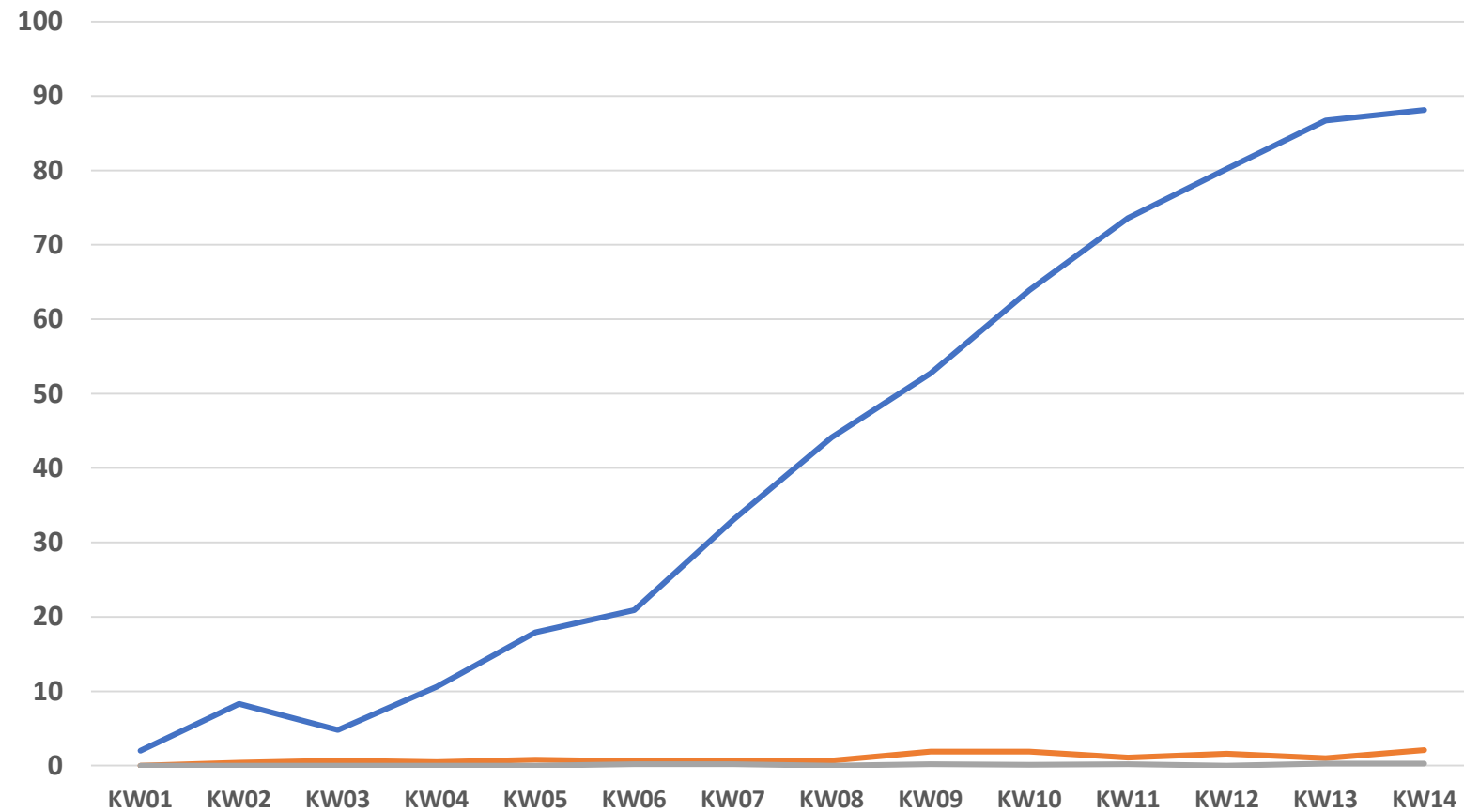
AND

has been identified to cause **community transmission²/multiple COVID-19 cases/clusters**, or has been detected in **multiple countries**;

OR

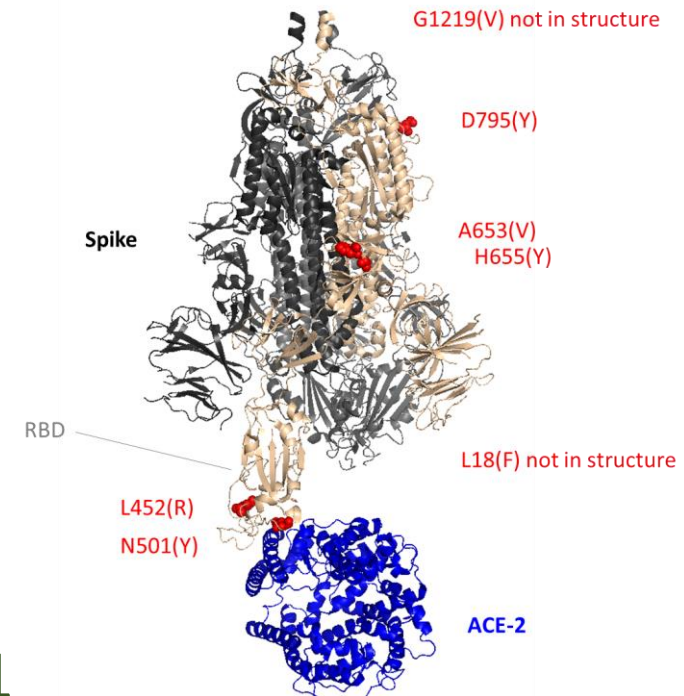
is otherwise assessed to be a VOI by WHO in consultation with the WHO SARS-CoV-2 Virus Evolution Working Group.

Percentages of VOCs in random sequence pool 2021



B.1.1.7

B.1.351
P.1



B.1.1.7/501.V1; Spike: Δ H69/ Δ V70, Δ Y144, **N501Y**, A570D, P681H, T716I, S982A, D1118H

B.1.351 /501.V2; Spike: L18F, D80A, D215G, R246I, **K417N**, **E484K**, **N501Y**, A701V

P.1 /501.V3; Spike: L18F, T20N, P26S, D138Y, R190S, **K417T**, **E484K**, **N501Y**, H655Y, T1027I, V1176F

WHO Definitionen: Variants of Concern (VOC) / Variants of Interest (VOI) (27.04.21)

	Nextstrain clade	Pango lineage	GISAID clade	Alternate name	First detected in	Earliest samples	Characteristic spike mutations
VOC	20I/501Y.V1	B.1.1.7	GR/501Y.V1	VOC 202012/01 [†]	United Kingdom	Sep 2020	69/70del, 144del, N501Y, A570D, D614G, P681H, T716I, S982A, D1118H
	20H/501Y.V2 ⁺	B.1.351	GH/501Y.V2 [†]	VOC 202012/02	South Africa	Aug 2020	D80A, D215G, 241/243del, K417N, E484K, N501Y, D614G, A701V
	20J/501Y.V3	B.1.1.28.1, alias P.1 [†]	GR/501Y.V3	VOC 202101/02	Brazil and Japan	Dec 2020	L18F, T20N, P26S, D138Y, R190S, K417T, E484K, N501Y, D614G H655Y, T1027I, V1176F
VOI	20A/S.484K	B.1.525	G/484K.V3	-	United Kingdom and Nigeria	Dec 2020	Q52R, A67V, 69/70del, 144del, E484K, D614G, Q677H, F888L
	20C/S.452R	B.1.427/ B.1.429	GH/452R.V1	CAL.20C/L452R	United States of America	Jun 2020	S13I, W152C, L452R, D614G
	20B/S.484K	B.1.1.28.2, alias P.2	GR	-	Brazil	Apr 2020	E484K, D614G, V1176F
	-	B.1.1.28.3, alias P.3	-	PHL-B.1.1.28	Philippines and Japan	Feb 2021	141/143del, E484K, N501Y, D614G P681H, E1092K, H1101Y, V1176F
	20C	B.1.526 with E484K or S477N	GH	-	United States of America	Nov 2020	L5F, T95I, D253G, D614G, A701V, E484K or S477N
	20C	B.1.616	GH	-	France	Jan 2021	H66D, G142V, 144del, D215G, V483A, D614G, H655Y, G669S, Q949R, N1187D
	-	B.1.617 [†]	G/452R.V3	-	India	Oct 2020	L452R, D614G, P681R, ±E484Q

Beobachtung von VOC/VOI für Deutschland am RKI

AG Integrierte Molekulare Surveillance (IMS)

Stefan Kröger, Stefan Fuchs, Torsten Semmler, Thorsten Wolff

- Jour Fixe (wöchentlich)
- MS-Labornetzwerk: Steering, Reporting
- RKI-Sequenzierbericht, BMG (wöchentlich)
- Variantenbericht, RKI-Webseite (wöchentlich) inkl.
- Virologische Bewertung von Surveillancedaten
- **Screening auf VOCs, VOIs**

AG Virusevolution

Max von Kleist, Sebastien Calvignac-Spencer, ...

- Conference Call, 14-tägig
- Evolutionsbiologische Bewertung von Surveillancedaten
- In silico Tools zur Erfassung von Mutationen
- DESH
- **Analyse von VOCs, VOIs**

Meldedatengruppe, Abt. 3

Silke Buda, Claudia Sievers, ...

- **Analyse der Meldedaten inkl. VOCs**

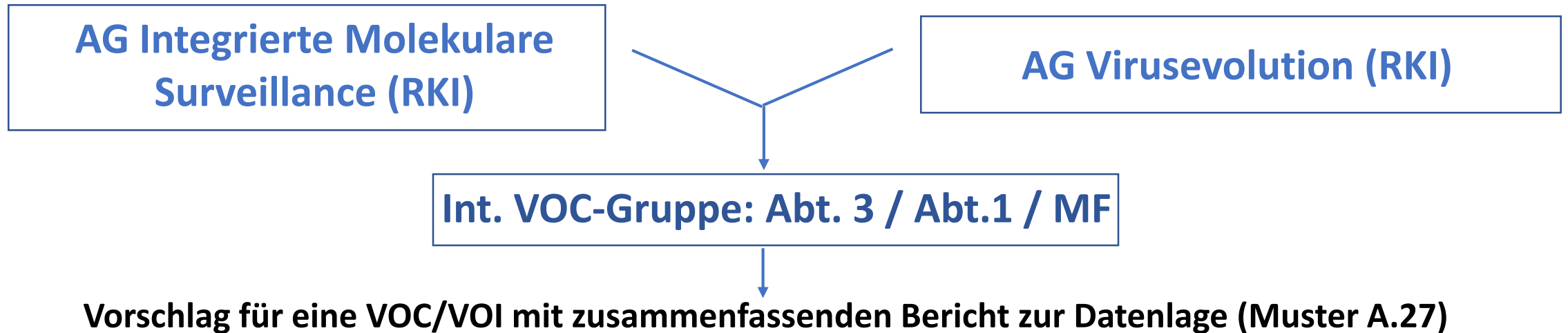
Diagnostik-AG

Martin Mielke, Andreas Nitsche, Jana Seifried, Sindy Böttcher, Max von Kleist, Djin-Ye Oh, Sebastian Voigt, Ralf Dürrwald,

- Wöchentliches Meeting
- Pflege von Kerndokumenten zur Diagnostik und Virologie
- Schnittstelle zum BMG betreff Nationale Teststrategie
- **Fragestellungen zur Diagnostik bei VOCs**

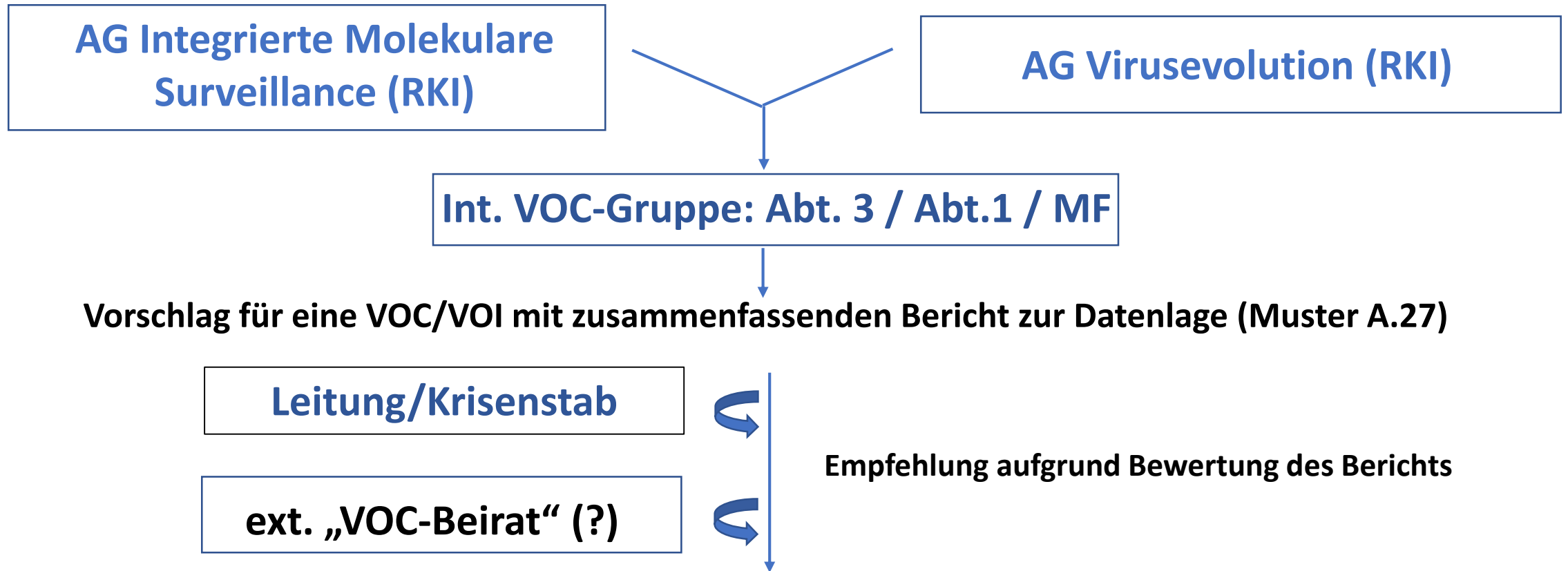
Festlegung SARS-CoV-2 VOC/VOI für Deutschland

(AG Diagnostik, 20.04.2021 - Entwurf)



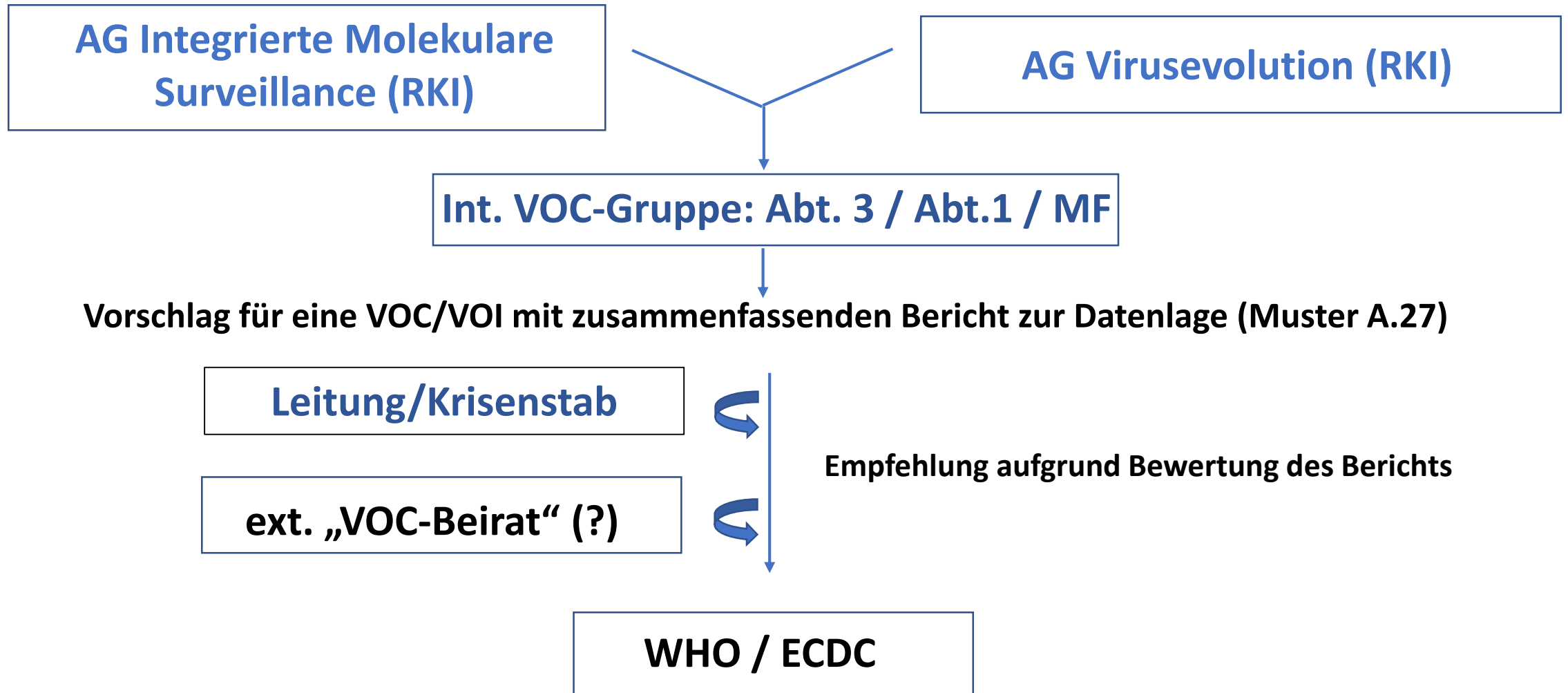
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- Meldung: Notiz über EWRS

- Kontakt: WHO SARS-CoV-2 Virus Evolution Working Group; ECDC

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ÖGD: R. Gottschalk (Frankfurt a.M.),

KLINIK: M. Pletz (Jena),

IMPfstoffe: E. Hildt (PEI, Langen),

EXP. ANALYSE: M. Beer (FLI)