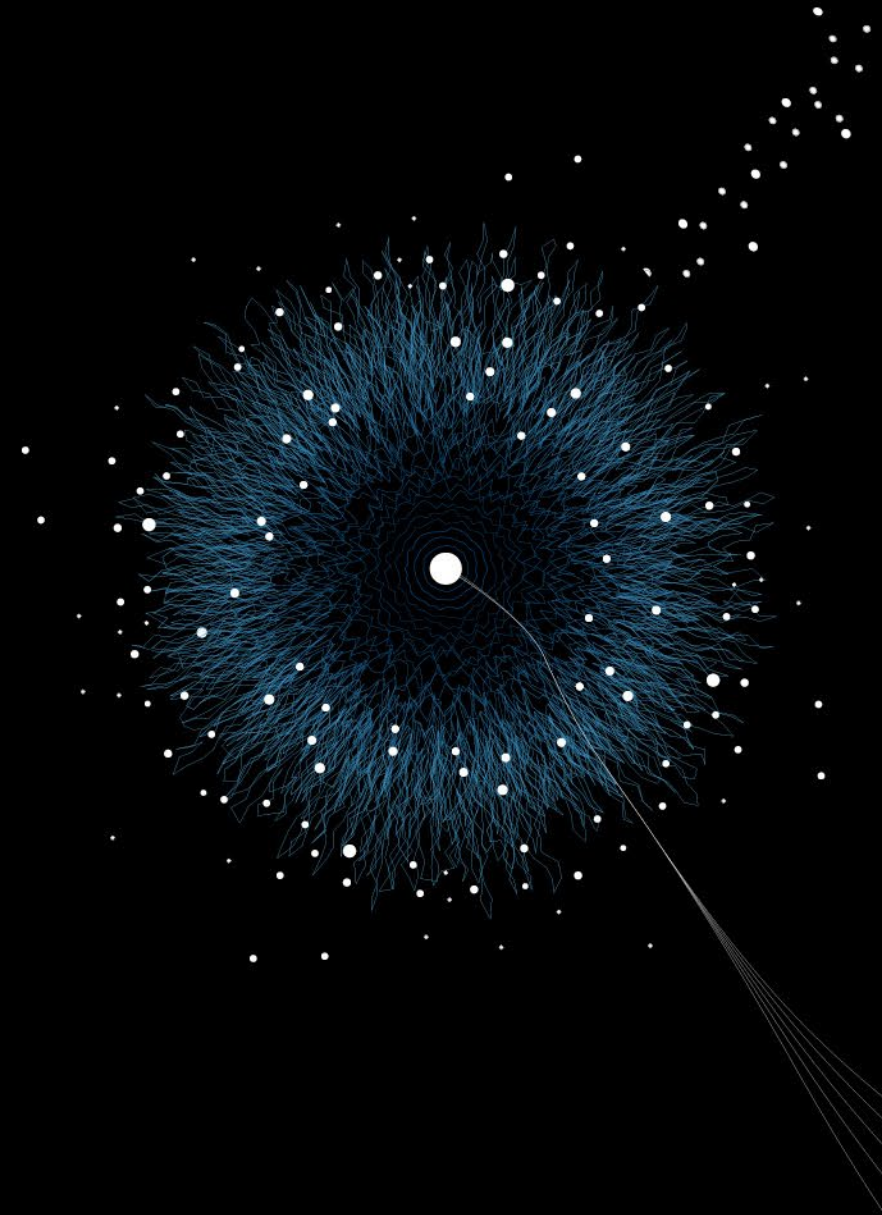
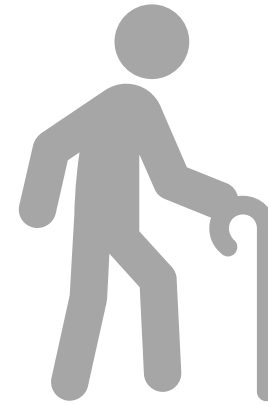
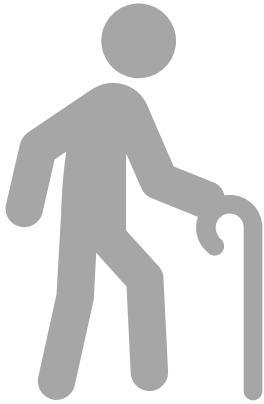


DE JUISTE BALANS: HOEVEEL FLEXIBILITEIT IS NODIG?

FLORENTJINA HAGER,
ANA MARIA ANAYA-ARENAS,
ERWIN HANS



MOTIVATIE

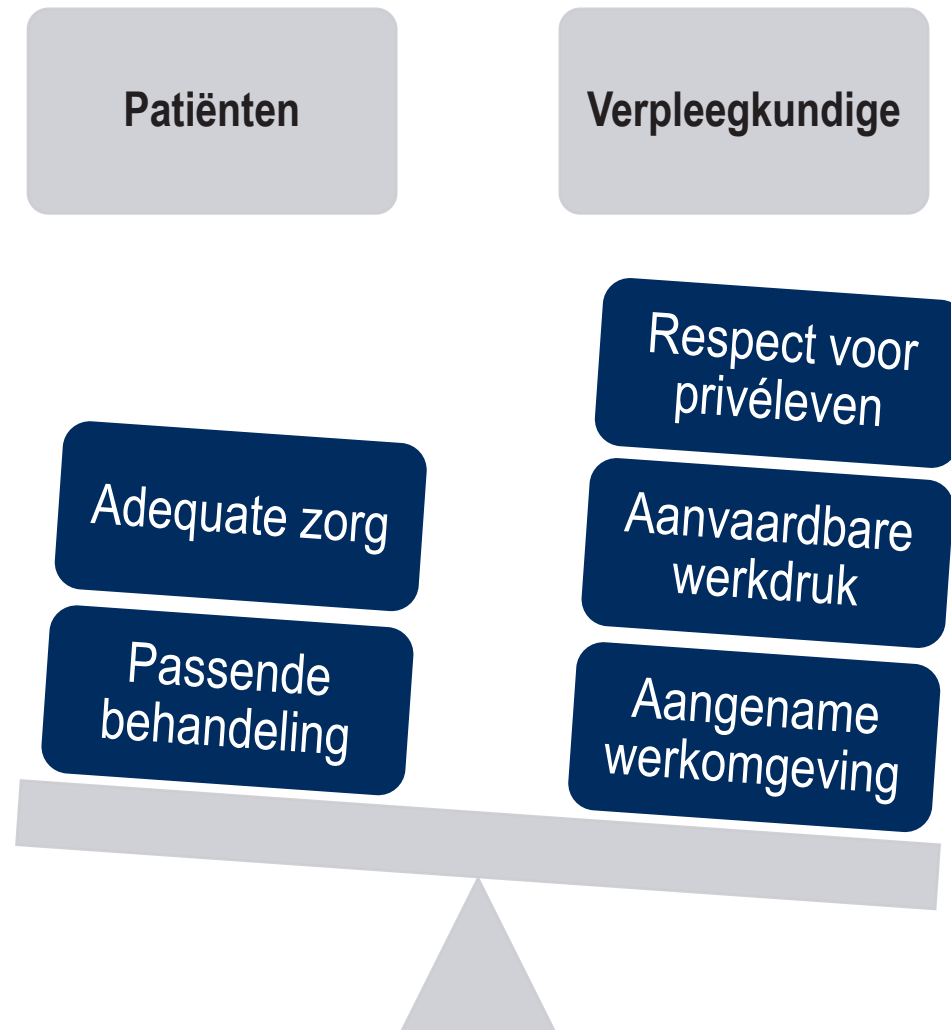


Mensen worden steeds ouder

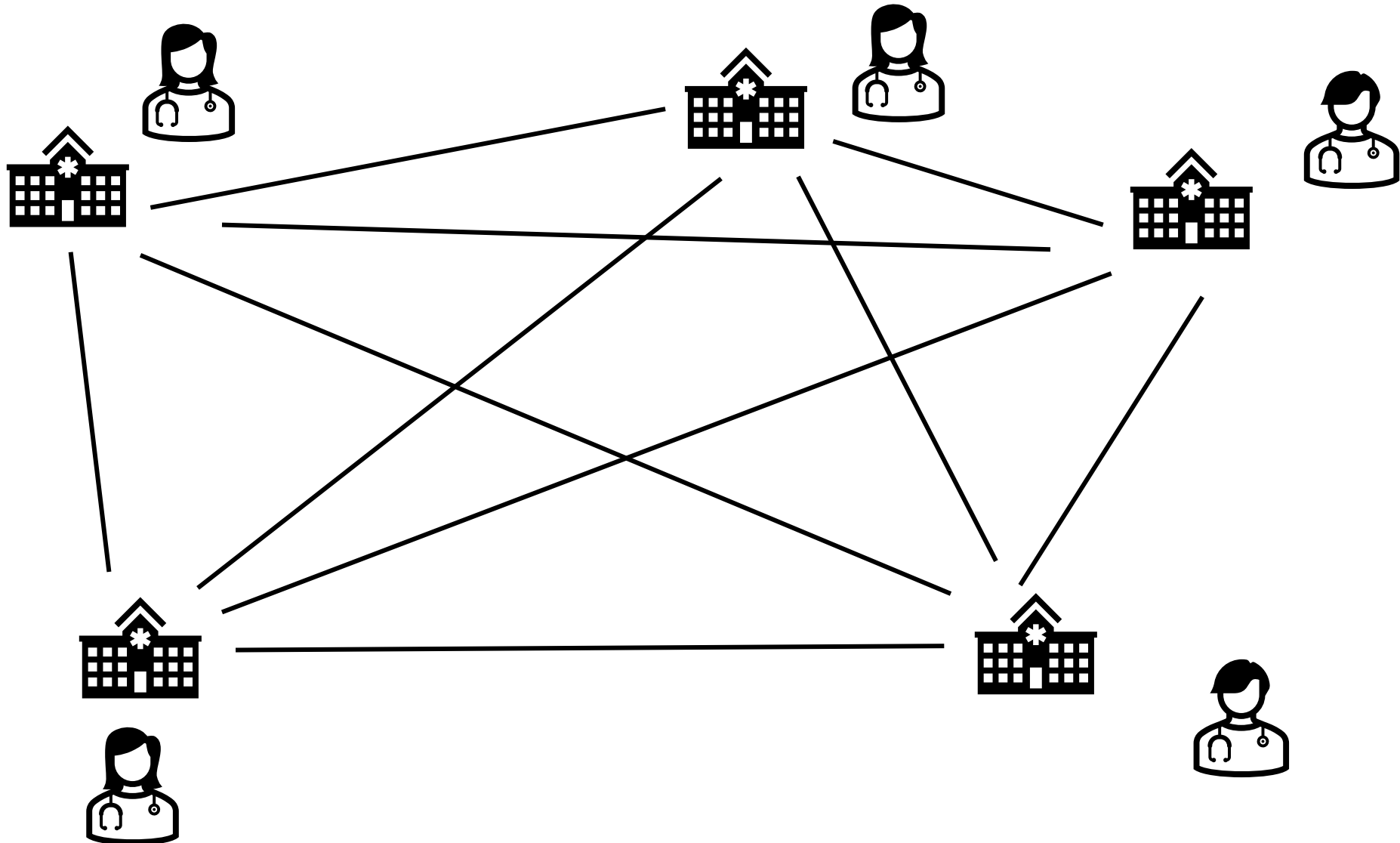
Zorgpersoneel gaat met pensioen

Meer vraag naar zorg, minder personeel

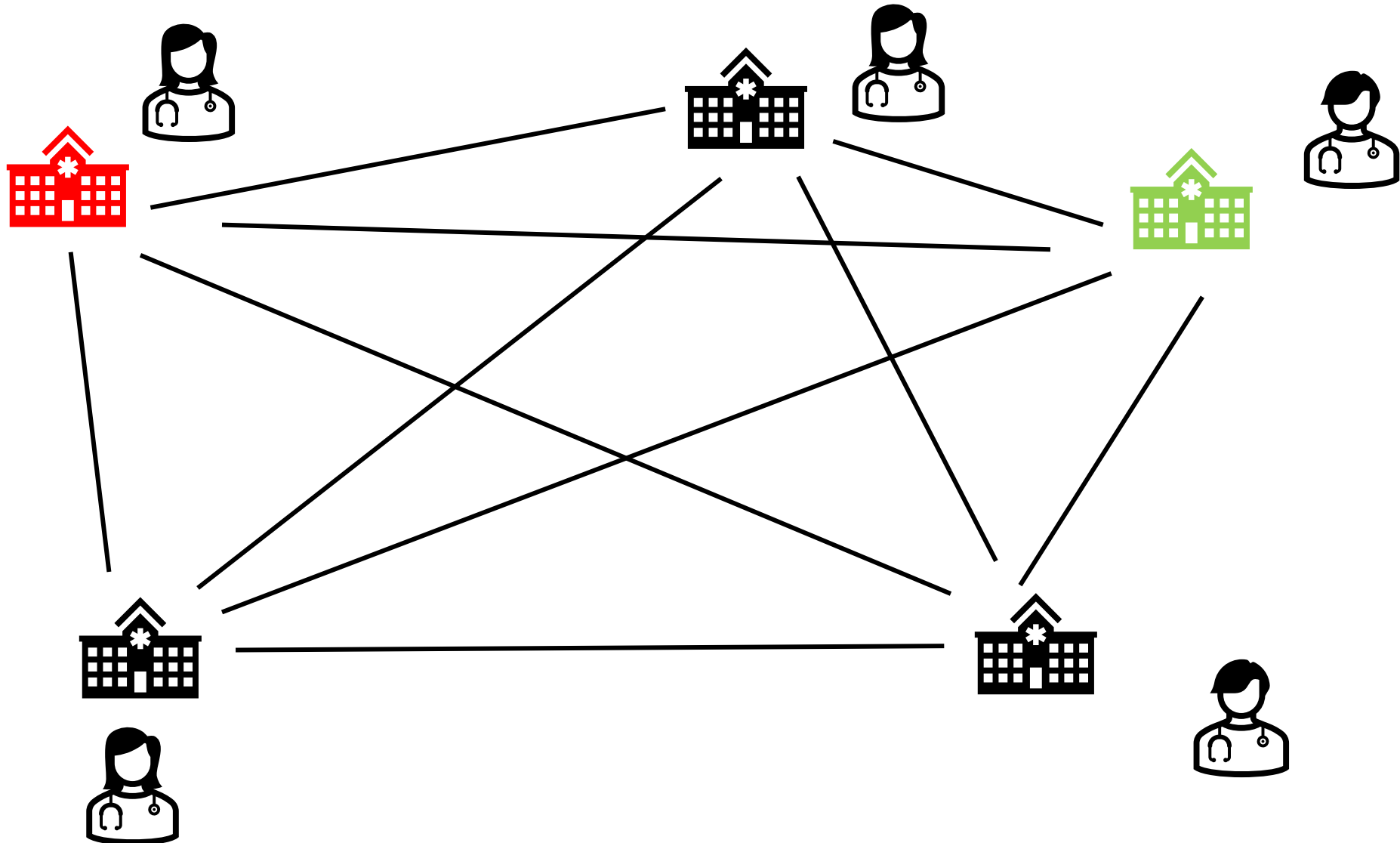
SLIMMER AANPAK



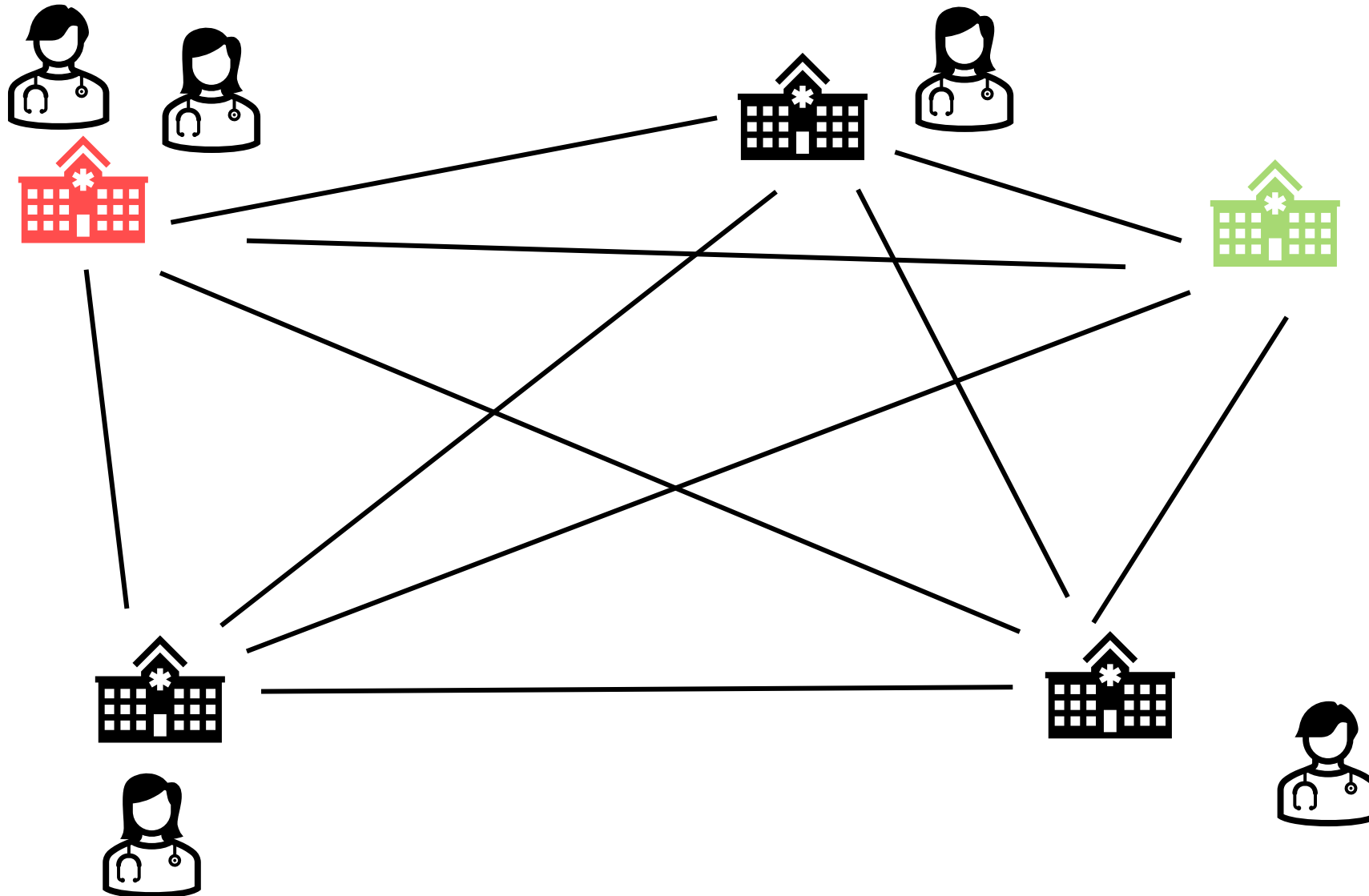
FLEXPPOOL TUSSEN ZIEKENHUIZEN



FLEXPPOOL TUSSEN ZIEKENHUIZEN



FLEXPPOOL TUSSEN ZIEKENHUIZEN



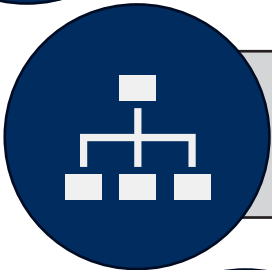
FLEXPOOL – UITDAGINGEN



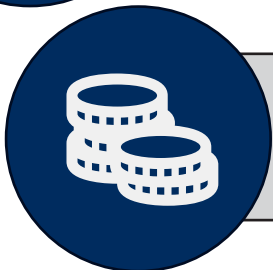
Vrijwilligers



Wetgeving & afspraken



Organisatie



Vergoeding

HOEVEEL FLEXIBILITEIT IS ECHT NODIG?



TACTISCHE SIMULATIE



```
def simulation_q1(relevant_hospitals: gpd.GeoDataFrame, relevant_catchment_area: gpd.GeoDataFrame,
                 type_nurse_exchange: str, num_hosp_nurse_exchange: int, center_hospital: int, num_hospitals_pool: int,
                 mode_avail_nurses: str, type_patient_transfer: str, objective: str,
                 replications: int, random_seed: int, ct_nurse: int):

    params = initialise_simulation(relevant_hospitals, relevant_catchment_area,
                                  type_nurse_exchange, num_hosp_nurse_exchange, center_hospital, num_hospitals_pool,
                                  type_patient_transfer, replications, random_seed)

    for rep in range(replications):
        print("Replication: ", rep)

        for hosp in params.hospital_dict.values():
            hosp.initialise_staff_requirement()
            hosp.initialise_patients()
            hosp.sample_current_state(rep, params)
            hosp.correct_current_state(params)
            hosp.predict_prev_patients_next_day()
            hosp.sample_realisation(rep, params)
            hosp.update_prediction_next_day()

        for hosp in params.hospital_dict.values():
            if mode_avail_nurses == "complete_collab":
                determine_avail_nurses_full_collaboration(hosp)
            elif mode_avail_nurses == "percentile" or "no_chaining":
                determine_avail_nurses_percentile(hosp, params)

        optimise_nurse_exchange(mode_avail_nurses, objective, params)

        params.sample_arriving_patients(rep)
        params.allocate_sampled_patients(rep)

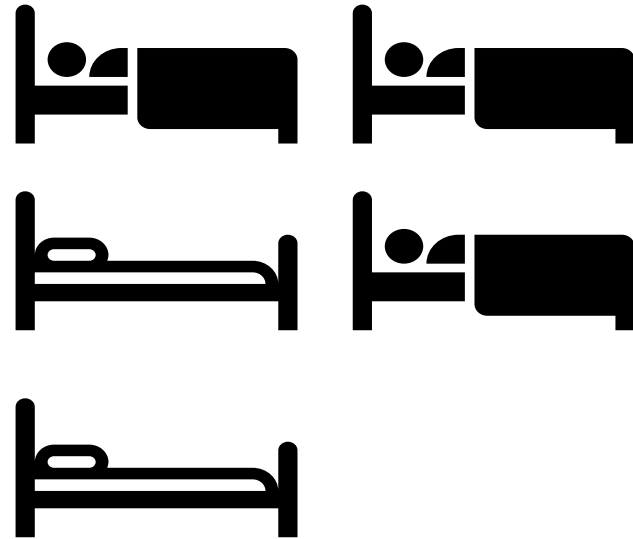
        penalty = 1000
        excess = 1.1
        optimise_patient_allocation(penalty, excess, params)

        calculate_travelled_distance_nurse(params)
        calculate_travelled_distance_patients(params)
        store_kpi(rep, params)
```

TACTISCHE SIMULATIE



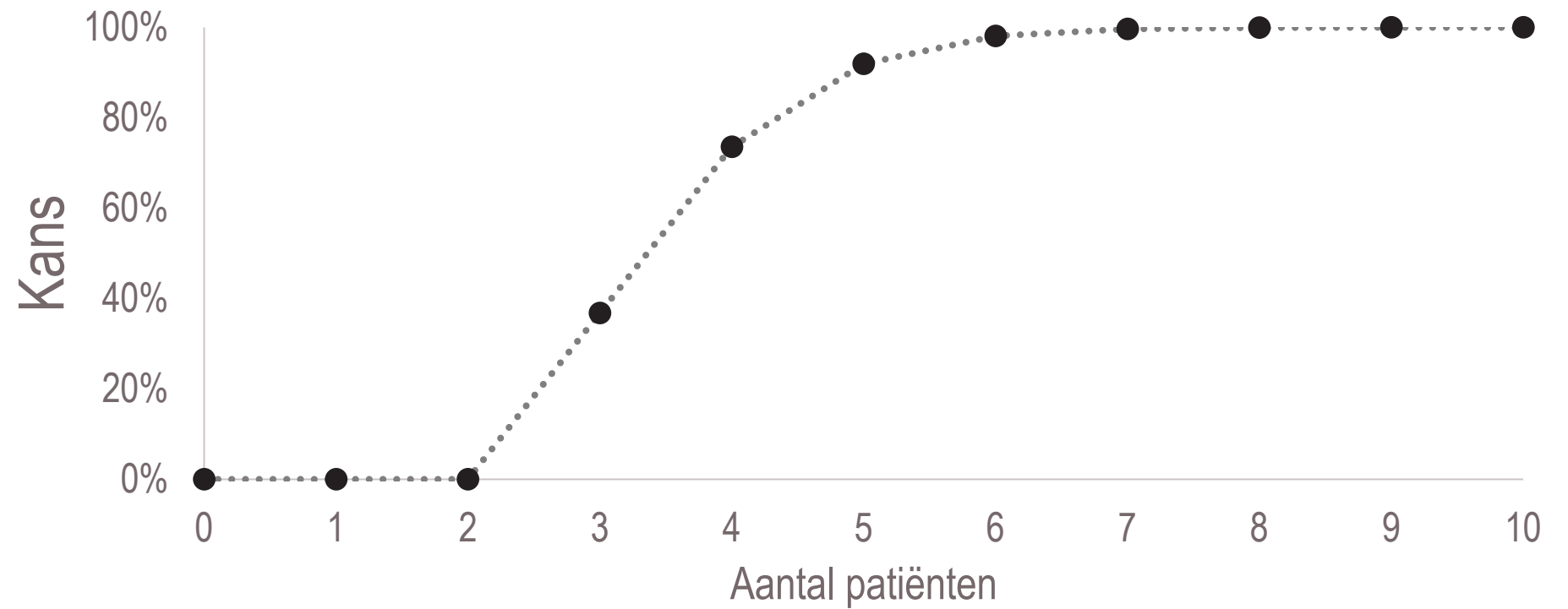
SAMPLE



TACTISCHE SIMULATIE



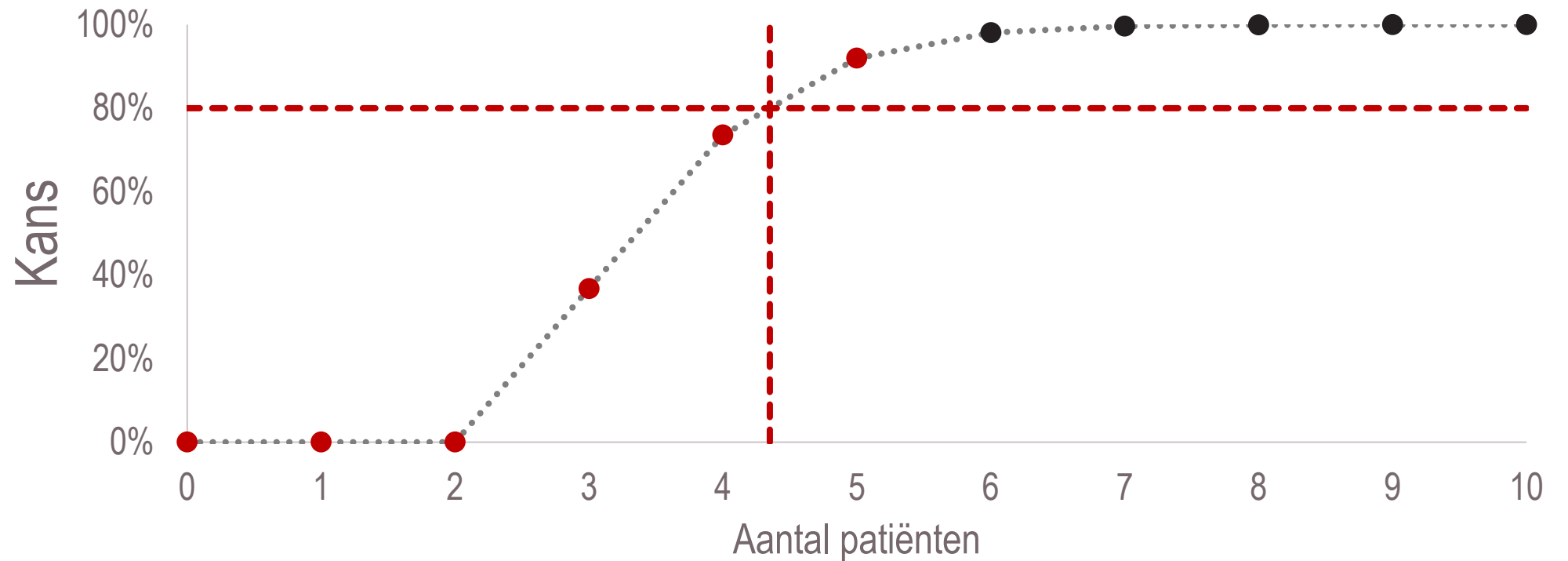
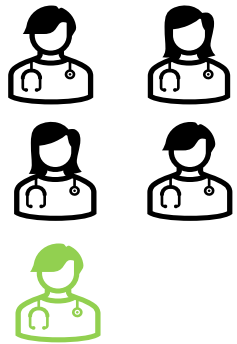
VOORSPEL



TACTISCHE SIMULATIE



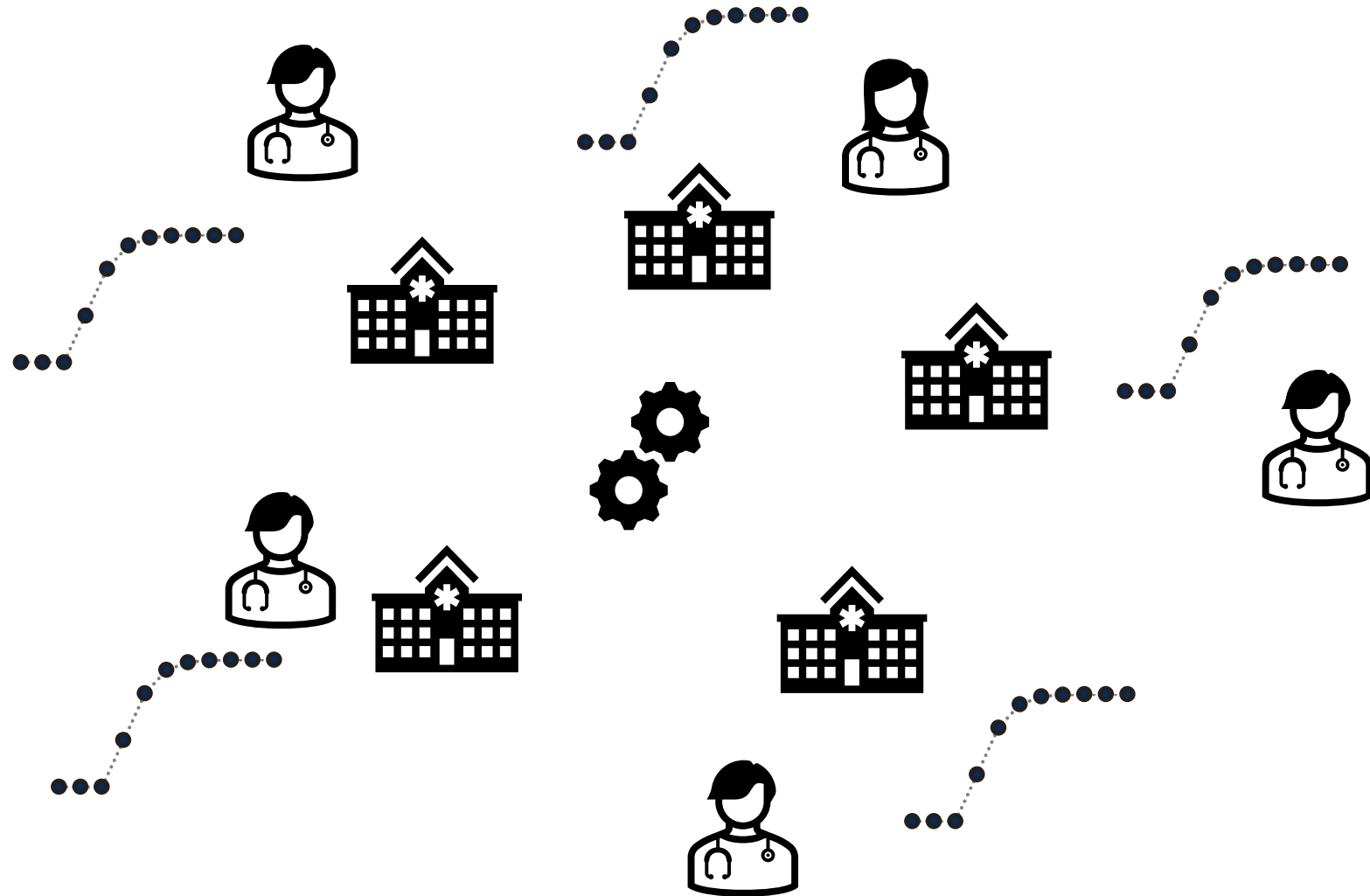
BESCHIKBARE VERPLEEGKUNDIGE



TACTISCHE SIMULATIE



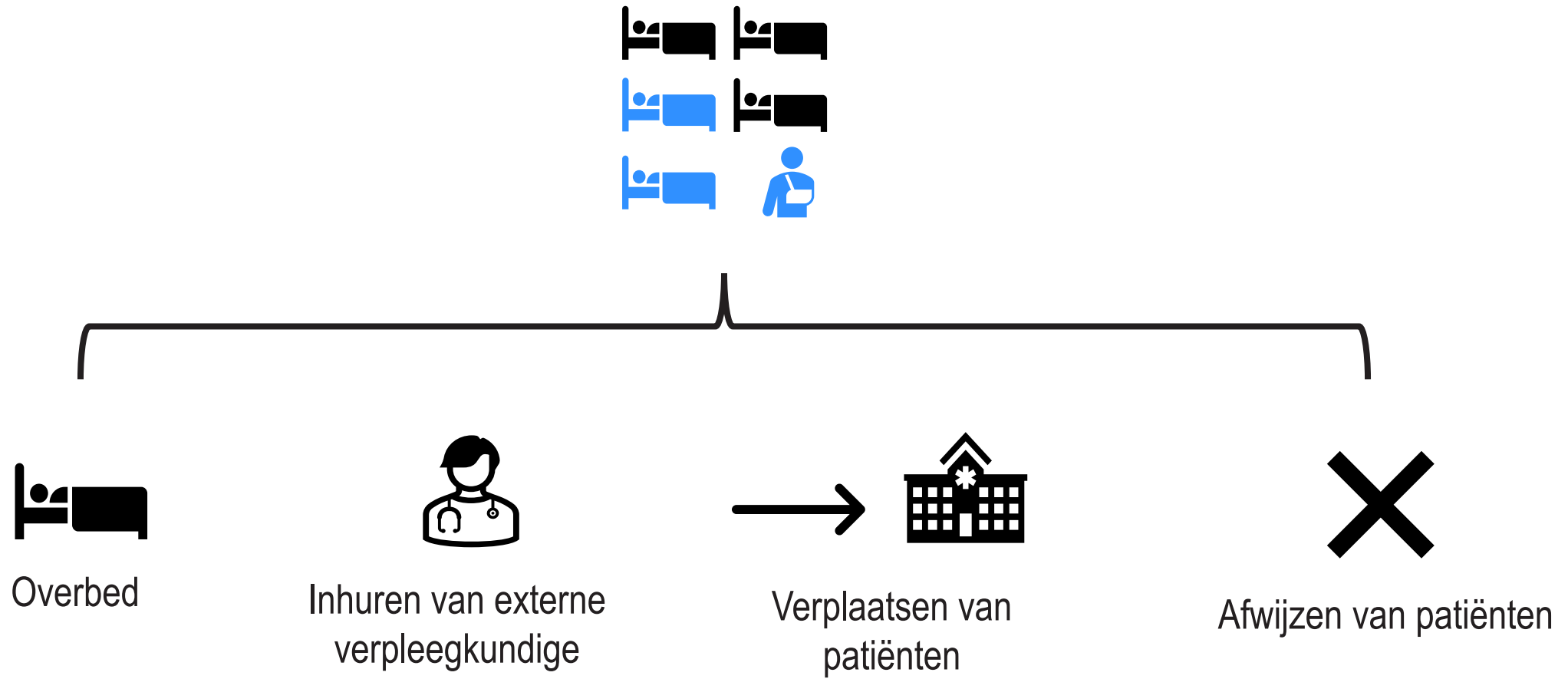
OPTIMALISATIE



TACTISCHE SIMULATIE



REALISATIE



TACTISCHE SIMULATIE



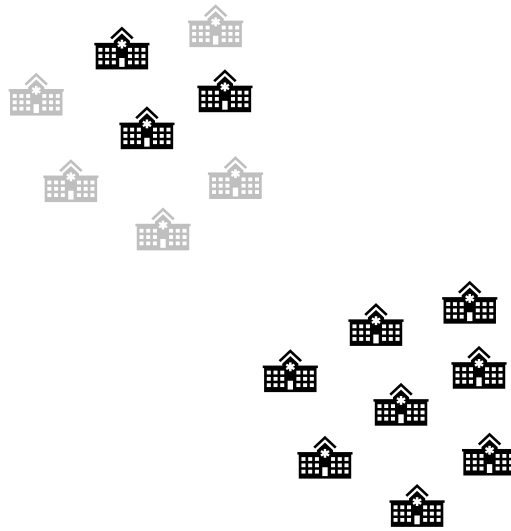
RESULTATEN



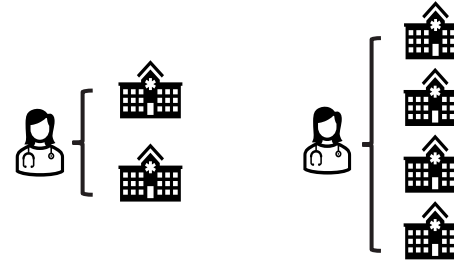
ANALYSES



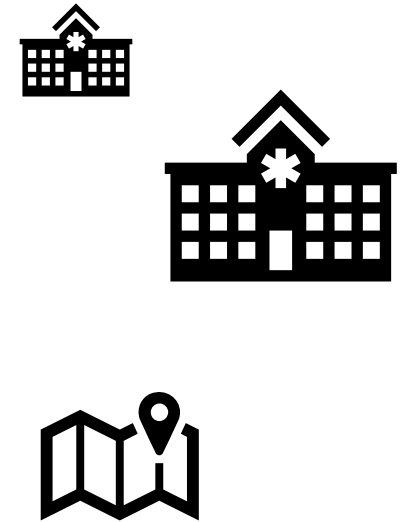
Aantal flexibele
verpleegkundige



Netwerkgrootte

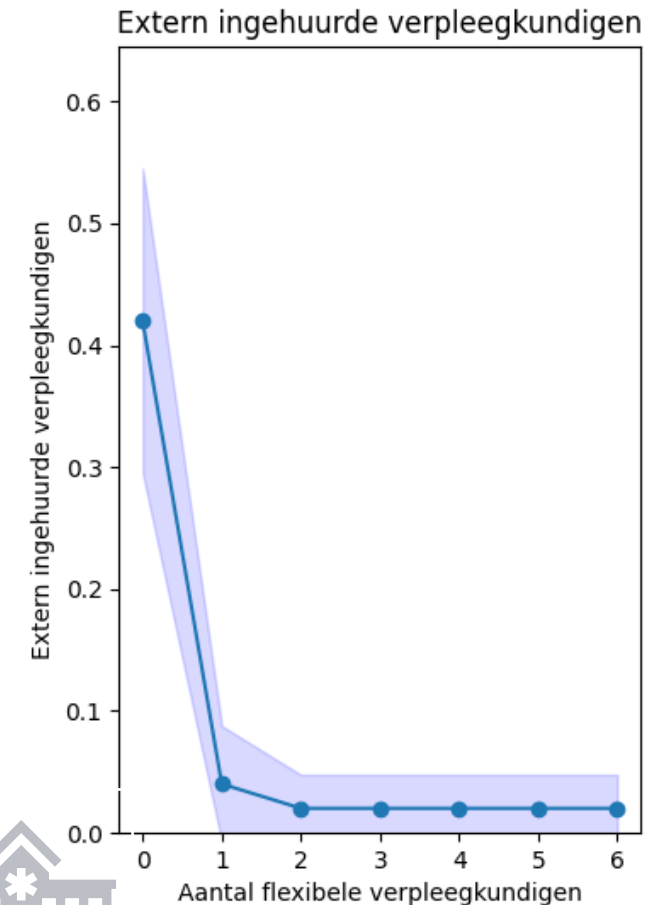
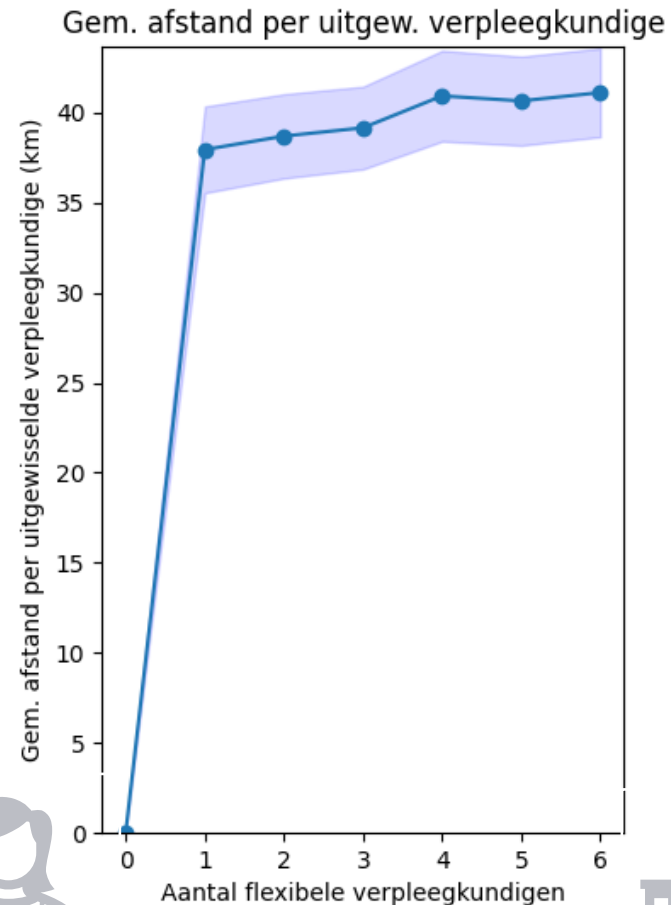
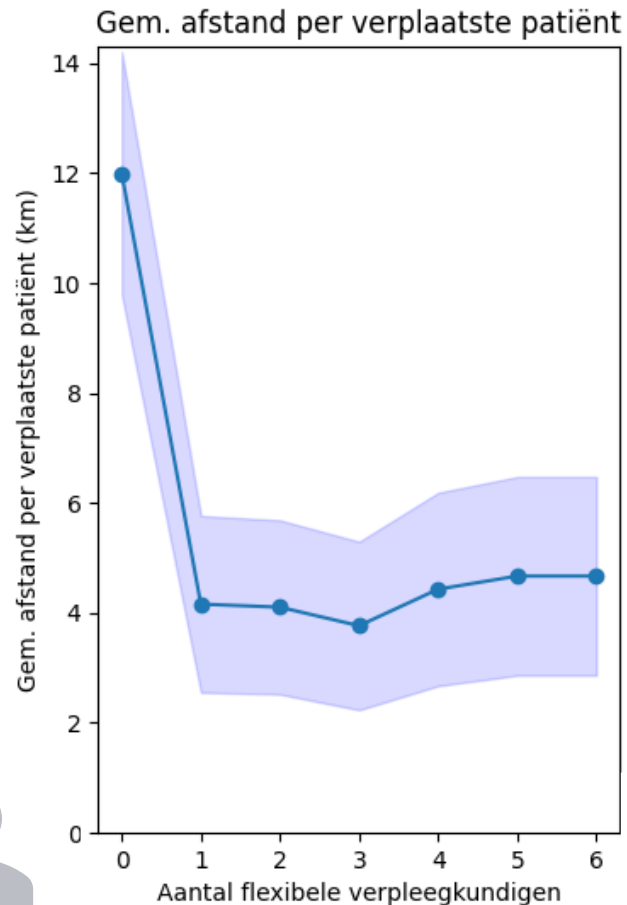


Flexibiliteit per
verpleegkundige

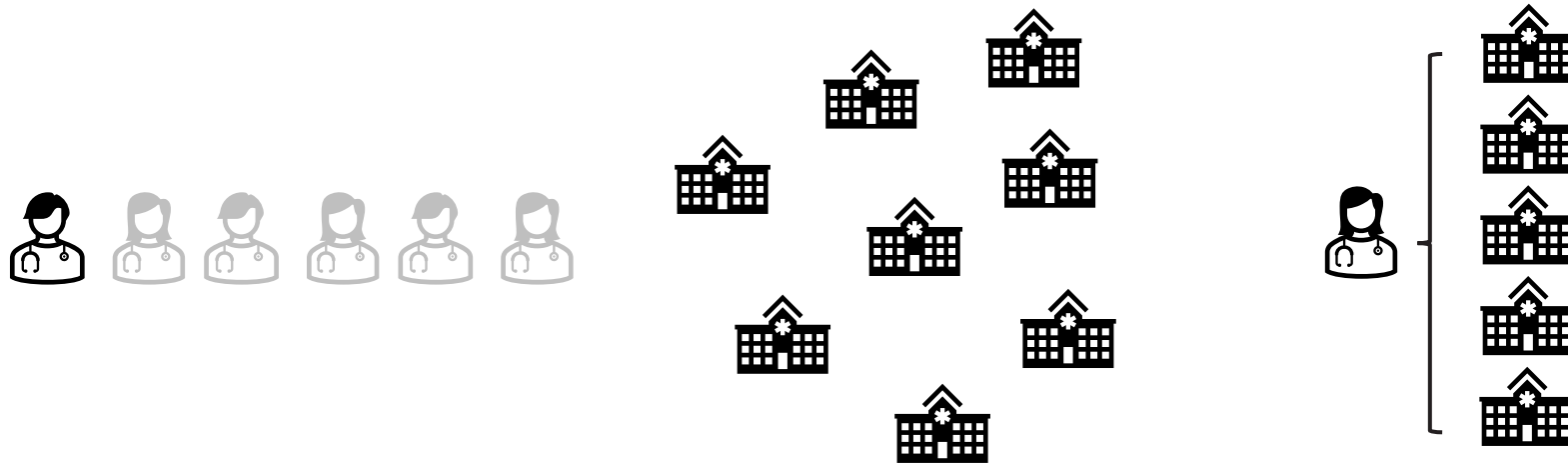


“Winnaars” en “verliezers”

AANTAL FLEXIBELE VERPLEEGKUNDIGE



A LITTLE FLEXIBILITY GOES A LONG WAY – IF YOU COLLABORATE



Aantal flexibele
verpleegkundige

Netwerkgrootte

Flexibiliteit per
verpleegkundige

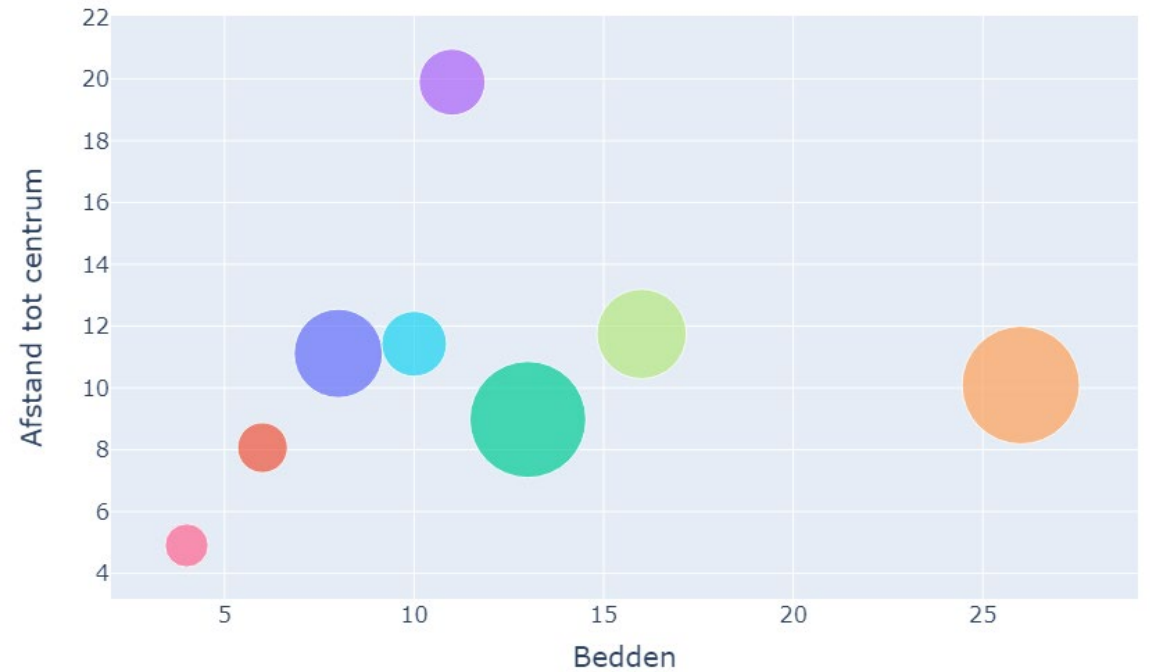
“Winnaars” en “verliezers”

“WINNAARS” EN “VERLIEZERS” – ONTVANGEN VERPLEEGKUNDIGEN

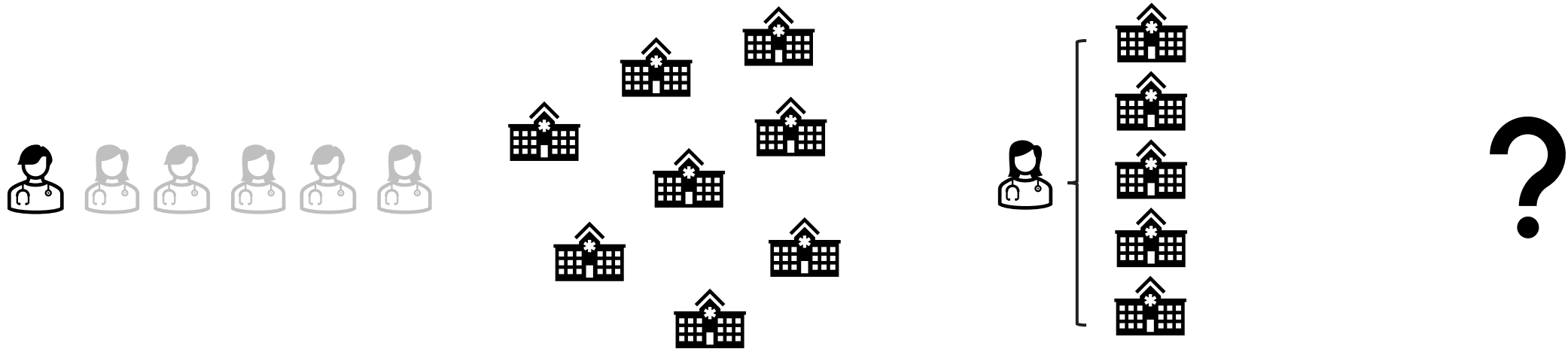
Stedelijk-landelijke mix



Stedelijk



A LITTLE FLEXIBILITY GOES A LONG WAY – IF YOU COLLABORATE



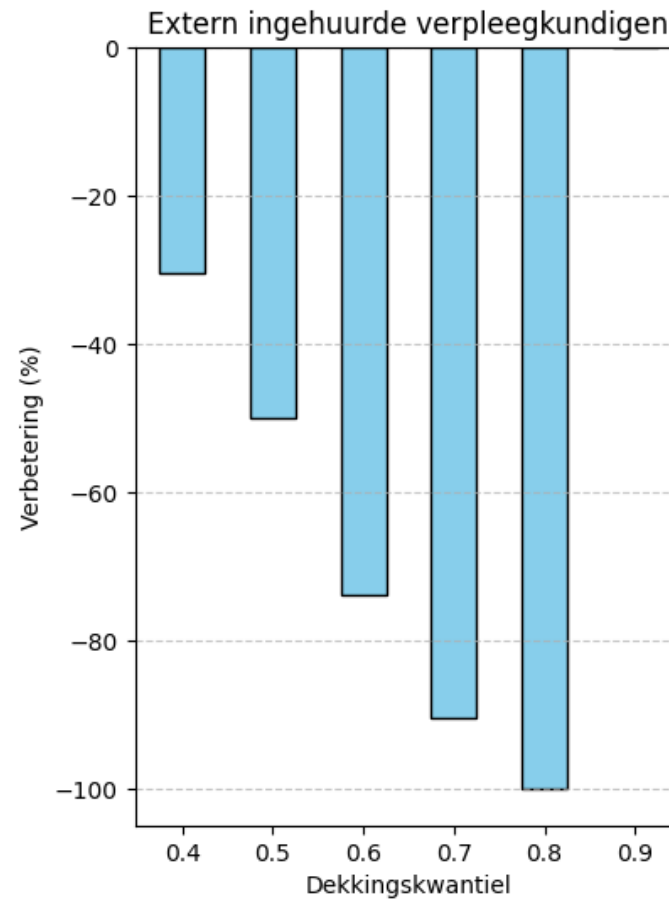
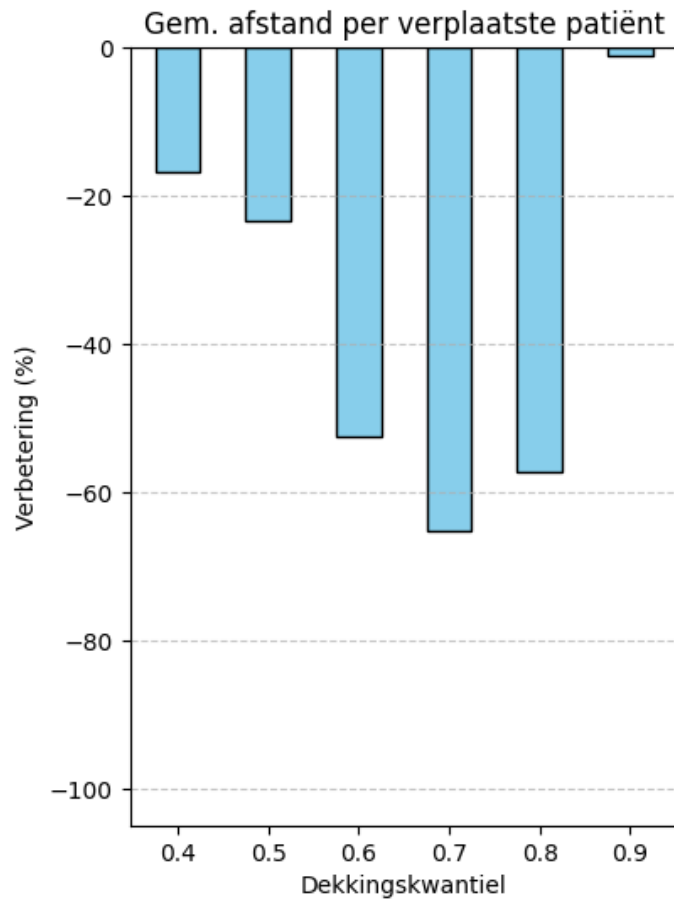
Aantal flexibele
verpleegkundige

Netwerkgrootte

Flexibiliteit per
verpleegkundige

“Winnaars” en “verliezers”

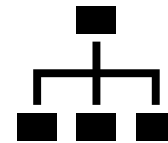
POOLING IN DE TOEKOMST



VERDER ONDERZOEK



VERDER ONDERZOEK



BEDANKT!

FLORENTJNA HAGER,
ANA MARIA ANAYA-ARENAS,
ERWIN HANS

